

# Quality signalling and ratings credibility: regulatory reform for the ratings industry

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## Abstract

Financial regulators can enhance the credibility of credit ratings if agencies are offered a registration facility that sequesters part of their fee as a performance bond over a designated maturity. The margin can be responsive to the rating, the defined credit event, and the registration maturity. Agencies can signal their private information by choosing whether or not to register and stake part of their fee. The value of the registration real option determines the amount that is spent by the issuer on the incremental quality of research required. The framework can also inform margin and penalty setting by regulators; while an *ex ante* choice to register is a potential defence in professional liability litigation.

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## 1. Introduction

In the wake of the subprime crisis and ensuing credit crunch, the credit rating agencies have been singled out for regulatory and political attention. Complaints centred around conflicts of interest and adverse incentives arising because it was the issuer, not the investor, who paid for the rating; self selection biases from shopping around; market power and anticompetitive behaviour; general competence and a specific inability to handle the complexity of structured products; and whether the methodology that underpinned the ratings was fit for the intended purpose. These and cognate issues have been raised by a number of authors (e.g. Skreta & Veldcamp (2008), Liao et al (2009), Cobal *et al* (2009), Mukhopadhyay (2009), Bowden and Lorimer (2009), and White (2010)), in addition to ongoing official inquiries.

It is therefore unsurprising that many countries have been evolving new legislation to govern the rating agencies. The US financial regulatory package of July 2010 imposes expert professional liability, bringing the agencies into line with accountants, lawyers and others involved in bond issues to the general public. Operative from June 2010, UK Treasury regulations require registration and certification of credit rating agencies and makes senior management personally liable for breaches. Australia has adopted similar provisions with the Australian Securities and Investments Commission (ASIC) as the administering body. Draft legislation from the European Commission envisages fines for proven conflicts of interest of up to 20% of annual income or turnover. A new regulatory authority, provisionally entitled the European Security Markets Authority (ESMA), will operate under the umbrella of the European System of Financial Supervisors. The new body will license and monitor European credit rating agencies, and will require a similar licensing regime to apply from offshore agencies for their debt products to be tradable in Europe. Also advocated is empowering the European export credit agency to issue ratings and even act as credit insurers (somewhat oddly in view of the conflict of interest ruling). Nor has it been ruled out that the ESMA will itself compete with the big three international agencies to rate debt issued in the EU markets. Japan and Hong Kong have indicated that they will fall into line with the registration regime proposed by the Europeans.

It remains to be seen whether such measures offer effective solutions, or are simply knee jerk reactions that are likely to be costly in bureaucracy and counterproductive in their effects. In the US the big three agencies (Moody's, Standard & Poor, and Fitch) are reportedly asking for their names to be removed from underwriting documents for new public issues. Speculation has been that this will only encourage bypassing the public issue market

for private placements, with adverse consequences such as high bid-ask spreads on the trading of debt.

A credit rating is technically just a piece of information, hopefully expert, about the likely capacity of the debt issuer to pay interest and repay the principal. The central problem leading up to the subprime crisis was that the agencies – and the big three in particular – had acquired the effective status of certifier for the issue. A related point is made by Boot *et al* (2006), in terms of a focal point for investors. If an agency rated an MBS or ABS tranche as AAA, then that acquired the force of a sufficient statistic, in the sense that no further investor research was required for a prospective institutional placement. The implicit certification role was reinforced by official rulings in the Basle II capital adequacy regime (Standard Model), corresponding rulings from central banks, and Solvency II for the insurance industry. When the crunch did come, it was clear that the information provided by the agencies was in fact far from sufficient and the effective certification role misplaced.

On the other hand, the economic role of specialist agency information in enabling risk spreading, market making, and lowering the cost of capital is not something that should be handicapped by summary and possibly ill considered legislation, or the deadweight cost of a bureaucratic superstructure to administer it. In all such cases, the problem arises whether prescriptive licensing and punitive liability provisions will be effective, or whether a combination of the carrot and stick might not be more effective.

The present paper suggests a facultative regime for the monitoring of credit rating agencies. With the approval of the debt issuer, an agency can elect two kinds of ratings, registered and unregistered. In the case of a registered rating, the agency has to deposit part of the fee to be received from the issuer for the rating. The supervisory authority will also act as a stakeholder, refunding the fee plus interest if the track record of the registered rating is satisfactory within predefined limits; the latter will have attention to the purposes to which the typical investor will put the rating. A registered rating will by that token have extra credibility. In this way, the rating agency and debt issuer together can signal their confidence in the rating and the information provided.

