

Bank Standalone Credit Ratings*

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Standalone ratings measure a bank's intrinsic financial strength but—unlike all-in ratings—do not incorporate potential sovereign or parent-bank support. On July 20, 2011, Fitch switched from a 9-point to a 21-point scale for its standalone ratings but did not alter its all-in ratings. We investigate if the stock market reacted to this refinement of public information about bank fundamentals. We find that shareholders rewarded (penalized) banks that received positive (negative) rating surprises. We also find that Fitch used the refinement to inflate standalone ratings, in particular for large banks, banks with low 9-point standalone ratings, and banks headquartered outside North America.

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“The global financial crisis and ongoing stress in the capital markets have increased market participants’ appetite for clear and credible assessments of the credit risks of banks worldwide. Regulatory changes designed to limit state support for banks strengthen the demand for a clear perspective on a bank’s intrinsic financial strength and the extent to which it may benefit from support.”

Fitch Ratings, March 7, 2011

1. Introduction

Standalone ratings are assessments of banks’ intrinsic financial strength. These assessments do not take into account any extraordinary support that a bank may receive from a home-country sovereign or a parent company. As the name suggests, standalone ratings are based solely on a bank’s ability and willingness to repay its debts. Combining bank standalone ratings with estimates of the probability and magnitude of extraordinary support delivers *all-in ratings*. All-in ratings are the ultimate assessment of default risk, assigned to both bank and nonbank entities.¹

The 2007–09 crisis placed the spotlight on banks’ intrinsic financial strength. Prior to this event, bank shareholders appeared to believe that intrinsic financial strength was largely inconsequential, as governments were bound to keep troubled banks afloat. Such a belief proved erroneous, as many U.S. and European banks were nationalized or bailed out with substantial losses to shareholders. Post-crisis, public statements by governments have indicated reduced official support for banks and greater reliance on bank capital to absorb losses. In line with these statements, bank regulators have considered using standalone ratings for risk weighting interbank exposures (Basel Committee on Banking Supervision 2015).

¹The fact that banks have standalone ratings, whereas most other rated entities do not, is consistent with the view that banks are more opaque than nonfinancial institutions (Morgan 2002; Hirtle 2006; Iannotta 2006, 2011; Livingston, Naranjo, and Zhou 2007; Bannier, Behr, and Güttler 2010; Jones, Lee, and Yeager 2012). And even though there may be exceptions (Flannery, Kwan, and Nimalendran 2004), bank assets tend to be especially hard to assess during crisis periods (Flannery, Kwan, and Nimalendran 2013).

For policymakers to be successful in weaning banks off external support, banks' stakeholders should internalize this objective. Concretely, stakeholders should anchor their pricing decisions in assessments of banks' intrinsic financial strength. This is a prerequisite for strengthening the private sector's loss-absorbing capacity, which would attenuate the macroeconomic repercussions of an adverse shock in the financial system and reduce policymakers' need to tap the public purse in order to offset such a shock.

To the extent that there is close scrutiny of intrinsic financial strength, it should be detectable in the behavior of equity investors. If a bank gets into trouble, these investors are the first ones to face losses, either through dilution or an outright wipeout. Anticipating this possibility, shareholders should monitor and react to changes in standalone ratings.

Despite their potential importance for policymakers and investors alike, bank standalone ratings have received little coverage in academic research. We address this gap in the literature by comprehensively analyzing bank standalone ratings around a defining event. On July 20, 2011—in response to investor demand following the 2007–09 crisis (Fitch 2011b)—Fitch Ratings started publishing refined standalone ratings for the 800+ banks in its rating universe. These new standalone ratings, called “Viability Ratings,” were reported on the well-known 21-point AAA scale and replaced coarser 9-point ratings.²

We study the stock market reaction to the surprises created by the ratings refinements, investigate whether the refinements resulted in ratings inflation, and study the underlying drivers.³

²The 21-point scale employed for all-in ratings features uppercase letters from “AAA” to “D,” while Viability Ratings use lowercase letters from “aaa” to “d.” Throughout the paper, we capitalize Fitch-specific terms (e.g., Viability Ratings) and use lowercase letters for generic names (e.g., all-in ratings).

³This starting point and focus of our empirical study is in essence agnostic about whether or not Fitch has superior information. Of course, credit ratings are often theoretically conjectured and empirically found to reduce the information asymmetry problem between a firm and its stakeholders (Boot, Milbourn, and Schmeits 2006). If and when released, even imprecise public signals sent by rating agencies may end up coordinating market actions (see, for example, Allen, Morris, and Shin 2006, who build on a large global-games literature). Hand, Holthausen, and Leftwich (1992), Ederington and Goh (1998), and Kliger and Sarig (2000)

There are four key features of the event on July 20, 2011. First, the refinements in bank standalone ratings were announced on a *single* date for the *entire* universe of banks rated by Fitch. The announcement date was not known in advance and the event was exogenous to the banks.⁴ Second, Fitch stressed that the methodology for assessing banks' standalone ratings was *unchanged*; instead the refined framework allowed Fitch to provide greater clarity about the inputs to this rating (Fitch 2011b). Third, Fitch stressed that bank all-in ratings were *unaffected* by the refinement of standalone ratings. Fitch used this event, however, to clarify the relationship between a bank's all-in rating and the two inputs—the standalone rating measuring intrinsic financial strength and Fitch's assessment of external support. With standalone ratings on the same 21-point scale as all-in ratings, observers could see clearly how much importance Fitch was assigning to the probability of sovereign or parent-bank support. And, fourth, by increasing the granularity of standalone ratings, the refinement revealed Fitch's *relative ranking* of banks that had previously shared the same coarse standalone rating. These four features contribute to a clean setting in which a rating agency published more information about the relative intrinsic financial strength of banks while holding constant estimates of default risk.

We build on prior research on *all-in* credit-rating refinements. Notable examples of this research are studies of the 1982 refinement of Moody's *all-in* ratings by Kliger and Sarig (2000), who examined the reaction of stock and bond prices of nonfinancial entities, and Tang (2009), who studied the impact on investment and firm value. In particular, both studies rely on the April 1982 decision by Moody's to refine their all-in credit ratings by attaching numerical

show that rating changes matter for explaining stock and bond returns of nonfinancial borrowers, with Sironi (2003), Cavallo, Powell, and Rigobon (2013), and Correa et al. (2014) finding similar effects for banks.

⁴A similar event in Moody's universe took place on March 16, 2015. On that date, Moody's announced a change in the methodology underpinning bank credit ratings, placed some of the Baseline Credit Assessments (BCAs) under review, and eliminated Bank Financial Strength Ratings (BFSRs). We analyzed this event in the same way we analyze the Fitch event below. Likely because of the small number of banks with changing BCA outlooks and the absence of actual BCA changes, the findings related to Moody's lack statistical significance. These findings are available upon request.

modifiers to the coarse rating categories (e.g., $A \Rightarrow A1, A2, A3$). The coarser the rating scale, the more likely it is that a rating agency would need to assign the same rating to entities with different outlooks. By refining its scale, the rating agency can reveal more of its private information about the relative creditworthiness of different entities.

Within this setting, and using a sample of monthly U.S. nonfinancial bonds, Kliger and Sarig (2000) find that the announcement of better than expected refined ratings is associated with positive abnormal bond returns that are larger than the returns on bonds issued by entities with worse than expected refined ratings. Finding also a negative relationship between rating surprises and equity values, Kliger and Sarig (2000) conclude that the Moody's refinement revealed private information that was valuable to both bondholders and shareholders, leading to a wealth transfer from the latter to the former with no overall impact on firm value.

The difference between this research and our paper stems from the type of ratings in focus. The 1982 Moody's refinement studied by Kliger and Sarig (2000) disclosed new information about assessments of relative *default* risk. In the case of banks—and absent Moody's standalone ratings at that time—it was impossible to disentangle the intrinsic-strength and external-support components of this refinement. By contrast, we study a unique event, in which Fitch revealed information about banks' relative *intrinsic* financial strength (i.e., the relative likelihood of default in the *counterfactual* absence of sovereign or parent-bank support), but no change to its assessment of relative *default risk* (i.e., the relative likelihood of default in the *actual* presence of sovereign or parent-bank support). Thus, the information revealed in this event was directly relevant for bank shareholders, who are residual claimants that stand to lose from a recapitalization.

We begin by examining the refinement of bank standalone ratings from the 9-point to the 21-point scale for Fitch's universe of banks. This event is associated with two types of rating surprises. First, there would be a surprise if a bank receives a higher than expected standalone rating. Ahead of releasing the new Viability Ratings, Fitch guided investor expectations by publishing a special report in March 2011 titled "Perspectives on Bank Credit Ratings in a Changing Environment" (Fitch 2011a). This publication

introduced Viability Ratings, explained the rationale and methodology behind them, and included an appendix showing a mapping from the 9-point scale to the 21-point scale. In this mapping, each 9-point standalone rating corresponds to a range of 21-point ratings. While this mapping was imprecise, it set upper and lower bounds for what each 9-point rating could translate into on the 21-point scale.

A second type of rating surprise occurs if moving from the coarser to the more granular scale generates a reversal of some banks' relative rankings. Bank A may have a higher standalone rating than bank B on the 9-point scale, but bank B may be rated higher on the 21-point scale. Because the 9-to-21-point mapping features overlapping ranges, it may not signal a surprise for a bank that experiences a ranking reversal. Ultimately, a ranking reversal may affect a bank's competitive position versus that of its peers.

