

**Internet Appendix A118: Financial Herding**  
**A118.1 Illustrative Reverse Engineered Pitch Template Example**

<b>Pitcher's Name</b>	Ya Li (UQ Winter Scholar)	<b>FoR category</b>	Herding Behaviour	<b>Date Completed</b>	20 July 2016
<b>(A) Title</b>	Lugo, S., Croce, A. and Faff, R., "Herding Behavior and Rating Convergence among Credit Rating Agencies: Evidence from the Subprime Crisis", <i>Review of Finance</i> , Vol. 19, No. 4, 2015, pp. 1703-1731. (reverse engineered)				
<b>(B) Basic Research Question</b>	To assess whether, and to what extent, credit rating agencies' behaviours are influenced by each other				
<b>(C) Key paper(s)</b>	<ol style="list-style-type: none"> <li>1. Bar-Isaac, H. and Shapiro, J. (2013) Ratings quality over the business cycle, <i>Journal of Financial Economics</i> 108, 62–78.</li> <li>2. Griffin, J. M., Nickerson, J., and Tang, D. Y. (2013) Rating shopping or catering? An examination of response to competitive pressure for CDO credit ratings, <i>Review of Financial Studies</i> 26, 2270–2310.</li> <li>3. Mariano, B. (2012) Market power and reputational concerns in the rating industry, <i>Journal of Banking and Finance</i> 36, 1616–1626.</li> </ol>				
<b>(D) Motivation/Puzzle</b>	There have been theories implying that a CRA with a lower reputation is expected to be more heavily influenced by the behaviour of other agencies. It can also be inferred from another literature that a CRA with a lower reputational capital is expected to exercise a weaker influence over other agencies. However, it's still unknown if, and to what degree, these reputational and herding effects hold. More empirical evidence is needed to resolve the relative importance of these theories and the inferred hypothesis emanating from them.				
<b>THREE</b>	<b>Three</b> core aspects of any empirical research project i.e. the "IDioTs" guide				
<b>(E) Idea?</b>	<p>This research will look into the behaviours of three main CRAs, Moody's, S&amp;P and Fitch. Given that Fitch is considered to be of lower reputation than either Moody's or S&amp;P, Fitch is predicted to be influenced by Moody's and S&amp;P more than the other way around. Additionally, the two major CRAs are more influenced by each other than by Fitch.</p> <p>Specifically, the key hypothesizes are: (1) The timing of downgrades by either Moody's or S&amp;P is more influenced by rating actions taken by the other main rival than those taken by Fitch. (2) Moody's and S&amp;P exhibit a stronger tendency toward rating convergence with each other than with Fitch. (3) Fitch's rating actions tend to be influenced more by Moody's or S&amp;P actions, compared to the (lesser) influence of Fitch's rating actions on Moody's and S&amp;P.</p> <p>The key dependent variables are the time to first downgrade or first downgrade rating revision, which are measured as the number of elapsed days since June 1 2007 to the occurrence of the first downgrade action by the analyzed CRA. The key independent variable is the dummy variable equal to 1 from the day one or two rivals downgrades the tranche for the first time, and 0 otherwise.</p> <p>To control for the effect of credit quality, credit deterioration and tranche and structure characteristics, control variables will be used.</p> <p>This is the key model, which will be mainly used to test the first hypothesis. More explanatory variables will be augmented for other models.</p>				
<b>(F) Data?</b>	Data: all US ABS Home Equity Loan (HEL) tranches that experienced a downgrade and/or have been placed on a watch-list for a future downgrade by either Moody's, S&P, or Fitch between June 1 2007 and July 29 2011, which is a panel dataset. Focus on HEL category because it was both the most relevant and most affected group during the crisis. Homogenous sample of structured finance products. Around 9000 tranches, representing about 1800 deals are included in the dataset and they all come from a Bloomberg search.				
<b>(G) Tools?</b>	<p>Cox proportional hazard models to study timing of downgrade and downgrade rating revisions. Each model will be estimated by using the tranches in the dataset. "Days to first downgrade/ downgrade rating revision" will be regressed by control variables and independent dummy variables that represent the existence of rivals' downgrade actions.</p> <p>For each CRA, estimate three models: two accounting separately for the presence of a downgrade by each rival and the other considering the rating actions of both rivals. By comparing the coefficients of dependent variables, we can reveal different degrees of influences of rivals' downgrade actions on the downgrade hazard of each CRA. Additionally, a second set of duration analyses focusses on the effect of split evaluations before the crisis on the timing of downgrades.</p> <p>Finally, estimate a multinomial logit model mainly to test the third hypothesis. This model only considers jointly rated tranches. It shows</p>				

	that, in presence of split evaluations between Moody's (or S&P) and Fitch at the beginning of the sampled period, convergence by the end of the period is significantly more likely when Fitch rather than Moody's (or S&P) initially assigned the most favourable rating.
<b>TWO</b>	<b>Two</b> key questions
<b>(H) What's New?</b>	An intersection of three fields: Herding Behaviour, Credit Rating Agency and Asset Backed Security.
<b>(I) So What?</b>	Results can be used to facilitate the regulation and reform of the credit rating industry to enhance reputational incentives, competition, and transparency, especially for structured finance products.
<b>ONE</b>	<b>One</b> bottom line
<b>(J) Contribution?</b>	<p>(1) contribute to the strand of literature on CRA behaviour in the context of the subprime crisis, which has paid little or no real attention to the timing of those rating agencies.</p> <p>(2) contribute to a second strand of literature that assesses the timing of rating revisions and the interdependence of rating actions by different CRAs. The contributions will be three-fold. First, we will assess CRA rating actions on structured finance products instead of corporate bonds. Second, while the bulk of the previous literature focuses on Moody's and S&amp;P only, we will include Fitch in our analysis. Third, we will provide a rationale for differences in terms of herding behaviour between these three main CRAs and focus on the role of reputation and informational cascades in explaining herding behaviour for CRAs.</p> <p>(3) contribute to extant empirical literature investigating herding behaviour of financial analysts in general.</p>
<b>(K) 3 Key Findings</b>	<ol style="list-style-type: none"> <li>1. During the sub-prime crisis, both Moody's and S&amp;P applied faster downgrades in the case of a downgrade by the other main rival compared to the case of a downgrade by Fitch.</li> <li>2. Rating actions of Moody's and S&amp;P (especially Moody's) appeared to influence the downgrade intensity of Fitch more than the other way around.</li> <li>3. The likelihood of rating convergence, 4 years in to the crisis, for tranches jointly rate by Moody's (or S&amp;P) and Fitch is higher when the smaller of the three agencies assigns the highest rating before the crisis started, while the effect of split evaluations on jointly rating tranches by Moody's and S&amp;P does not appear to depend on the identity of the agency initially assigning the less severe rating.</li> </ol>

Mickey Mouse Diagram