Registration will likely cost more to the debt issuer. However, the issuer thereby gains a valuable real option, namely whether or not to register after having seen the rating result, with the signal value of the rating potentially reflected in a higher issue price. The valuation analysis can be set within the framework of Bayesian decision theory, in terms of the expected value of ratings information, interpretable here as the outcome of research to be

performed by the ratings agency. The resulting signal value can be used to offset the cost of providing the extra rating quality, and the risk to the rating agency of losing part of the fee. Because the investor is in effect purchasing a signal as to quality, the registration facility mitigates the problem of misplaced agency, wherein it was the issuer alone that commissioned and paid for the rating.

The regulator can use the registration device to steer the rating in the direction of fitness for the intended purpose and to promote longer run objectives of achieving financial stability. It can be argued in this respect that a crucial attribute has been missing from the existing body of credit rating practice, namely the maturity dimension. Credit rating for corporate issues is typically based on a ‘through the cycle’ or ‘over the cycle’ approach. Investors have in the past not been fully aware of this limitation. In addition, investors have their own maturity preferences. A BBB investment might be quite acceptable in a good state of the business cycle, provided the intended holding maturity is short. Conversely, a given rating might be quite acceptable on an ‘over the cycle’ basis, but more exposed to temporary bad states of the business cycle. Choice of the registration maturity sends its own signal about the time dimension attached to the rating, mitigating the ‘through the cycle limitation.

The scheme of the rest of the paper is as follows. Section 2 summarises the essential features of the optional registration proposal. Section 3 examines the underlying economics, with special attention to the signalling value of registration (or a decision *not* to register). Although the decision to register is made after the rating review is completed, the cost of the review needs to be agreed *ex ante*, before the research results are known. The upfront value of the registration real option is termed the expected value of rating information (EVRI). Section 4 fills out more of the detail of the proposal, including regulator perspectives. These include maturity dimensions, whether the performance margin should depend upon the rating, and how to define the penalty-triggering credit event. Section 5 contains some concluding remarks concerning the case for non compulsion, risk sharing and economic agency issues, and ratings registration as a potential defence in professional liability litigation.

## 2. Regulatory measures and incentive alignment

As noted in section 1, one approach to ensuring adequate certification outcomes is a public certification agency to make the ratings. The motivation arises from the systemic importance of this kind of certification, and its incorporation into regulatory rules for capital or liquidity adequacy. Public agencies, on this view, are less subject to related party pressures and more subject to scrutiny.

The public agency suggestion is problematic on a number of grounds. The competitive status with respect to the private agencies has not been elucidated, either as to how it would work, whether it would yield any better results, or whether it is even desirable to have public-private competition in such a function. The suggestion that follows does involve a public role in credit certification, but it centres on improving the revelatory function of private sector rating agencies and their judgements. It works by discriminating ratings in which the agencies have more confidence from those in which they have less, creating in this sense a separating equilibrium observable by investors.

If credit rating agencies have any confidence in their ratings, then they should be prepared to place what is in effect a bet that a given rating will stand up within its own predefined limits. The present proposal is that a public supervisory agency should run a margin system, in which the private agencies could choose to deposit a pre-defined portion of the fee received for making the rating. The fee is the ‘performance’ or ‘surety’ margin. The surety margin is a performance bond, and we shall sometimes refer to it as such. If a rating fails within a designated time period, e.g. because an AAA entity defaults within year, then some or all of the margin is retained by the public agency. Otherwise the margin is returned, along with interest earned on the sum deposited. Such an arrangement is analogous to a clearing house margin in derivatives exchanges; the ratings agency is tacitly trading its own reputation as an object of value.

Within this frame of reference there would be two kinds of rating, registered and unregistered. A *registered rating* is one for which surety margin has been paid. An *unregistered rating* is one for which no margin has been deposited. The surety margin for registered is posted by the credit rating agency, with the consent of the firm issuing the debt to be rated. In many, if not most, instances the impetus to register a rating would in fact arise with the issuer; section 3 elaborates on the economics involved in the demand for registration. From the administrative point of view, however, it is more workable to have the credit rating agency register an issue’s rating.

A registered rating would carry a connotation that the ratings agency is fairly sure of its ground, giving investors in the prospective debt issue a degree of comfort. That being the case, rating agencies could charge more for a registered rating, defraying to some extent the risk of failure from unforeseeable states of the world, or the opportunity cost to shareholders of funds sequestered in posting margins with the registrar of the scheme. The higher standard of care and research required for a registered rating would constitute a further cost to the issuer commissioning the rating.

An unregistered rating carries an implicit health warning to investors in the debt issue. The signal is that the implicit confidence limits for the rating are wider, the letter rating being regarded as the position indicator. The margin penalty structure is also of importance, i.e. the extent to which the margin is to be deducted in the event of some adverse outcome. The penalty should be responsive in progressive fashion to the degree of failure, just as with a progressive taxation scale, for this is a form of contingent taxation. This would provide an incentive for the agencies to periodically revise their ratings in the area of most sensitivity, namely for downgrades. Total and sudden default would carry a much greater penalty than getting there by stages. The latter approach entails less costly unpleasant surprises for investors and the system as a whole.