We study the equity market reaction to both types of rating surprises around the release on July 20, 2011.⁵ We restrict this analysis to a sample of 212 publicly listed banks for which we have stock prices, balance sheet and income statement data, as well as information on their share in Fitch's securitization business and on the number of related bank subsidiaries rated by Fitch. We construct three benchmarks of investor expectations, with the first two based on the Fitch mapping and the third capturing ranking reversals. We then test whether banks with higher (lower) than expected 21-point standalone ratings are rewarded (penalized) by the stock market relative to their peers.

Univariate tests provide initial evidence that positive rating surprises are associated with higher cumulative abnormal returns (CARs) over an event window of two days before to two days after the event, $[-2,+2]$. Irrespective of the specific expectations benchmark, there is a statistically significant positive difference between the average CAR of banks with positive surprises and that of banks with negative surprises. The point estimates of this difference range

⁵Bank creditors may also react to standalone rating refinements. We attempted to investigate this reaction on the basis of data on credit default spreads and bank bond prices. However, the small cross-sectional coverage of these data and the apparent illiquidity of the underlying contracts did not allow for a meaningful empirical analysis.

from 1.2 to 4.6 percentage points. These estimates remain positive, of similar magnitudes, and statistically significant under alternative regression specifications.

To dig deeper into the cross-sectional outperformance associated with positive rating surprises, we include additional bank-specific information, such as proxies of ratings catering (bank size, bank share of Fitch securitization business, and the number of related bank subsidiaries rated by Fitch), the sovereign rating in the bank's home country, and measures of bank performance and balance sheet strength (leverage, profitability, liquidity, short-term funding). These bank characteristics are as of year-end 2010 and were publicly available before the Fitch ratings refinement on July 20, 2011. Thus, these variables should only explain the stock market reaction around this date if the refinement revealed new information about their role in Fitch's assessment of banks' intrinsic financial strength. While we do find that the additional bank characteristics improve the fit of the CAR regressions, we also find that the statistical significance of these variables is quite unstable: it changes across the alternative specifications in our robustness tests.

Having found a statistically and economically significant stock market reaction to standalone rating surprises, we test whether Fitch used the refinement to *inflate* bank standalone ratings. Extant studies of inflation in *all-in* ratings distinguish two possible channels—ratings shopping and ratings catering, with empirical support for both.⁶ Ratings shopping describes a setting where an entity can solicit credit ratings from several ratings agencies and then pay for the highest one (Faure-Grimaud, Peyrache, and Quesada 2009; Skreta and Veldkamp 2009; Doherty, Kartasheva, and Phillips 2012; Bar-Isaac and Shapiro 2013; Farhi, Lerner, and Tirole 2013). This channel is unlikely to have played a role in the event we study, as the refinement of standalone ratings affected the entire Fitch universe of banks simultaneously. The event was exogenous to individual banks, and there was no immediate opportunity for banks that

⁶There is evidence that the Securities and Exchange Commission's formal recognition in 1975 of Moody's, Standard and Poor's, and Fitch as statistical ratings organizations also led to inflation of all-in ratings (Behr, Kisgen, and Taillard 2018).

felt disadvantaged to shop around. Thus, we do not test for ratings shopping.

That said, the refinement of bank standalone ratings provided a rare opportunity for Fitch to cater to certain banks (Mathis, McAndrews, and Rochet 2009; Becker and Milbourn 2011; Bolton, Freixas, and Shapiro 2012; Baghai and Becker 2017). We expect to find that larger banks, banks with a greater share of Fitch securitization business, and banks with more related bank subsidiaries rated by Fitch—i.e., banks that hold the potential to generate more income for Fitch—are more likely to receive positive rating surprises than other banks.⁷ We thus test for ratings catering.

We find evidence of ratings inflation in both the 800+ universe of Fitch-rated banks and our smaller sample of 212 banks for which we have additional bank-level data. When examining the underlying drivers, we find that rating surprises tend to be positive for banks headquartered outside North America. Likewise, positive surprises tend to be associated with low 9-point standalone ratings. As regards ratings catering, we find only partial supporting evidence. Out of the three relevant variables, only bank size has robust explanatory power, indicating that larger banks were more likely to experience positive rating surprises.

In summary, our paper makes three contributions to the literature. First, we study bank standalone ratings that are important to bank shareholders but have so far received only marginal academic attention. In this respect, we also contribute to the existing literature on the role of credit ratings in addressing the opacity of banks. Second, we study a unique event in which Fitch unequivocally refined the information that it provides publicly on bank intrinsic financial strength, while keeping unchanged its estimates of bank default risk. This unique setting allows us to examine the importance of rating information for bank shareholders, who are residual claimants in the event of bank default. We show that the information in Fitch's standalone ratings is valuable for these shareholders.

⁷The underlying driver of ratings catering is competition among rating agencies. Competition can also lead to greater ratings coarseness (Goel and Thakor 2015), which need not imply ratings inflation. In turn, reputation concerns can make ratings less informative (Morris 2001; Dimitrov, Palia, and Tang 2015) or, when combined with competitive motives, even cyclical (Hirth 2014).

Finally, we test whether Fitch's refinement led to ratings inflation. We find evidence in support of ratings inflation, but limited evidence that this inflation is due to ratings catering.

The remainder of the paper is organized as follows. In section 1, we provide background information on bank standalone ratings and the change in Fitch's ratings scale. In section 2, we outline our testable hypotheses. Section 3 describes our methodology and section 4 describes our data. Section 5 presents our empirical results and robustness tests. Section 6 concludes.

2. Details on the Fitch Refinement

In 1978 IBCA became the first rating agency to publish bank standalone ratings, using a proprietary 9-point rating scale: A, A/B, B, B/C, C, C/D, D, D/E, and E. When it acquired IBCA in 1997, Fitch adopted these ratings alongside its own 21-point all-in ratings. Moody's Investor Services introduced its own bank standalone ratings in 1995, called Bank Financial Strength Ratings (BFSRs), using a 13-point scale from A to E (with + modifiers below A and – modifiers above E). Moody's replaced BFSRs with the 21-point standalone Baseline Credit Assessments in 2015. Standard & Poor's began publishing standalone ratings at end-2011. Despite their long history, bank standalone ratings have been mostly used to infer estimates of sovereign or parent-bank support.⁸

On July 20, 2011 Fitch Ratings responded to market pressure for more clarity on the importance of sovereign or parent-bank support by publishing the more granular 21-point Viability Ratings for its universe of 861 banks. Fitch outlined the underlying rationale in a companion report (Fitch 2011b), largely reiterating statements already made in March 2011 (Fitch 2011a).⁹ The 21-point standalone ratings provided more information on the intrinsic financial strength of banks than the existing 9-point ratings. For example, Bank of America, Goldman Sachs, and Morgan Stanley were all

⁸See Packer and Tarashev (2011), Ueda and Weder di Mauro (2013), and Kroszner (2016) for reviews of post-crisis adjustments to both standalone and all-in bank ratings.

⁹See also "Fitch Maintains Approach to Bank Credit Ratings; Evolves Individual Rating Scale Endorsement Policy," press release dated March 7, 2011, 5:00 a.m. EST.

Figure 1. Timeline of the Change in Fitch’s Bank Standalone Ratings

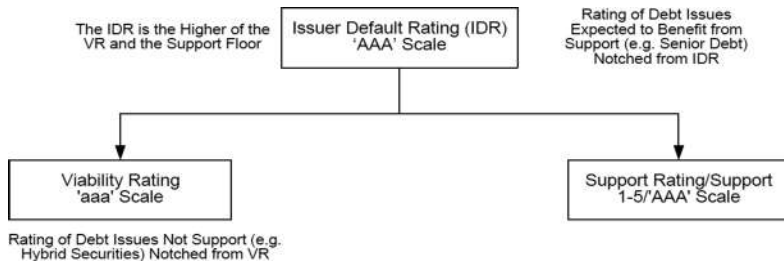
Time (if available) Calendar Time	August 16, 2010	05:00 EST March 7, 2011	05:00 EST July 20, 2011
Fitch Action	Mapping from 9-point standalone ratings to the 21-point scale	Signal of intention to modify the ratings scale for bank standalone ratings	Publication of new set of standalone ratings for 861 banks
Fitch Report	<i>Global Financial Institutions Rating Criteria</i>	<i>Perspectives on Bank Credit Ratings in a Changing Environment</i>	<i>Viability Ratings: An Introductory Primer</i>

Note: This figure provides a comprehensive timeline of Fitch actions and reports.

rated “B/C” on the 9-point standalone rating scale. When the more granular 21-point ratings were released, Goldman Sachs received an “a+,” Morgan Stanley an “a,” and Bank of America an “a-,” indicating that Fitch saw differences in these banks’ intrinsic financial strength. Figure 1 provides a timeline of Fitch actions.

Another objective was to make standalone ratings directly comparable with Fitch’s all-in credit ratings, thus clarifying the extent to which a bank’s all-in rating incorporates potential sovereign or parent-bank support. The March 2011 report states that a bank’s all-in rating is the higher of the 21-point standalone rating and a 21-point Support Rating Floor, which is a Fitch rating that reflects the probability of extraordinary sovereign or parent-bank support (Fitch 2011a). Figure 2 illustrates this relationship. Once the refined standalone ratings were published on a 21-point scale, market participants could clearly see that, for instance, sovereign or parent-bank support made no difference to Goldman Sachs’s all-in rating but added one and two notches, respectively, to Morgan Stanley’s and Bank of America’s all-in ratings.