Surety margins should be responsive to dimensions such as the quality of the rating and the maturity of the debt instrument being rated. In this respect, ratings decisions should be guided by the information to be conveyed by the rating and by the costs and consequences of deficiencies. For just as in hypothesis testing, type II error is involved, where a rating is given that turns out to be incorrect, with costs to the users. Given the existence of such social costs, they should ideally be internalised in the surety margin structure.

Thus it should be expected that the higher the letter credit rating given to the debt issue, the higher the surety margin. A downgrade in a higher rating typically involves greater costs to investors and to the system as whole. This is not just matter of unsophisticated 'mum and dad' investors seeking safety; regulatory and related requirements are typically predicated on qualifying ratings. The Basle Standard model for bank capital adequacy has already been mentioned in this respect. As another instance, authorised trustee investment regulations commonly specify minimum allowable ratings, minimally investment grade (BBB), but often more stringent.

In addition, a high letter rating conveys to the user more certainty on the part of the agency as to the investment outcome. Conversely, a low rating conveys overtones of uncertainty

more than does a high rated one. In such an aspect, one could think of the investor in an unseasoned issue as starting out with a Bayesian prior of BBB- or equivalent, i.e. that the proposed issue is at the margin of investment grade acceptability. If the rating agency now comes up with an AAA letter rating, this creates a much more informative posterior, so the information content is the greater. The agency should be prepared to back its judgement by registering. Of course, this could work both ways. An agency that declined to register a US sovereign issue would be conveying some serious information, namely that its AAA letter rating has significant uncertainty attached to it.

The maturity of the proposed debt issue is also relevant. If a highly rated shorter dated issue collapses within a year, this could mean one of two things. The first is that the rating agency has missed some important warning signals and is therefore deficient in information on this count. Collapse of structured investment vehicles during the subprime crisis is the obvious example, where the agencies failed to make the connection between information on deteriorating US consumer delinquency data and the home mortgages that made up the SIV portfolios. The second is that the rating itself has been of the ‘through the cycle’ variety. A surety margin system that penalises early default would encourage the agencies to develop more state dependent procedures; or if this is not possible, to rate more conservatively in the chosen approach.

The discussion that follows concerns the economic and regulatory value of the registration arrangement, in term of the informational signals that it can provide. More detailed dimensions such as registration maturity, margin calculation, and the precise definition of the trigger for margin penalties, are further considered in section 4.

### 3. The decision to register

Whether the rating agency is prepared to register and accept a contingent penalty depends on how much the client (the debt issuer) is willing to pay in the form of an enhanced fee for any additional research required. The present section develops a framework for assessing the signal value of registration, and hence the private value to the issuer of the option to register the rating. For expositional purposes, the object to be estimated will be taken as some index of quality, such as an estimated probit or logit for the probability of default over a stated period. Denote by  $q$  the true value, and by  $\hat{q}$  the agency’s estimate. It will be convenient to identify  $\hat{q}$  with the rating itself. In such terms, a letter credit rating (e.g. AAA downwards) corresponds to a point estimate  $\hat{q}$  of a true underlying probability of default  $q$ .

The agency and the issuer start with a Bayesian prior density  $p(q)$  for the true credit quality  $q$ . This can be based upon past experience of the issuer's debt, supplemented by a superficial examination to whether any of the firm's circumstances have changed. A deeper analysis could be performed, by agreement with the issuer and the payment of an extra fee commensurate with the review effort entailed. The more resources the agency can devote to additional research, the closer is  $\hat{q}$  to the true probability of default. In turn, this depends upon the cost  $c$  that the issuer is willing to pay. In addition, if the choice to register is invoked then the rating agency is itself bearing risk, in term of the potential loss of the performance margin and in reputation. The agency will have to be compensated by the issuing firm as part of the additional costs in acquiring the implied option to register.

Whether or not these costs are going to be worthwhile is an economic decision that can be modelled in terms of Bayesian decision theory<sup>3</sup>. In effect, a decision tree is involved. Working backwards, one works out the value of registration for any given output from the research process, the *ex ante* aspect. Weighting these by the *ex ante* probability of these outcomes, gives the upfront value of registration. The ensuing discussion takes each phase in turn.

### 3.1 The *ex post* value of registration

If it is performed, there are two outputs from the additional research. The first is the point estimate  $\hat{q}$ , which is released to the investing public as the official credit rating for the issue. The second output is a sharpening of the agency's prior density into a posterior density. The latter can be written in the form<sup>4</sup>  $p(q|\hat{q};c)$ , which can be used to inform the decision as to whether or not to register the issue. The research cost  $c$  is taken as a proxy for research quality and hence its statistical reliability<sup>5</sup>.