To prepare market participants for this refinement, Fitch published a report in March 2011 that introduced the new Viability Ratings, explained the rationale for the refinement, and provided a mapping from the existing 9-point scale to the 21-point scale in an appendix. This mapping was imprecise, as each 9-point rating was mapped to a *range* of 21-point ratings and adjacent ranges overlapped (table 1). For instance, the coarse standalone rating of “A/B” could map to any Viability Rating from “aa+” to “a,” and the lower coarse standalone rating of “B” could map to any Viability Rating from “aa-” to “a-.” Thus, banks rated lower on the 9-point scale

Figure 2. Fitch's Bank-Rating Methodology

Source: Fitch (2011a, p. 2).

Notes: This figure sets out the high-level framework communicated by Fitch, showing that the all-in rating (“Issuer Default Rating”) is the higher of the 21-point standalone rating (“Viability Rating”) or the Sovereign Support Rating (“Support Rating Floor”). Standalone ratings measure a bank’s intrinsic financial strength, defined as a capacity to maintain ongoing operations and to avoid failure. The 21-point standalone rating excludes any extraordinary support that may be derived from outside of the entity, as well as any potential benefits to a bank’s financial position from other extraordinary measures, including a distressed restructuring of liabilities. A bank’s Support Rating Floor is derived directly from its support rating and defines the minimum long-term Issuer Default Rating that would be assigned to that bank. The likelihood of support being forthcoming is expressed in relative rank order on a rating scale of 1 (“extremely high probability”) to 5 (“cannot be relied on”).

than a competitor could end up being more highly rated on the 21-point scale.

Even though Fitch announced in March 2011 its plans to transition to a 21-point scale, the exact date of the release of the refined standalone ratings was not communicated in advance (Fitch 2011a). On July 20, 2011, Fitch published a press release, a report, and an Excel spreadsheet with the name, country, region, all-in rating, 9-point standalone rating, and 21-point standalone rating for each of the 861 banks in its rating universe. The release was at 5:00 a.m. eastern standard time, when markets were open in Europe but prior to the opening of North American markets. This timing ensured that the information was communicated as broadly as possible on a single day for all banks in Fitch’s universe.

Table 2 shows the mapping disclosed in March 2011. The 9-point standalone ratings are in the columns and the 21-point standalone ratings in the rows. The shaded boxes represent the ranges (or

Table 1. Fitch Transition from 9- to 21-Point Standalone Ratings for 861 Banks

9-Point Standalone Rating (1)	Number of Banks Rated by Fitch (2)	Fitch Map to 21-Point Standalone Rating (3)	Mapping Range, with Values (4)	Midpoint of Range (5)	Ex Post Mean of 21-Point Standalone Rating (6)	Ex Post Mean - Midpoint of Range (7)
A	0	aa to aaa	18-20	19.0	NA	NA
A/B	19	a to aa+	15-19	17.0	17.4	0.4** (.0305)
B	90	a- to aa-	14-17	15.5	16.0	0.5***
B/C	169	bbb to a	12-15	13.5	13.9	(.0001)
C	190	bb+ to bbb+	10-13	11.5	12.1	0.4*** (.0001)
C/D	140	bb- to bbb-	8-11	9.5	9.9	0.6*** (.0001)
D	132	b- to bb	5-9	7.0	7.4	0.4*** (.0001)
D/E	86	ccc to b+	3-7	5.0	5.5	0.4*** (.0001)
E	35	c to ccc	0-3	1.5	2.5	0.5*** (.0001)
E to A	861	c to aaa	0-20	10.4 (sample avg.)	10.8 (sample avg.)	1.0*** (.0001)

Notes: This table provides details on Fitch's transition from 9-point standalone ratings ("Individual Ratings") to 21-point standalone ratings ("Viability Ratings"). The underlying sample comprises all 861 banks in Fitch's entire rating universe. Column 1 reports Fitch's labels for the 9-point standalone rating. Column 2 provides the number of banks with a given 9-point standalone rating. For each 9-point standalone rating, the corresponding range on the 21-point scale is provided in letters in column 3 and numbers in column 4. Column 5 shows the (ex ante) midpoint mapping for each of the 9-point ratings. Column 6 shows the (ex post) mean of the corresponding values on the 21-point scale. Column 7 shows the difference in means between columns 5 and 6. The stars represent the statistical significance for a parametric test. ***, **, and * indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively. NA = not available. P-values are shown in parentheses.

Table 2. Fitch Transition from 9-Point to 21-Point Standalone Rating

	21-Point Standalone Rating	9-Point Standalone Rating										Count	% Total
		A	A/B	B	B/C	C	C/D	D	D/E	E			
Equivalent Numeric Point		19	17	15.5	13.5	11.5	9.5	7	5	1.5			
aaa													
aa+			1										1
aa			6	1									7
aa-			11	36	1								48
a+			1	24	4								29
a				22	38								60
a-				7	87	5							99
bbb+					16	62							78
bbb					23	69	1						93
bbb-						51	38						89
bb+						2	53						55
bb							41	19					61
bb-							6	46					52
b+								41	9				51
b								21	26				47
b-								5	49				54
ccc+									2	27			29
ccc										7			7
ccc-											1		1
cc													
c													
Count			19	90	169	190	140	132	86	35			861
% Total			2.2%	10.5%	19.6%	22.1%	16.3%	15.3%	10.0%	4.1%			100.0%

Legend: Shaded boxes indicate the mapping from the 9- to 21-point standalone rating that was communicated by Fitch. **XY** = the number of individual banks that transitioned.

Notes: This table focuses on July 20, 2011, when Fitch announced the transition from 9-point standalone ratings (“Individual Rating” on the horizontal axis) to 21-point standalone ratings (“Viability Rating” on the vertical axis) for its universe of 861 banks. The gray boxes show the mapping from the 9-point to the 21-point standalone rating that was communicated to Fitch prior to the announcement. Numbers above or below the shaded boxes are banks that received a rating that was above or below the range indicated by Fitch in the March 2011 special report that introduced Viability Ratings.

buckets) communicated by Fitch in their mapping, corresponding to columns 1 and 3 in table 1. Table 2 also shows the actual ratings published on July 20, 2011 for the universe of 861 banks. The values in each cell represent the number of banks with the corresponding 9-point and 21-point ratings. We note a tendency for the 21-point ratings to be grouped in the upper half of the ranges. Interestingly, 39 banks actually appear above these ranges and 2 appear below. These upper and lower exceptions represent 4.8 percent of all cases.

3. Testable Hypotheses

We examine the stock market reaction to the greater disclosure of Fitch's private information. Our premise is that shareholders are interested in a bank's standalone rating because they are interested in a bank's intrinsic strength and its intrinsic strength relative to its competitors (Lang and Stulz 1992; Flannery 1998; Slovin, Sushka, and Polonchek 1999). We further hypothesize that a better standalone rating signals a higher expected present value of cash flows.¹⁰ This leads us to our first hypothesis:

HYPOTHESIS 1. The stock prices of banks experiencing positive rating surprises will outperform the stock prices of banks experiencing negative rating surprises.

Next we examine the question of ratings inflation. Ratings inflation is a priori a concern because—as shown in tables 1 and 2—the pre-refinement information about the transition from the 9-point to 21-point standalone ratings left Fitch with room for discretion. Because each 9-point rating was associated with a range of 21-point ratings, there was scope to systematically set 21-point ratings above their expected levels. We test formally whether this was the case:

HYPOTHESIS 2a. The refinement of Fitch's rating scale resulted in higher than expected standalone ratings for banks (ratings inflation).

¹⁰Assume that bank assets follow a diffusion process as in Leland and Toft (1996), with both a drift and a variance term. All else equal, a bank with a lower variance would have a higher standalone rating and a lower value of equity, as equity is a call option on the assets. Alternatively, a bank with a larger drift would have a higher standalone rating and a lower value of equity. Our hypothesis is consistent with this second alternative.

If we find evidence in support of this hypothesis, we need to understand the drivers of ratings inflation. Existing research proposes two channels for explaining ratings inflation, one driven by the rated entities and the other driven by the rating agencies. The first channel is ratings shopping, which describes the situation where entities solicit ratings from multiple agencies and choose to pay for the most favorable one. The second channel is ratings catering, where competition among rating agencies for future business leads to more favorable ratings for borrowers.

Our study contributes to this literature by examining a setting where there is scope for ratings catering (as many banks have securitization business with Fitch) but not for ratings shopping (as the announcement covered all banks in the Fitch ratings universe simultaneously). Following the subprime crisis, a number of researchers have shown that ratings catering was linked in particular to the size of the securitization business rated by a particular agency (Griffin and Tang 2012; He, Qian, and Strahan 2012, 2016; Cohen and Manuszak 2013; Griffin, Nickerson, and Tang 2013; Hau, Langfield, and Marques-Ibanez 2013; Efung and Hau 2015). There is a conflict of interest when the same agency rates a bank and also competes for the securitization business that this bank manages. We thus test whether rating surprises can be explained by ratings catering, using three proxies of the potential for securitization business: bank size, a bank's share of Fitch securitization business, and the number of related bank subsidiaries rated by Fitch.

HYPOTHESIS 2b The refinement of Fitch's rating scale resulted in higher ratings for larger banks, banks with a higher share of Fitch securitization business, or banks with more related subsidiaries rated by Fitch (ratings catering).

4. Methodology

We provide a brief overview of our methodology with further detail below. First, we create measures of positive and negative rating surprises. Second, we test if stock price reactions—as reflected in CARs—can be explained by the magnitude and direction of rating surprises. We also test whether CARs relate systematically to observable bank characteristics that were public before the event.

A systematic relationship would indicate that Fitch's announcement led shareholders to revise the weight attributed to various characteristics in assessing banks' intrinsic financial strength. Finally, we test for evidence of ratings inflation by studying the pattern of 21-point standalone ratings relative to the 9-point standalone ratings. And we test whether certain bank characteristics can explain which banks benefited more from the ratings inflation.

4.1 Benchmarks of Investor Expectations of 21-Point Standalone Ratings

Given that we cannot observe investors' expectations about Fitch's 21-point standalone ratings, we follow Kliger and Sarig (2000) and create three proxies of expected ratings. Our baseline benchmark relies entirely on the mapping from 9-point standalone ratings in column 1 of table 1 to ranges of 21-point ratings in column 3. First, we assign numerical values to the 21-point standalone ratings, where "aaa" has the highest value of 20, "c" the lowest of 0, and a rating notch has a value of 1 (see appendix A, table A.1). On this basis, we translate the alphanumeric ratings in column 3 into numerical ranges in column 4. The midpoints of these ranges—in column 5—constitute the baseline benchmark, our first proxy of the expected 21-point rating for a given 9-point rating. Under this approach, five of the nine expectations are not whole numbers and thus sit between actual 21-point ratings. For example, the baseline expectation of the coarse rating "B" is 15.5, between "a+" and "a." We account for this rounding in our tests below.

Our advanced benchmark incorporates more information than the baseline benchmark: it refers to both the 9-to-21-point map and to Support Rating Floors (SRFs). SRFs are 21-point ratings that reflect Fitch's assessment of the probability of extraordinary sovereign or parent-bank support. Fitch's March 2011 report clarified that a bank's all-in rating was the higher of the then-unpublished 21-point standalone rating and the SRF (figure 2).¹¹ Our advanced

¹¹While this "higher of" relationship in figure 2 appears simple, it is complicated when a bank does not have an explicit SRF. The 21-point SRF is based on an underlying Fitch Support Rating, which is expressed on a scale from 1 to 5. A Support Rating of 1 indicates "an extremely high probability of extraordinary

benchmark assumes that market participants understood this relationship. Thus, if a bank's all-in rating was higher than its SRF, they expected the corresponding 21-point standalone rating to be the same as the all-in rating. But if the all-in rating equaled the SRF, the exact 21-point standalone rating could be either the same as the SRF or lower. In this latter case, we assume that investors form their expectations by referring to the mapping from the 9-point to 21-point standalone ratings in table 1. Formally, the advanced benchmark is as follows:

If *all-in rating* > *Support Rating Floor*,
 then *21-point standalone rating* = *all-in rating*. (1)

If *all-in Rating* = *Support Rating Floor*,
 then *21-point standalone rating* = *min(all-in rating, midpoint of the relevant range in the Fitch 9-to-21-point mapping)*. (2)

Two examples illustrate this calculation. Nordea Bank AB of Sweden had an all-in rating of AA- (17.0) and an SRF of A- (14.0). Given that the all-in rating is the higher of the SRF or the standalone rating, the 21-point standalone rating must be aa- (17.0). Raiffeisen Bank of Austria had an all-in rating of A (15.0) and an SRF of A (15.0). Given that the all-in rating is equal to the SRF, the 21-point standalone rating is unknown, although it can be expected to be in the range of bb+ (10.0) to bbb+ (13.0) based on its coarse standalone rating of C. By expression (2), the expected 21-point standalone rating is the minimum of 15.0 and the midpoint between 10 and 13, which is 11.5 and thus between bbb- and bbb.

Our third and final benchmark—called ordinal ranking—accounts for ranking reversals in the transition from the 9-point to the 21-point standalone ratings. In constructing this benchmark, say for bank X, we identify all other banks, [Y], vis-à-vis which X

support,” while 5 indicates that “external support, although possible, cannot be relied on” (Fitch 2011b). Even though all banks have a Support Rating, not all banks are given an explicit SRF. If there is no explicit SRF, we proxy for it with the *minimum* SRF that is associated with the bank's five-point Support Rating.

experiences a ranking reversal.¹² When such banks exist, we calculate the benchmark as the 9-point standalone rating of X minus the average 9-point standalone rating of banks [Y]. When banks [Y] do not exist, we set the ordinal ranking benchmark for X to zero.

4.2 *Measuring Rating Surprises*

We create three proxies of rating surprises based on our three benchmarks. The rating surprise based on the first two proxies is equal to the actual minus the expected rating. The third proxy measures the extent of ranking reversals in terms of rating notches. Specifically,

$$\begin{aligned} \text{Rating Surprise for Baseline} &= \text{21-Point Standalone Rating} \\ &\quad - \text{Baseline Benchmark} \end{aligned} \quad (3)$$

$$\begin{aligned} \text{Rating Surprise for Advanced} &= \text{21-Point Standalone Rating} \\ &\quad - \text{Advanced Benchmark} \end{aligned} \quad (4)$$

$$\begin{aligned} \text{Rating Surprise for Ordinal Ranking} &= (\text{21-Point Standalone for} \\ &\quad \text{Bank X} - \text{Mean 21-Point Standalone for Banks [Y]}) - \\ &\quad (\text{9-Point Standalone for Bank X} - \text{Mean 9-Point Standalone} \\ &\quad \text{for Banks [Y]}), \end{aligned} \quad (5)$$

where banks [Y] are those vis-à-vis which bank X experiences a ranking reversal. The rating surprise for ordinal ranking is zero if the set of banks [Y] is empty.

4.3 *Measuring Abnormal Stock Returns*

Following Kliger and Sarig (2000), we study the stock market reaction to the announcement of 21-point standalone ratings using *market model-adjusted abnormal returns*. To obtain these returns, we regress daily bank stock returns on the returns from a country-specific stock market index, the returns on the MSCI World Banks

¹²In our sample, if a bank X experiences a positive (negative) ranking reversal vis-à-vis one or more other banks [Y], then X does not experience a negative (positive) reversal vis-à-vis another bank Z.

Index, and a constant.¹³ The MSCI World Banks Index controls for factors that may be affecting the banking industry but are not captured by the country-specific stock market index.

We estimate these regressions over an estimation window from 80 to 10 trading days prior to the announcement day, $[-80, -10]$. We use the coefficients from these regressions to predict the stock returns over the event window. The market model-adjusted abnormal return is the actual return minus the predicted return. We calculate CARs at the bank level over a five-day window around the announcement day from July 18 to July 22, 2011 $[-2, 2]$.¹⁴

4.4 *Impact of Greek Bailout Negotiations*

For a clean analysis of the impact of the ratings' refinement on bank stock prices, it is desirable that no other information relevant for shareholders is released at the same time. Fitch disclosed the refinement of standalone ratings for its entire universe of banks on a *single* day in the middle of the summer. We are thus fairly certain that the event we study is not confounded by the release of equity analyst reports, bank earnings releases, or financial statements.

One concern, however, stems from the timing of potentially relevant EU summit announcements related to Greece. One of many European summits concerning the Greek sovereign debt crisis took place on July 20, 2011. At this summit, EU leaders debated a European Commission proposal for a tax on European banks to fund the repurchase of Greek sovereign debt. Given Germany's opposition, this levy was rejected, with the news made public on the day after Fitch's announcement.¹⁵ This news was potentially positive

¹³In an earlier version of the paper, we used the returns from an equally weighted portfolio of 467 banks not rated by Fitch instead of the MSCI World Banks Index. We also experimented with the mean-adjusted returns from Klinger and Sarig (2000). The results are robust to using these alternative indexes.

¹⁴In robustness exercises, we rerun all our tests for CARs calculated over two alternative windows— $[0, 1]$ and $[0, 4]$ —as well as for mean-adjusted or size-adjusted CARs. The results for alternative CARs are not reported here, as they do not provide any new insights. These results are available upon request.

¹⁵See "Sarkozy and Merkel in 11th Hour Talks" by Peter Spiegel and Quentin Peel, July 20, 2011, in *The Financial Times*; "Banks Rise on Demise of Sarkozy Tax Plan" by Neil Dennis, July 21, 2011, in *The Financial Times*; and the

for European banks and could have contaminated the stock market reaction to Fitch's rating refinement. We address the potentially contaminating effect of the announcements in three ways. First, our measure of abnormal returns controls for movements in the national stock market, as well as the change in the MSCI World Banks Index. Second, we include as controls region dummies that allow the effects of the above-mentioned EU summit announcement to differ across banking systems. Third, we recalculate our results excluding *all* European banks.

5. Data

We start with the universe of 861 banks rated by Fitch. From these, we identify 279 publicly listed banks for which both stock return data from Datastream and financial statement data from Bankscope are available. We drop 18 banks that had no 9-point standalone rating or all-in rating prior to the release of the 21-point standalone ratings, as we cannot calculate rating surprises for these banks.¹⁶ We also drop 28 banks that are majority owned by a government or other investor, as in these cases Fitch assigns the standalone rating based on the rating of the majority owner. Finally, we drop the five Greek banks in our sample, as they were caught up with the difficulties facing the Greek sovereign in 2011.¹⁷ This results in a sample of 212 banks, for which we hand-collected data on the Support Rating Floor from the Fitch website.¹⁸ In what follows, we refer to the universe of 861 banks when we need only ratings information, and to the sample of 212 banks when we also need information on bank characteristics.