The point estimate  $\hat{q}$  has to be released to investors as the official letter rating, so in this limited sense the agency is not allowed to hide the results of the research. However, the posterior  $p(q|\hat{q};c)$  can remain private information to the issuer and agency. Figure 1 depicts

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<sup>3</sup> Berger (1985) is a standard reference.

<sup>4</sup> This would certainly be the case if  $\hat{q}$  was a sufficient statistic for the posterior distribution. But even if not, the notation  $\{\hat{q}, c\}$  can be taken as symbolic for all the private information resulting from the additional research.

<sup>5</sup> In Bayesian analysis this is taken as  $p(\hat{q}|q)$ .

possible<sup>6</sup> prior (U) and posterior densities (G) as they are seen by the agency. The normal rating for the company's issues might be  $q_0$ , while the new summary rating is assessed and released by the agency as  $\hat{q}_1$ .

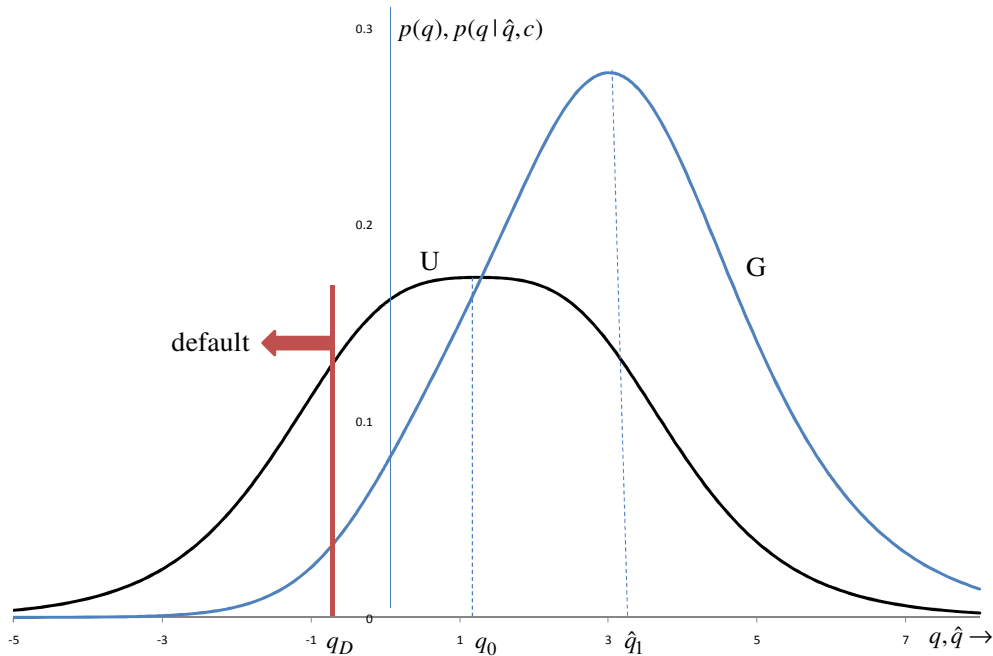


Figure 1: Prior and posterior densities as seen by the rating agency

Investors (I) have their own prior density for the quality of the issue, written as  $p_I(q)$ . In such terms they would value the issue as  $V_0 = v(p_I(q))$  where  $v$  is a functional of the density<sup>7</sup>.

However, once the credit rating  $\hat{q}$  is released to the public, the posterior density  $p_I(q | \hat{q})$  results. This may differ from the agency's posterior density  $p(q | \hat{q}; c)$ , as the agency has more information than is contained in the point rating  $\hat{q}$ . The new investor valuation can be written as  $V(\hat{q}) = v(p_I(q | \hat{q}))$ .

A possible form of the value function  $V(\hat{q})$  is depicted as the dotted curve in Figure 2. Here  $\hat{q} = q_0$  might correspond to a normal or customary rating for the issuer. Small revisions

<sup>6</sup> As depicted, G is the unit right shifted transformation of U, with a smaller spread as well as the positional shift (Bowden 2010).

<sup>7</sup> For example, the expected value for the prior density, or a risk neutral version, corrected for risk.

in the newly released rating might produce little change in valuation of the forthcoming issue, while larger revisions constitute surprises that have a significant impact.

Once the research is elected and completed, the agency and issuer have the further option of registering the issue. The decision as to whether to register will depend upon the probability of default or downgrade. In figure 1, default corresponds to the event  $q < q_D$ . The customary or status quo distribution  $U$  will have an unacceptably high risk of default (tail area to the left of  $q_D$ ), so the decision would have been not to register. However, the updated research for the forthcoming issue indicates that the prospects are better, so that density  $G$  applies. The default probability is evidently much less, and a decision can more safely be made to register the issue.