Table 3 shows the geographic distribution of the sample of 212 banks. This sample covers 39 countries and features a roughly even

timeline of the Greece crisis at https://en.wikipedia.org/wiki/Greek_government-debt_crisis_timeline.

¹⁶Both the 9- and 21-point standalone ratings of 11 Chinese banks were first published on July 20, 2011.

¹⁷All five Greek banks were downgraded on July 14, 2011, shortly before the release of the 21-point standalone ratings, and then downgraded again on July 26, 2011.

¹⁸We were led to collect data by hand after finding errors in the Bloomberg data available for Fitch.

Table 3. Overview of Sample

Country	North America	Asia	Europe	Rest of World	Total No. of Banks	Percent of Sample
Australia		7			7	3.3
Austria			2		2	0.9
Belgium			2		2	0.9
Brazil				3	3	1.4
Canada	6				6	2.8
Chile				3	3	1.4
Cyprus			1		1	0.5
Denmark			1		1	0.5
Finland			1		1	0.5
France			3		3	1.4
Germany			5		5	2.4
Hong Kong		2			2	0.9
India		7			7	3.3
Indonesia		5			5	2.4
Israel				2	2	0.9
Italy			10		10	4.7
Japan		9			9	4.2
Korea (South)		4			4	1.9
Kuwait				5	5	2.4
Malaysia		3			3	1.4
Mexico				1	1	0.5
Netherlands			1		1	0.5
Norway			5		5	2.4
Poland			1		1	0.5
Portugal			3		3	1.4
Qatar				3	3	1.4
Russia				4	4	1.9
Saudi Arabia				6	6	2.8
Singapore		3			3	1.4
South Africa				4	4	1.9
Spain			6		6	2.8
Sweden			4		4	1.9
Switzerland			3		3	1.4
Taiwan		7			7	3.3
Thailand		6			6	2.8
Turkey				7	7	3.3
UAE				7	7	3.3
United Kingdom			5		5	2.4
United States	55				55	25.9
Total No. of Banks	61	53	53	45	212	100.0
Percent of Sample	28.8	25.0	25.0	21.2	100.0	

Notes: This table provides details on the 212 publicly listed banks from 39 countries in the stock market sample. North American banks represent 29 percent of the sample, Asian banks 25 percent, European banks 25 percent, and banks from the rest of the world 21 percent.

distribution across regions, with North American banks representing 29 percent of the sample, Asian banks 25 percent, European banks 25 percent, and banks from the rest of the world 21 percent.

Table 4 provides descriptive statistics for the Fitch ratings used in this analysis, the three rating surprise benchmarks, the CARs over different windows, and bank-specific characteristics. Fitch ratings are translated into a numerical value using the mapping in appendix A, table A.1. Table B.1 in appendix B reports pairwise correlations between all variables.

In choosing bank-specific characteristics that are potential drivers of standalone ratings, we rely on existing studies and statements in Fitch publications. Fitch identifies leverage, profitability, liquidity, and funding as key drivers of ratings (Fitch 2011a). We measure leverage as common equity divided by total assets, using common equity at book value. We measure profitability using the return on equity, which is net income divided by average shareholders' equity. Our proxy for liquidity risk, liquidity, is cash and marketable securities divided by the sum of customer deposits and short- and long-term debt. Our proxy for funding risk, short-term funding, is based on Demirgüç-Kunt and Huizinga (2010), who use the share of short-term funding (interbank borrowing plus short-term debt) divided by total funding (interbank borrowing, short-term debt, and long-term debt). With stability in mind, we use averages of the above bank characteristics over 2008 to 2010.

We consider three variables that could proxy for Fitch's ratings catering incentives. The first is bank size. We expect that Fitch would be more inclined to cater to larger banks, as they are likely to demand more ratings-related services and thus have greater bargaining power. We measure bank size as the natural logarithm of total assets, $\text{Ln}(\text{Assets})$, converted to millions of U.S. dollars at year-end exchange rates between 2008 and 2010.

Our second proxy for business relationships between Fitch and individual banks is bank share of Fitch securitization. For this variable, we rely on the securitization data studied by Hau, Langfield, and Marques-Ibanez (2013) and Efung and Hau (2015), which cover the credit ratings of more than 6,500 mortgage- and asset-backed securities rated by Fitch, Moody's, and Standard & Poor's between 1999 and 2011. We compute bank share of Fitch securitization as the volume of each bank's securitization business rated by Fitch

Table 4. Descriptive Statistics

Variable Names	Variable Definitions	Point or Units	Mean	Min.	Median	Max.
Fitch Ratings (“Fitch Names”) 9-Point Standalone Rating	“Individual Rating,” E to A, mapped into the 21-point by midpoint	Notches	12.3	1.5	13.5	17.0
21-Point Standalone Rating	“Viability Rating,” c to aaa	Notches	13.0	3.0	13.0	18.0
21-Point All-in Rating	“Issuer Default Rating,” C to AAA	Notches	13.8	3.0	14.0	18.0
21-Point Support Rating Floor (SRF)	“Support Rating Floor,” C to AAA	Notches	9.9	0.0	11.0	17.0
21-Point Sovereign Rating	Rating of the sovereign nation where the bank is located	Notches	17.3	10.0	19.0	20.0
Rating Surprise Benchmarks Rating Surprise for Baseline	= 21-Point Standalone Rating – Midpoint Map	Notches	0.6	-1.5	0.0	3.5
Rating Surprise for Advanced	= 21-Point Standalone Rating – Min{All-in Rating, 9-Point Standalone Rating, Midpoint}	Notches	0.2	-1.0	0.0	2.5
Rating Surprise for Ordinal Ranking	= (21-Point Standalone for Bank A Banks B) – (9-Point Standalone for Bank A – Mean 9-Point Standalone for Banks B)	Notches	0.2	-3.3	0.0	3.8
Market Model-Adjusted Cumulative Abnormal Returns (CARs) [0,1]	Cumulative abnormal return from July 20 to July 21, 2011	Percent	0.8%	-8.0%	0.6%	8.9%
[0,4]	Cumulative abnormal return from July 20 to July 25, 2011	Percent	0.1%	-14.2%	0.0%	9.5%
[-2,2]	Cumulative abnormal return from July 18 to July 22, 2011	Percent	0.2%	-11.7%	0.0%	12.0%

(continued)

Table 4. (Continued)

Variable Names	Variable Definitions	Point or Units	Mean	Min.	Median	Max.
Bank Characteristics Bank Size	Natural logarithm of total assets, $\ln(\text{assets})$	US\$ Millions	11.3	6.8	11.1	14.8
Bank Share in Fitch Securitization	All securitization business originated by a given bank and rated by Fitch as a percentage of all securitization business by Fitch over the period 2000 to 2010	Percent	0.2%	0.0%	0.0%	7.3%
Related Bank Subsidiaries	Number of related entities rated by Fitch	Number	2.5	0.0	2.0	16.0
Leverage	Common equity divided by total assets	Percent	8.0%	1.6%	7.4%	20.2%
Profitability	Net income divided by average shareholders' equity	Percent	7.5%	-39.6%	8.3%	26.9%
Liquidity	Cash and marketable securities divided by customer deposits plus short- and long-term debt	Percent	17.8%	0.0%	14.4%	73.5%
Short-Term Funding	Interbank borrowing plus short-term debt divided by interbank borrowing plus short-term debt and long-term debt	Percent	18.1%	0.1%	14.6%	61.4%

Notes: This table reports the names, definitions, and descriptive statistics for the variables in our analysis. These statistics are based on the 212 banks. Fitch ratings are translated into a numerical value according to the table in appendix A, where a higher value corresponds to higher rating category. The bank characteristics are averages from 2008 to 2010 and are from Bankscope. "Rating Surprise for Ordinal Ranking" is calculated as stated below if bank A experiences a ranking reversal vis-à-vis some banks B, and zero otherwise.

from 2000 to 2010 divided by Fitch's total securitization business over that decade. Table 4 shows that this variable ranges from 0.0 percent to 7.3 percent, with a mean of 0.2 percent. The ratings catering hypothesis predicts that Fitch would assign a higher standalone rating if the bank represents a greater share of Fitch securitization business, all else equal. Alternatively, Fitch may face less uncertainty about banks that it performs more business with. This could lead it to assign higher standalone ratings to these banks, all else equal. As we cannot distinguish between these two explanations, we are cautious when interpreting bank share of Fitch securitization.

Our third proxy of ratings catering incentives is a categorical variable that counts the number of related bank subsidiaries rated by Fitch. Banking groups pay a fee to Fitch for each rated subsidiary (unless the rating is unsolicited). For instance, HSBC and Bank Santander have 16 and 14 rated subsidiaries, respectively. Table 4 shows that related bank subsidiaries ranges from 0 to 16, with a mean of 2.5. We expect that banks with more related entities rated by Fitch will be treated more favorably.