Let  $R$  denote a binary decision variable such that  $R = 1$  means register,  $R = 0$  means do not register. As earlier noted, investors cannot see the full results of the new research, in the form of the agency's posterior  $p(q | \hat{q}; c)$ . However, they now have two bits of *ex post* information, namely the rating  $\hat{q}$  and the value of  $R$ . Whether  $R=1$  or  $R=0$  will tell investors how confident or otherwise the agency is about the precision of their rating. Investors can form their revised version of the posterior for the true  $q$  as  $p_I(q | \hat{q}, R)$ . Their new valuation can be written in the form  $V(\hat{q}, R) = v(p_I(q | \hat{q}, R))$ .

The gains or losses to the issuer, relative to the prior (with no research) can be written in the form of a function

$$\psi(\hat{q}, R) = V(\hat{q}, R) - V_0.$$

This can be decomposed into the sum of the gains (or losses) arising from the letter rating  $\hat{q}$  and the additional gains from the choice to register or not:

$$\psi(\hat{q}, R) = (V(\hat{q}) - V_0) + (V(\hat{q}, R) - V(\hat{q})).$$

The optimum choice of  $R$ , i.e. whether or not to register, is then given by

$$R^* = R^*(\hat{q}) = \arg \max_R [\psi(\hat{q}, R)]. \quad (1)$$

Whether the revised valuation has much effect hinges on whether the registration decision has come as a surprise or not. A decision to register a high point rating (e.g.  $\hat{q}_1$  in figure 1) would come as little surprise, causing only a small upward movement if any in the issue value. However, a decision on the part of the agency *not* to register ( $R=0$ ) is not necessarily irrational. It might be that the agency's posterior density has a very long left hand tail, with some 'sting' left in the default zone  $q < q_D$ . A surmise by investors that this must be the case

would be sufficient to produce a substantial downward value revision relative to reliance on the rating alone, i.e.  $V(\hat{q})$ .

Surprises can occur at either end of the quality spectrum. A decision to register an apparently low point rating could result if the agency's posterior density is truncated to the left, with only a small tail area attached to the default zone. Investors would mark up the issue accordingly, marked as  $\Delta_L$  in figure 2. The signal would be that while the rating remains low (e.g. BBB), this is more for technical reasons, associated with the shape of the agency's posterior distribution. If the point rating is tied to the mean, then registering can send a favourable signal that the agency's posterior distribution is positively skewed, and things are not as bad as the official rating might indicate.

Figure 2 illustrates what happens over the entire range of point rating outcomes  $\hat{q}$ . The value function with no registration is bounded by two value functions that result from registering ( $R=1$ ) and not registering ( $R=0$ ), respectively. The gaps marked  $\Delta_L, \Delta_U$  capture the surprise at either end of the point rating range.

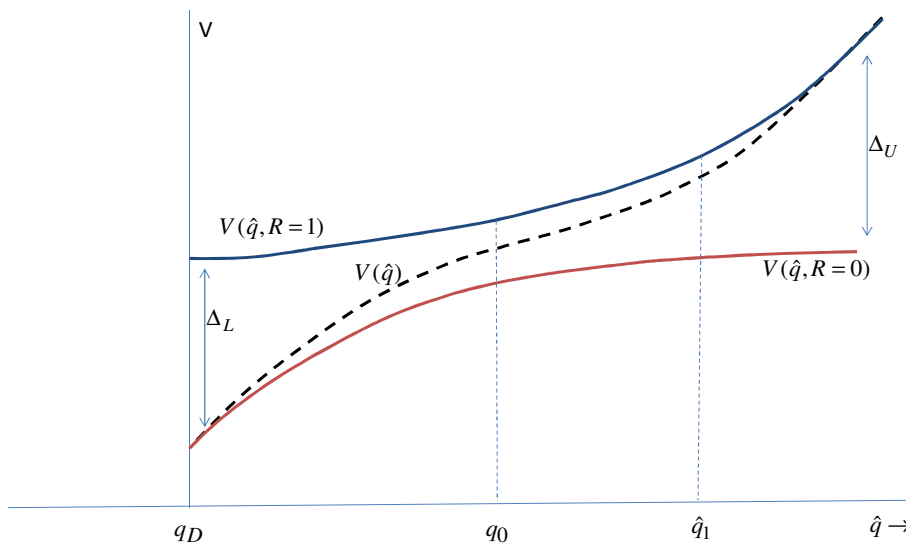


Figure 2: Illustrating the signal value of the registration decision.

In principle, therefore, an optional registration system can produce contingent value gains or losses, because it provides a more informative signal than a point rating by itself. But if the issuer can lose as well as gain, what has to be explored is why the issuer would ever wish to fund the additional research that might be needed to underpin a registration.

### 3.2 The expected value of rating information

A registration option has costs as well as benefits. These would include the costs of any extra research needed, also the higher agency fee that might be requested as a risk premium to absorb any margin loss if the issue does eventually default or downgrade. From the point of view of the issuer, these costs will have to be borne before knowing the outcome of the rating research. Let  $c$  stand for the additional cost.

Whether the issuing firm thinks the extra cost is going to be worthwhile will depend upon its own prior for the true quality of the forthcoming issue. The firm might be convinced that the market is undervaluing its debt quality. In terms of figure 1, the market thinks U, while the firm is convinced that the true distribution is something like G.

The firm would also like to know that the rating research can be depended upon to pick this up. In statistical terminology, the estimate (proxied here by  $\hat{q}$ ) should have good reliability. The latter can be written in the form of a conditional density for the estimate  $\hat{q}$  given the true value  $q$ , namely  $p(\hat{q} | q; c)$ , that depends upon the effort and cost  $c$  of the rating process. This density can be estimated by the agency on the basis of theory and past experience.

The *ex ante* expected value of rating information (EVRI) can be obtained from standard Bayesian arguments. Given the issuer and agencies prior  $p(q)$ , the resulting unconditional density for the estimate is denoted by<sup>8</sup>

$$p(\hat{q}; c) = \int p(\hat{q} | q; c) p(q) dq . \quad (2)$$

The expected value of rating information can then be written as

$$\gamma^e(c) = EVRI = \int (\psi(\hat{q}, R^*) - c) p(\hat{q}; c) d\hat{q} , \quad (3)$$

where the optimum choice  $R^*$  is given by expression (1). If the EVRI is zero or negative, it will not be worthwhile commissioning the research.

As expressions (2), (3) indicate, important drivers of the EVRI will be (i) whether the issuer's own prior distribution  $p(q)$  for the quality of the debt issue is likely to differ from that of the market; and (ii) whether the agency's rating process is statistically reliable enough to pick up the difference, manifested in  $p(\hat{q} | q; c)$  and hence  $p(\hat{q}; c)$  in expressions (2) and (3).

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<sup>8</sup> This density appears in the denominator of the Bayesian estimate of the ex post distribution of quality, namely  $p(q | \hat{q}; c) = \frac{p(\hat{q} | q; c) p(q)}{p(\hat{q}; c)}$ .

The cost  $c$  will also be an important driver. Additional research is beneficial in establish statistical reliability. However, the rating agency will also be asking for a risk premium component against its own contingent reputational loss. The actual sum to be spent will hinge upon a bargaining game between the agency and the issuer as its client, in which environmental variables such as the extent of competition among ratings agencies will be important.

#### 4. Regulator perspectives

The information content of registration can be enhanced along quality and time dimensions. Quality will refer to whether registration margins should be variable according to the rating, e.g. whether an AAA rating should require a higher margin than a BBB. The temporal aspect refers to the maturity of the registration, i.e. the time horizon over which a performance bond is to remain sequestered, and whether this is to be a fixed horizon or diminishing balance in nature. The two aspects, quality and time, are complementary. The present section looks at both, and the associated issue of how to define a triggering credit event.

##### 4.1 The quality dimension

Higher rated investments are chosen primarily on grounds of safety, with a decision on the part of the investor to forego expected return. This is not just matter of ‘mum and dad’ investors, but of institutional capital requirements imposed for systemic reasons. As earlier noted, regulators could be expected to require that other things being equal, a higher credit rating should carry a more demanding performance bond, in the form of a higher registration margin.

The effect of this can be modelled in terms of a variable penalty function for default or downgrade. Thus if  $q_D$  denotes a defined credit event, the contingent penalty function could be defined in terms of the rating  $\hat{q}$  as

$$\begin{aligned}\pi(q; \hat{q}, q_D) &= 0 \Leftrightarrow q > q_D; \\ &= \delta(\hat{q}) \Leftrightarrow q < q_D,\end{aligned}\tag{4}$$

where  $\delta'(\hat{q}) \geq 0$ . The monetary penalty to the agency might then be of the form  $\pi(q; \hat{q}, q_D)C$ , where  $C$  is the agency’s nominal fee for the rating.

The simplest case is  $\delta(\hat{q}) = \delta_0$ , a constant, as implicitly assumed in section 3. However, it could be argued on social grounds that a default or downgrade in a higher rated security should attract more of a penalty, which would mean that  $\delta'(\hat{q}) > 0$  in the penalty function (4).