6. Results

6.1 Rating Surprises

In this subsection, we summarize the rating surprises for our sample of 212 banks. Irrespective of the underlying benchmark, the standalone rating surprises exhibit a positive skew. This is seen in figure 3, which provides histograms for the three rating surprise measures and the percentage of positive, negative, and neutral surprises (in the subtitle to each panel).¹⁹ In comparison with the baseline benchmark, the advanced benchmark incorporates more information and thus, unsurprisingly, delivers more neutral outcomes: 82 percent versus 51 percent. That said, in each case, there are markedly more positive than negative surprises: 43 percent versus 6 percent for the baseline benchmark and 17 percent versus 1 percent for the advanced benchmark.

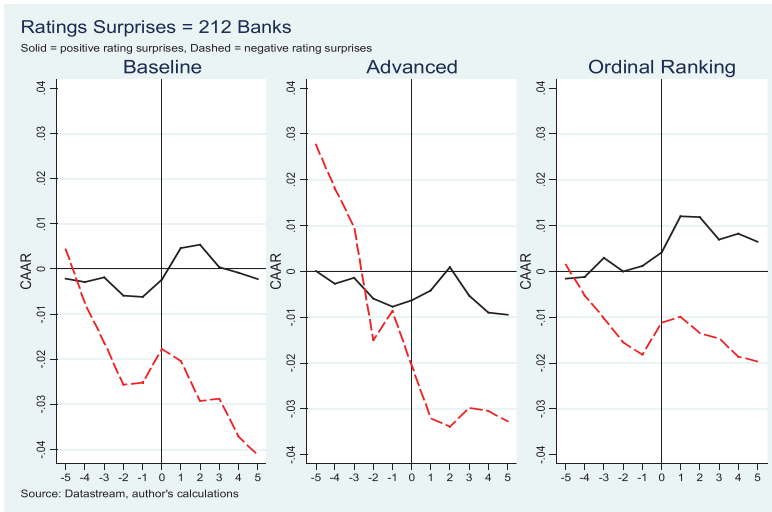
¹⁹We treat any surprises within half a notch as neutral, as they are artificially generated when the midpoint of the relevant range is not a whole number.

Figure 3. Rating Surprises by Benchmark

Notes: This figure provides histograms of rating surprises under three different benchmarks for the sample of 212 banks. Rating notches are shown on the horizontal axis and the number of banks in each bin on the vertical axis. The measures of rating surprises are based on three benchmarks: (i) the baseline, based on the Fitch mapping of standalone ratings from the 9-point to the 21-point scale; (ii) the advanced, based on the relationship between the all-in rating, the 21-point standalone rating, and the Support Rating Floor; and (iii) the ordinal ranking, based on a comparison of the rank ordering of banks under the 21-point standalone rating versus the rank ordering under the 9-point standalone rating. The first two rating surprise measures are the actual 21-point standalone rating minus the benchmark (expected) rating; the third rating surprise measure shows the degree of ranking reversals. The subtitle in each panel reports the percentage of positive (“Pos”) rating surprises (higher than expected), negative (“Neg”) rating surprises (lower than expected), and no (“No”) rating surprise (as expected).

Interestingly, even the surprises based on the ordinal ranking benchmark exhibit a slight positive skew. This benchmark generates 20 percent positive surprises and 15 percent negative surprises, with two-thirds of the banks maintaining their ordinal ranking. This means that the number of banks benefiting from a ratings reversal is larger than that of the banks that suffered from the reversal. For example, there are 18 banks rated “C” (11.5) on the 9-point scale

Figure 4. Cumulative Abnormal Returns by Benchmark



Notes: This figure shows the cumulative abnormal returns (CARs) based on market-model abnormal returns for three different rating surprises for the sample of 212 banks. Business days around the event are shown on the horizontal axis and the stock return in percent on the vertical axis. The measures of rating surprises are based on three benchmarks: (i) the baseline, based on the Fitch mapping of standalone ratings from the 9-point to the 21-point scale; (ii) the advanced, based on the relationship between the all-in rating, the 21-point standalone rating, and the Support Rating Floor; and (iii) the ordinal ranking, based on a comparison of the rank ordering of banks under the 21-point standalone rating versus the rank ordering under the 9-point standalone rating. The first two rating surprise measures are the actual 21-point standalone rating minus the benchmark (expected) rating; the third rating surprise measure shows the degree of ranking reversals.

that ended up with higher ratings on the 21-point scale than 8 banks rated “B/C” (13.5) on the 9-point scale.

6.2 Univariate Tests of Rating Surprises and Stock Returns

Next, we test the hypothesis that the stock prices of banks experiencing higher rating surprises outperform banks experiencing lower rating surprises (hypothesis 1). A first indication that this is indeed the case comes from figure 4, which plots cumulative abnormal returns starting 5 days prior to the event and cumulated over the next 10

days, i.e., a $[-5,5]$ window that encompasses the $[-2,2]$ event window we focus on. The solid line is for banks with positive rating surprises and the dashed line is for those with negative surprises. The difference between the average CARs of banks with positive rating surprises and those with negative rating surprises exhibits a similar time profile across the three underlying benchmarks, with positive-surprise banks outperforming negative-surprise banks.

We first report univariate tests and then present multivariate regressions. Table 5 compares the equally weighted stock return for portfolios of banks that received positive rating surprises with portfolios of banks with negative surprises. We show results for the CARs summed from two days before to two days after the Fitch release, $[-2,2]$. Panel A is based on the full sample and panel B on the sample excluding European banks. This table reveals that banks with positive rating surprises outperform, whereas those with negative surprises underperform. The positive-surprise banks outperform the negative-surprise banks by 1.2 to 4.6 percentage points and the difference is statistically significant in all cases. The largest differences are for the advanced benchmark, which delivers the smallest number of surprises (36 out of 212 banks for the full sample, 29 out of 159 for non-European banks).

The CARs for banks with no surprises lie between the positive- and negative-surprise banks. The average CAR of no-surprise banks is significantly smaller than the average CAR of positive-surprise banks under the baseline benchmark for the full sample, and the baseline and ordinal ranking benchmarks for the sample excluding European banks. And it is significantly larger than the average CAR of negative-surprise banks under the advanced benchmark for both samples. In all other cases, the differences are not statistically significant. All in all, these univariate results support our first hypothesis.

6.3 Multivariate Tests of Rating Surprises and Stock Returns

To dig deeper into the impact of rating surprises on stock market prices (hypothesis 1), we run cross-sectional regressions on CARs. The results are in table 6, where panel A presents results for all banks and panel B excludes European banks (robust standard errors are clustered by country). The key explanatory variables are two dummy

Table 5. Univariate Tests

Rating Surprise for:	Baseline		Advanced		Ordinal Ranking	
	Obs.	CAR[-2,2]	Obs.	CAR[-2,2]	Obs.	CAR[-2,2]
<i>A. Full Sample</i>						
Positive Surprise	91	0.7%	33	0.2%	43	0.9%
No Surprise	109	-0.1%	176	0.2%	137	0.1%
Negative Surprise	12	-1.3%	3	-4.4%	32	-0.3%
Total	212		212		212	
Positive Minus Negative Surprises	103	2.0%**	36	4.6%**	75	1.2%***
P-value, Two-Tailed Test		0.018		0.034		0.040
Positive Minus No Surprise	200	0.8%**	209	0.0%	180	0.8%
P-value, Two-Tailed Test		0.037		0.990		0.103
Negative Minus No Surprise	121	-1.2%	179	-4.6%***	169	-0.4%
P-value, Two-Tailed Test		0.198		0.005		0.528
<i>B. Excluding European Banks</i>						
Positive Surprise	60	0.3%	26	-0.5%	31	0.7%
No Surprise	87	-0.6%	130	-0.2%	100	-0.5%
Negative Surprise	12	-1.3%	3	-4.4%	28	-0.8%
Total	159		159		159	
Positive Minus Negative Surprises	72	1.6%**	29	3.8%**	59	1.5%***
P-value, Two-Tailed Test		0.025		0.011		0.019
Positive Minus No Surprise	147	0.9%**	156	-0.3%	131	1.2%***
P-value, Two-Tailed Test		0.043		0.490		0.039
Negative Minus No Surprise	99	-0.7%	133	-4.2%***	128	-0.3%
P-value, Two-Tailed Test		0.425		0.009		0.619

Notes: This table reports the equal-weighted stock returns for portfolios of banks that received rating surprises, either positive or negative, or no surprise. The rating surprises are calculated with respect to three benchmarks: baseline, advanced, and ordinal ranking, calculated as indicated in table 4. Market model-adjusted cumulative abnormal returns (CARs) are summed from two days before to two days after the Fitch release on July 20, 2011. Market model-adjusted returns are based on regressions of daily bank stock returns on a country-specific stock market index, returns from the MSCI World Banks Index, and a constant, over an estimation window from 80 to 10 trading days prior to July 20, 2011. ***, **, and * signify statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 6. Multivariate Regressions of Stock Reaction to Rating Surprises Using Dummy Variables

	Model					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>A. Full Sample</i>						
Positive Rating Surprise for Baseline	0.0087**	0.0023	0.0001	-0.0024	0.0084**	0.0075
Negative Rating Surprise for Baseline	-0.0115***	-0.0030	-0.0459***	-0.0385***	-0.0037	0.0013
Positive Rating Surprise for Advanced						0.0030*
Negative Rating Surprise for Advanced		0.0027		0.0027		-0.3283**
Positive Rating Surprise for Ordinal Ranking		-0.3532***		-0.3534***		-0.0003
Negative Rating Surprise for Ordinal Ranking		-0.0003		-0.0002		0.0009
Bank Size		0.0009		0.0007		-0.0568
Bank Share of Fitch Securitization		-0.0563		-0.0546		0.0278*
Related Bank Subsidiaries		0.0253*		0.0257*		0.0007
Sovereign Rating		0.0022		0.0075		0.0013
Leverage		0.0012		-0.0033		0.0043
Profitability		0.0041		0.0065		0.0132**
Liquidity		0.0141***		0.0143***		0.0173**
Short-Term Funding		0.0170**		0.0186**		0.0041
1 = Asia		0.0047		0.0039		0.0031
1 = Italy, Portugal, Spain		-0.0003		0.0027		
1 = Europe Minus Italy, Portugal, Spain						
1 = Rest of World						
1 = 9-Point Standalone is Low						
(C/D, D, D/E, or E)						
1 = 9-Point Standalone is High (A/B, B)						
Constant	-0.0014	-0.0022	0.0023	-0.0019	0.0005	-0.0521**
Number of Observations	212	212	212	212	212	212
R2 Adjusted	0.027	0.064	0.026	0.084	0.009	0.070
Positive Minus Negative Rating Surprise	2.0%	0.5%	4.6%	3.6%	1.2%	0.6%
P-value	0.0001	0.2174	0.0001	0.0041	0.0323	0.3926
Statistical Significance	****		****	****	**	

(continued)

Table 6. (Continued)

	Model					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>B. Excluding European Banks</i>						
Positive Rating Surprise for Baseline	0.0092***	0.0041	-0.0039	-0.0065	0.0116***	0.0117**
Negative Rating Surprise for Baseline	-0.0070***	0.0002	-0.0421***	-0.0356***	-0.0029	-0.0006
Positive Rating Surprise for Advanced						0.0038**
Negative Rating Surprise for Advanced						0.3474
Positive Rating Surprise for Ordinal Ranking						0.0005
Negative Rating Surprise for Ordinal Ranking						0.0006
Bank Size		0.0037**		0.0038***		-0.0050
Bank Share of Fitch Securitization		0.2714		0.2783		0.0278
Related Bank Subsidiaries		0.0005		0.0005		-0.0150
Sovereign Rating		0.0006		0.0006		0.0337**
Leverage		-0.0040		-0.0179		0.0035
Profitability		0.0230		0.0245		0.0014
Liquidity Ratio		-0.0094		-0.0052		0.0044
Short-Term Funding		0.0308**		0.0244		
1 = Asia		0.0045		0.0075		
1 = Rest of World		0.0038		0.0041		
1 = 9-Point Standalone is Low		-0.0001		0.0044		
1 = 9-Point Standalone is High (A/B, B)		-0.0014		-0.0014		
Constant	-0.0059**	-0.0631***	-0.0015	-0.0612***	-0.0047*	0.0021
Number of Observations	159	159	159	159	159	-0.0650***
R2 Adjusted	0.025	0.040	0.035	0.069	0.022	0.061
Positive Minus Negative Rating Surprise	1.6%	0.4%	3.8%	2.9%	1.5%	1.2%
P-value	0.0001	0.2899	0.0001	0.0065	0.0004	0.036
Statistical Significance	***		***	***	***	**

Notes: This table reports regressions of abnormal bank stock returns on rating surprises and bank characteristics. The dependent variable is the market model-adjusted abnormal return from two days before to two days after July 20, 2011, CAR[2,-2]. The rating surprises are calculated with respect to three benchmarks (baseline, advanced, and ordinal ranking), calculated as indicated in table 4. There are two dummies, one for positive surprises and one for negative surprises. The reference case in each regression is banks with no surprise. For each measure of rating surprise there are three specifications: a first regression with only the rating surprise, a second with proxies of ratings catering, and a third with bank characteristics and region dummies, defined in table 3. The regressions are estimated by pooled OLS, with robust standard errors clustered by country. ***, **, and * signify statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

variables, one set to 1 for positive rating surprises (and 0 otherwise), and the other set to 1 for negative rating surprises (and 0 otherwise). The reference case with no rating surprises is captured by the constant. At the bottom of each column, we calculate the difference between the coefficients on the positive and negative dummies, and test whether this difference is statistically different from zero.

The results in columns 1, 3, and 5—which only use the rating surprise dummies as explanatory variables—confirm the findings from the univariate analysis. In fact, the coefficient differences at the bottom of the table are identical by construction to the difference between the average CARs of the positive- and negative-surprise banks reported in table 5.

For the multivariate regressions in columns 2, 4, and 6, we include additional explanatory variables. Three of these variables relate to ratings catering motives on the part of Fitch: bank size, bank share in Fitch securitization business, and the number of related bank subsidiaries rated by Fitch. In addition, we consider the rating of the bank's sovereign, bank-specific characteristics (leverage, profitability, liquidity, and short-term funding). These explanatory variables were known several months before the release of the 21-point stand-alone ratings. But the stock market could have viewed some of these variables as potential drivers of the rating surprises. Finally, we include regional dummies for Asia, Italy/Portugal/Spain, Europe less Italy/Portugal/Spain, and the rest of the world, with North American banks as the base case. A systematic relationship between an added explanatory variable and bank CARs would be consistent with the market reacting to new information about the way in which Fitch assesses intrinsic financial strength.

The takeaways from the multivariate regressions depend on the sample. For the full sample (panel A), we observe a significant negative relationship between banks' share price reaction and their share of Fitch securitization business. This would be consistent with the market penalizing banks that had benefited from ratings catering. In addition, the ratings refinement led the market to reward more profitable banks and European banks. Italian, Portuguese, and Spanish banks outperformed their North American peers by 1.32 to 1.43 percentage points on average over the five-day window. Similarly, other European banks outperformed by 1.70 to 1.86 percentage points. When we exclude European banks (panel B), the picture changes.

In particular, the findings indicate that the stock market rewarded larger banks. And, for two out of the three benchmarks, the market also favored banks with a bigger share of short-term funding, possibly reversing a previously excessive penalty on such banks.

The inclusion of additional explanatory variables improves the fit of the regressions. This is consistent with the market revising the relationship between these variables and Fitch's assessments of banks' intrinsic financial strength. And even when this revision is factored out, the findings under the advanced benchmark, in column 4, reveal that banks with negative rating surprises underperformed by 3.85 percentage points over the five-day event window. The message is similar when we exclude European banks and refer to the ordinal ranking benchmark (column 6, panel B), where positive-surprise banks outperform by 1.17 percentage points. All in all, these results lend further support to our first hypothesis.

6.4 Testing for Ratings Inflation

Given the importance of standalone rating refinements for investors in bank equity, there is value in identifying any specific patterns in these refinements. Referring back to the universe of 861 banks rated by Fitch, we evaluate the ratings inflation hypothesis (hypothesis 2a) in several ways. First, we note that the ordinal ranking benchmark is not well suited for studying ratings inflation because, under it, each positive (negative) surprise is matched by construction with at least one negative (positive) surprise of a roughly equal magnitude. We therefore focus on each 9-point standalone rating category, one at a time, and test whether the ex post mean of the corresponding 21-point ratings is statistically different from the baseline benchmark. The results of this test are in table 1, column 7. They reveal that the average ratings inflation is around half a rating notch and that inflation rises to a full notch for banks in the lowest rating category, "E."

Second, we revisit table 2, which reveals that the 21-point ratings tend to be in the top half or even above the ranges corresponding to the 9-point ratings. We test whether, for a given 9-point rating, the observed distribution of 21-point ratings could be the outcome of random allocations. The results of Monte Carlo simulations are

not consistent with such a scenario and are supportive of ratings inflation (hypothesis 2a).

6.5 Testing for Ratings Catering

Our hypothesis on ratings catering (hypothesis 2b) refers to the direction and magnitude of the rating surprise when the refined standalone ratings were announced. In table 7, we test whether the direction and magnitude of rating surprises relate systematically to observable bank characteristics, in particular the three proxies for ratings catering: bank size, the bank's share of Fitch securitization, and the number of related bank subsidiaries rated by Fitch. Again, panel A provides regression results for the sample of 212 banks, while panel B is for the 159 non-European banks. In each case, the dependent variable is the size of the rating surprise, shown in figure 3. We explore four specifications for each benchmark. The first three zoom in sequentially on each of the three proxies for ratings catering. The fourth specification adds bank-specific control variables, as well as region dummies (with North American banks as the base case). The regressions are estimated with robust standard errors clustered by country.

The goodness of fit varies materially across specifications. For one, negative values of the adjusted R^2 speak against the explanatory power of the share of Fitch securitization business and the number of related bank subsidiaries rated by Fitch. The goodness of fit shoots up when we include the full set of controls, with the adjusted R^2 ranging from 19 percent for the advanced benchmark, which delivers the smallest number of surprises, to 35 percent for the ordinal ranking benchmark.