The effect of this can be illustrated with reference to figure 2. A higher penalty ( $\delta = \delta_{\max}$ , say) would remain in place for highly rated securities. This would preserve the width of the upper gap  $\Delta U$ , created in this case by an unfavourable surprise. However, a smaller contingent penalty ( $\delta < \delta_{\max}$ ) for a lower grade rating would induce less of a favourable surprise if the rating is registered, as investors would know that the agency has less to lose. Mitigating the penalty for registering a lower grade would therefore close the gap indicated by  $\Delta L$ . As indicated in section 3, there could be a welfare loss in this zone, where the agency wishes to signal that the official point rating might be unduly pessimistic relative to the more complete posterior distribution. However, it would remain open to the agency to adjust its point rating upwards from what the mean of the posterior would indicate. By doing so, it would move the rating into a higher contingent penalty zone.

#### *4.2 The time dimension*

The temporal dimension of a credit rating has been a source of dissension in the aftermath of the global financial crisis. Agencies claimed that the typical rating represented a ‘through (or over) the cycle’ philosophy, assessed on historical default regularities. The problem is that this may give much less guidance when current states of the world are indicating stressful times ahead. Thus an AA rated sovereign issue on a ‘through the cycle’ basis might deserve much less when times are bad for government revenue, or when social liabilities are pressing on their capacity to service the loan. A credit rating system should arguably be two dimensional: a summary rating figure, referring to the institution’s financial management, and a time dimension such as the expected or median time to default. The latter would shorten in bad states of the world. If this is not possible, it would nonetheless be useful to have some device that signals the dependence of a given rating on the current state of the world.

A rating registration system could potentially provide the required flexibility:

- (a) The agency could elect a registration maturity, e.g. whether registration is to remain in place for three years or just one year.
- (b) The agency could further elect whether the registration bond is sequestered for the complete length of the registration period; or on the other hand, is reducing balance, e.g. 50% returned in the first year, 25 % in the second, and the residual in the third year.

The signal value to the investor varies accordingly. The alternatives in (a) mean that the agency has an incentive to incorporate state conditionality in its current rating. Thus a

security that rates only B+ on an over the cycle basis might rate A+ over the coming year, when economic times are good. An agency that chooses under (b) to lock up the fee margin over the entire registration period is by that token offering some valuable information to investors, namely that this is a security that is more robust to bad times.

Such decisions can be made self financing through their signalling property. A rating agency that is prepared to lock in its margin for longer can expect that this will be reflected in the listing premium for the securities. It will find the issuer more prepared to accommodate on the fee for service. Thus the longer sequestration period is not necessarily a more onerous deadweight cost for either the agency or the issuer.

#### *4.3 The triggering credit event*

Preceding discussion could apply to any agreed definition of the credit event trigger for the registration penalty. How to define the trigger event will itself be an issue in practice. The most straightforward rule would be to penalise the agency only in the case of an outright default (the ‘all or nothing’ approach). An alternative response would be to penalise for credit downgrades past designated triggering barriers (the ‘graduated version’); for instance a downgrade past BB or equivalent, i.e. to junk bond status.

The ‘all or nothing’ approach, i.e. simple default, has the merit of objectivity: the triggering event is observable as matter of fact, rather than opinion. It has the further merit of encouraging the agency to revise its rating where there appears to be a significant prospect of credit difficulty, for a lower rating will attract a lesser penalty if default does occur. On the other hand, the agency need not be too concerned with constant revisions where the existing rating is strong, and any adverse influences seen as only temporary. Thus ‘ratings bounce’ is mitigated.

On the other hand, holders of highly rated issues would suffer significant losses following a letter downgrade, even if the underlying security is not in default. In this respect the graduated penalty response would better mirror investor loss. A problem is that the downgrade would likely be issued by the same agency that prepared the original higher rating. The existence of a margin penalty for a downgrade is therefore a disincentive for the agency to revise its rating. It may try instead to ‘sit it out’, until the end of the pre-assigned registration period.

A variant on the graduated theme might be to trigger the margin penalty on the basis of relative movements in CDS spreads. A significant deterioration in the issue’s CDS trading spread, relative to others with the same original credit rating, would attract a margin penalty

for the rating agency. However, this might be less objective than at first sight. One reason is that the CDS spread is itself driven by the credit rating, so that if the latter does not move (as above), nothing much need happen to the CDS spread. Alternatively, if the CDS spread does diverge from the current credit rating, one would have to ask whether the CDS market is necessarily better informed than the rating agency. Tying an agency's margin penalty to market sentiment might discourage independent rating judgments. Indeed, there is empirical evidence (Loeffler (2004)) suggesting that the 'through the cycle' models commonly used by ratings agencies are better at predicting eventual default at least than the stock market, whatever the models' limitation in predicting downgrades, which might depend more on ambient economic conditions at the time.