Across the specifications, three sets of variables exhibit robust explanatory power. First, bank size is positively associated with rating surprises in 10 out of 12 regressions. Second, the coefficients on the ratings dummies indicate that banks with the lowest 9-point standalone ratings (C/D, D, D/E, or E) experienced more positive surprises while banks with the highest 9-point ratings (A/B, B) experienced more negative surprises for the baseline and advanced benchmarks. Thus, it seems that, in addition to inflating ratings, Fitch reduced the overall dispersion of ratings across banks. Third,

Table 7. Factors Explaining Rating Surprises

Dependent Variable: Rating Surprise for:	Baseline				Advanced				Ordinal Ranking			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>A. 2112 Publicly Listed Banks</i>												
Bank Size	0.2414***	5.2634		0.2516***	0.0243	-3.7135**		0.0993**	0.2149*	4.4837		0.3738***
Bank Share of Fitch Securitization				-14.7779**				-5.7359				-17.2097
Related Bank Subsidiaries		0.0235		-0.0221			-0.0135	-0.0086			0.0014	-0.0290
Sovereign Rating				0.0775*				0.0709**				0.0770
Leverage				-2.1591				-2.2221				-0.8392
Profitability				0.8586				0.2437				0.5525
Liquidity				0.9473*				-0.5437*				2.4282***
Short-Term Funding				-0.4933				-0.062				-1.3895
1 = Asia				0.6556***				0.3058**				0.9503**
1 = Italy, Portugal, Spain				0.7260**				-0.0211				1.4458***
1 = Europe Minus Italy, Portugal, Spain				0.4169**				0.0646				0.6155*
1 = Rest of World				0.5854				0.4650*				1.2546**
1 = 9-Point Standalone is Low (C/D, D, D/E, or E)				0.5313***				0.5528***				-0.4807
1 = 9-Point Standalone is High (A/B, B)				-0.139				-0.3377***				-2.4219***
Constant	-2.1377***	0.5748***	0.5267***	-3.9916***	-0.0479	0.2335***	0.2598***	-2.0553**	-2.2679	0.1470	0.1520	-5.5399***
No. of Obs.	212	212	212	212	212	212	212	212	212	212	212	212
R2 Adjusted	0.179	-0.003	-0.001	0.282	0.000	-0.002	-0.002	0.207	0.034	-0.004	-0.005	0.347

(continued)

Table 7. (Continued)

Dependent Variable: Rating Surprise for:	Baseline			Advanced			Ordinal Ranking					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>B. Excluding European Banks</i>												
Bank Size	0.2558***	16.5676	-0.0172	0.2566***	0.0262	-13.5085**		0.1079*	0.2331**	12.8218		0.3662***
Bank Share of Fitch Securitization				-11.6422				-6.3614				-11.9724
Related Bank Subsidiaries				-0.0407				-0.0406**				-0.0681
Sovereign Rating				0.0686				0.0698**				0.0759
Leverage				-2.9663				-2.1126				-2.7227
Profitability				0.3149				0.1197				-0.4064
Liquidity				0.8720				-0.7600*				2.6849***
Short-Term Funding				-0.5002				-0.0123				-1.8325
1 = Asia				0.6524**				0.3167*				0.9942**
1 = Rest. of World				0.6582				0.5016*				1.4464**
1 = 9-Point Standalone is Low (C/D, D, D/E, or E)				0.4506**				0.4244**				-0.4492
1 = 9-Point Standalone is High (A/B, B)				-0.1156				-0.3796**				-2.2557***
Constant	-2.3364***	0.4494**	0.4959**	-3.7326***	-0.0596	0.2343***		-2.0095**	-2.4999*	0.0393	0.1131	-5.1979**
No. of Obs.	159	159	159	159	159	159	159	159	159	159	159	159
R2 Adjusted	0.169	-0.003	-0.005	0.273	-0.002	-0.001	0.010	0.188	0.030	-0.006	-0.005	0.327

Notes: This table reports regressions of rating surprises on bank characteristics. Panel A is the sample of 212 publicly listed banks, while panel B excludes European banks. The dependent variable is a proxy of the rating surprise calculated with respect to three benchmarks: baseline, advanced, and ordinal ranking, calculated as indicated in table 4. The bank characteristics are defined in table 4. The regressions are estimated by pooled OLS, with robust standard errors clustered at the country level. ***, **, and * signify statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

the positive coefficients of the region dummies reveal that the ratings refinement benefited on average banks domiciled outside North America.

We conclude that these results provide weak evidence for ratings catering (hypothesis 2b). Two of the three proxies do not robustly explain the rating surprises. Nonetheless, bank size does matter (as in, e.g., Baghai and Becker 2017).

7. Conclusion

Standalone ratings are special, as they provide an assessment of banks' intrinsic financial strength without taking into account potential extraordinary support from the home-country sovereign or parent bank. These ratings have attracted limited attention in the literature but contain potentially useful information for bank stakeholders and regulators.

On July 20, 2011, Fitch Ratings replaced the existing 9-point standalone ratings with 21-point Viability Ratings. As a result of this refinement, the 21-point standalone ratings became directly comparable with all-in ratings—the widely publicized measure of default risk that incorporates potential sovereign or parent-bank support. Fitch did not change its all-in ratings on July 20, 2011, and it did not change the methodology for determining standalone ratings. Instead the refinement of the 9-point standalone ratings clarified Fitch's assessment of banks' intrinsic financial strength. More granular ratings allowed Fitch to provide greater detail on the relative ranking of banks that formerly were grouped in the same coarse rating categories. Fitch also clarified the importance of potential sovereign or parent-bank support, which was previously not transparent. In essence, Fitch publicly disclosed information that was potentially relevant for equity investors, while keeping unchanged its assessments of banks' default risk.

Using this uniquely informative event, we examine whether the disclosed information was valuable to bank shareholders, test for ratings inflation, and study the potential drivers of standalone rating refinements. We find that equity investors rewarded banks with higher than expected 21-point standalone ratings. We also find that much of this response was due to greater clarity about the importance Fitch attributed to different bank characteristics. The

refinement tended to benefit large banks, banks domiciled outside North America, and banks that had low coarse standalone ratings. In addition, there is evidence that the transition to a more granular rating scale tended to deliver higher than expected bank standalone ratings, i.e., ratings inflation, but the evidence on ratings catering is mixed.

Table A.1. Fitch Rating Point and Numerical Values Assigned

Our Label:	All-in Rating		9-Point Standalone Rating		21-Point Standalone Rating	
	Issuer Default Rating	Our Numeric Point	Fitch Letter Code	Our Numeric Point	Fitch Letter Code	Our Numeric Point
	AAA	20			aaa	20
	AA+	19	A	19.0	aa+	19
	AA	18	A/B	17.0	aa	18
	AA-	17	B	15.5	aa-	17
	A+	16	B/C	13.5	a+	16
	A	15			a	15
	A-	14			a-	14
	BBB+	13	C	11.5	bbb+	13
	BBB	12			bbb	12
	BBB-	11	C/D	9.5	bbb-	11
	BB+	10			bb+	10
	BB	9			bb	9
	BB-	8	D	7.0	bb-	8
	B+	7			b+	7
	B	6	D/E	5.0	b	6
	B-	5			b-	5
	CCC	3			ccc+	4
			E	1.5	ccc	3
	CC	1			ccc-	2
	C	0	F	0.0	cc	1
					c	0

Notes: This table reports the numerical values assigned to each of the Fitch’s ratings in this study. The value of a 9-point standalone rating (“Individual Rating”) is set equal to the midpoint of the corresponding range on the 21-point standalone rating (“Viability Rating”), based on a mapping published by Fitch prior to the transition. In this mapping, a 9-point standalone rating translates into one of several possible 21-point standalone ratings, reflecting the combination of qualitative and quantitative factors employed by Fitch to derive a standalone rating.

Appendix B

Table B.1. Correlation Coefficients

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
21-Point Standalone Rating	1.0000														
9-Point Standalone Rating	0.9442*	1.0000													
All-in Rating	0.8088*	0.7145*	1.0000												
Support Rating	0.3506*	0.1799*	0.6350*	1.0000											
Floor															
Rating Surprise for Baseline	0.2772*	-0.0331	0.3390*	0.5070*	1.0000										
Rating Surprise for Advanced	-0.1836*	-0.3444*	0.0416	0.2146*	0.4557*	1.0000									
Rating Surprise for Ordinal	0.0534	-0.1937*	0.0809	0.3322*	0.7157*	0.2896*	1.0000								
Ranking															
Bank Size	0.5460*	0.4165*	0.6129*	0.6407*	0.4273*	0.0684	0.1960*	1.0000							
Bank Share	0.1345*	0.1143*	0.2437*	0.2201*	0.0462	-0.0518	0.0203	0.3966*	1.0000						
of Fitch															
Securitization															
Related Bank	0.2523*	0.2454*	0.2406*	0.1833*	0.0613	-0.0558	0.0019	0.3635*	0.3641*	1.0000					
Subsidiaries															
Sovereign Rating	0.4391*	0.4466*	0.4840*	-0.0894	-0.0041	0.0017	-0.1682*	0.2037*	0.1510*	0.1425*	1.0000				
Leverage	-0.1927*	-0.0870	-0.2262*	-0.3192*	-0.3162*	-0.1515*	-0.0652	-0.5261*	-0.1806*	-0.1547*	-0.2067*	1.0000			
Profitability	0.2696*	0.2583*	0.2142*	0.2774*	0.0569	-0.0915	0.0457	-0.0103	-0.1004	-0.0032	-0.4052*	0.2179*	1.0000		
Liquidity	0.2558*	0.1623*	0.2796*	0.4054*	0.2882*	-0.0611	0.1824*	0.4157*	0.1456*	0.0939	-0.0377	-0.1537*	0.0764	1.0000	
Short-Term Funding	0.2896*	0.1928*	0.4351*	0.4963*	0.3029*	0.0839	0.0917	0.6135*	0.2341*	0.2297*	0.2162*	-0.3002*	-0.0537	0.4531*	1.0000

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