<sup>9</sup>On balance, it would appear that the 'all or nothing' approach, i.e. limiting the penalty triggering to actual default, would be a suitable starting point for a registration scheme, one with fewer problems of calibration. It remains incentive compatible with the interests of investors, and its objectivity is more suited to its more formal institutional basis. It could be argued that the existence of a CDS market adds a more informal supplement that responds in a more graduated way to deteriorating credit. On this view, the ideal market structure would combine both types of penalty, the regulatory default penalty and the market based CDS spread. In the absence of a functioning CDS market for the debt issue, the periodic rating downgrades generated under a default based penalty would themselves provide early warning signals.

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<sup>9</sup> Some authors have suggested that ratings lag current conditions (Fleddelius et. al (2004), Delianedis & Geske (1998) and Altman & Rijken (2004)). However, this could be attributed to the agency's migration policy rather than a shortcoming in their forecasting ability. Thus Posch (2011) shows the migration policy to attribute for a stickiness of around three 'notches' (letter subgrades), when compared to a market-based measure. One of these notches can be attributed to the methodology of bucketing different issuers into one rating class; another notch disappears when adding outlooks as given by the rating agencies. During economic downturns the rating adjustments speed up by around one notch, making the market based measure's lead disappear.

## 5. Concluding remarks

1. Some commentators have suggested that the proposed performance bond should be obligatory for all ratings, rather than optional, as suggested in the present paper. This is certainly consistent with the certification role that credit ratings acquired, at least prior to the global credit crisis. But in our view, a compulsory performance bond, universally required of all ratings, would diminish the signalling content, and hence the informational value to investors. A problem with single letter ratings is that by their nature they are a summary point estimate. The optional aspect implicit in the choice whether or not to register adds an extra dimension to the official letter rating, reflected here in the value of  $R$ , the registration binary. So, too, does the choice of registration term. As earlier pointed out, whether the performance bond is sequestered for just one or two years, or on the other hand the entire maturity, has signalling value for the security's sensitivity to states of the business cycle. On this view, compulsion is an approach of more limited value. If 'one size fits all', then the garment has no particular value.

2. Also relevant is just who bears the risk, as matter of optimal contracting between the issuer and the rating agency. Both parties bear risk, but arguably more so with the rating agency. The issuer can choose whether or not to register the issue. If the outcome is good, then the issuer derives the benefit of a higher issue price; if it is bad, they will lose the fee paid to the agency for the extra research. In addition, as figure 2 suggests, the outcome of *not* registering may come as a negative surprise to the market, and this is part of the issuer's risk. However, the issuer's *ex ante* decision to conduct the extra research will be guided by its own prior as to its likely outcome. Therefore the issuer's risk premium may in practice be small.

On the other hand, the rating agency stands to lose its performance bond, and in addition the reputational risk that goes with such an *ex post* failure. It will therefore likely seek compensation from the issuer in the form of a higher fee. The agency's risk premium becomes an object of bargaining between the issuer and its rating agency. This will have to be agreed up front, as part of the rating contract between the two. The higher fee asked to defray their risk may be subject to moderating influences, such as the extent of competition for business between the different rating agencies.

3. From the social point of view, investors have their own risk premium, and anything that diminishes this is good for the debt market as whole. A figure 2 (gap  $\Delta_L$ ) suggests, investor gains will be high where the decision *not* to register is made for what might otherwise be highly rated debt. In the events leading up to the financial crisis, AAA rated MBS might have

benefited from a registration process, and the more careful (and sceptical) research process that should accompany it. In this sense, a registration regime with performance bonds might have disciplined, if not dampened, the competitive pressures for rating business that preceded the global financial meltdown (see e.g. Lewis (2010)).

4. As noted in the Introduction, rating agencies have recently been requesting that their names not appear on the issue prospectus, evidently under the impression that this will shield them from professional liability proceedings should the reality not live up to the promise. This may well increase the cost of capital, for investors might now feel uncertain as to whether any form of certification, even tacit, exists for the subject debt issue. In contrast, the registration facility proposed in the present paper imposes a penalty if the issue does not perform. The magnitude of the penalty will depend on the rating, with higher rated issues attracting more of a penalty. To the extent that the agency is willing to bear the risk of losing part or all of its performance bond, this could be taken as *prima facie* evidence that it has exercised proper care and attention in researching and preparing the rating. The registration choice can therefore be regarded as a potential defence in professional liability litigation. To the extent that this is turns out to be the case, the benefit that accrues to the rating agency could be reflected in the willingness to accept a lower rating fee from the issuer. The proposed registration arrangement would therefore diminish the economic deadweight cost implicit in arrangements contrived to avoid potential legal proceedings.

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