

## CREDIT OPINION

25 May 2016

### Update

Rate this Research >>

#### RATINGS

##### Bank of Ireland

Domicile	Dublin, Ireland
Long Term Rating	Baa2
Type	LT Bank Deposits - Fgn Curr
Outlook	Positive

*Please see the ratings section at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.*

#### Analyst Contacts

**Carlos Suarez Duarte** 44-20-7772-1061  
 VP-Senior Analyst  
[carlos.suarezduarte@moodys.com](mailto:carlos.suarezduarte@moodys.com)

**Maija Sankauskaite** 44-20-7772-1092  
 Associate Analyst  
[maija.sankauskaite@moodys.com](mailto:maija.sankauskaite@moodys.com)

**Laurie Mayers** 44-20-7772-5582  
 Associate Managing Director  
[laurie.mayers@moodys.com](mailto:laurie.mayers@moodys.com)

**Nick Hill** 33-1-5330-1029  
 Managing Director - Banking  
[nick.hill@moodys.com](mailto:nick.hill@moodys.com)

**Dany Castiglione** 44-20-7772-1070  
 Vice President  
[dany.castiglione@moodys.com](mailto:dany.castiglione@moodys.com)

## Bank of Ireland

### Continuing improvements in credit metrics

#### Summary Rating Rationale

We assign long-term bank deposit and long-term senior unsecured ratings of Baa2 and short-term deposit and senior debt ratings of Prime-2 to Bank of Ireland (BOI). The ratings are underpinned by (1) the bank's ba2 Baseline Credit Assessment (BCA); (2) the results of our Advanced Loss Given Failure (LGF) analysis which leads to a Preliminary Rating Assessment (PRA) for both deposits and senior unsecured debt two notches above the BCA; and (3) a moderate probability of government support, resulting in a further notch of uplift above the PRA for both deposit and senior unsecured debt ratings.

BOI's BCA of ba2 reflects the bank's: (1) still elevated stock of problem loans, albeit expected to decline further given the positive operating environment in Ireland and the UK; (2) enhanced ability to generate capital organically, subject to volatility in the pension deficit; (3) improved profitability, supported by the bank's strong franchise, although emerging margin pressures are a challenge.

#### Credit Strengths

- » Strong domestic franchise in Ireland and expanding position in the UK through its partnerships with the Post Office and AA plc;
- » Solid and further improving capital and leverage metrics, with the bank's enhanced ability to generate capital organically expected to offset the maturity and derecognition of some capital instruments in 2016;
- » Sound funding profile with decreasing reliance on wholesale funding.

#### Credit Challenges

- » Sizable stock of problem loans, although declining thanks to the favourable operating environment in the UK and Ireland;
- » Emerging pressure on the interest margin given increasing pricing competition in the mortgage market.

#### Rating Outlook

The positive outlook on BOI's long-term senior deposit and debt ratings reflects our expectation that asset risk and profitability metrics will continue to improve, supported by the favourable operating environment in the UK and Ireland. It also reflects the expectation that the maturity of the bank's high trigger contingent capital instruments and the potential

volatility arising from an unexpected increase in its pension deficit will be offset by organic capital generation.

### Factors that Could Lead to an Upgrade

- » BOI's long-term debt and deposit ratings could be upgraded as a result of (1) an increase of its standalone ba2 BCA; or (2) a significant increase in the bank's bail-in-able debt;
- » BOI's ba2 standalone BCA could be upgraded following (1) further reductions in the stock of non-performing loans in line with the current trend; (2) higher capital ratios; and (3) maintenance of adequate funding and liquidity metrics.

### Factors that Could Lead to a Downgrade

- » BOI's deposit and senior unsecured debt ratings could be downgraded as a result of (1) a lowering of its standalone ba2 BCA; or (2) reduction in subordinated debt resulting in higher loss-given-failure for more senior instruments.
- » BOI's ba2 standalone BCA could be downgraded following (1) a deterioration in the bank's asset quality metrics; (2) a significant deterioration in the bank's regulatory capital metrics; (3) a decline in profitability metrics; and (4) a significant deterioration in the bank's funding or liquidity metrics.

### Key Indicators

Exhibit 1

#### BANK OF IRELAND (Consolidated Financials) [1]

	12-15 <sup>2</sup>	12-14 <sup>2</sup>	12-13 <sup>2</sup>	12-12 <sup>3</sup>	12-11 <sup>3</sup>	Avg. <sup>4</sup>
Total Assets (EUR million)	127089.0	125540.0	128215.0	141854.0	154880.0	-4.8 <sup>4</sup>
Total Assets (USD million)	138056.2	151910.1	176672.8	187019.1	201056.7	-9.0 <sup>4</sup>
Tangible Common Equity (EUR million)	7451.1	6237.3	5540.9	5895.2	8750.4	-3.9 <sup>4</sup>
Tangible Common Equity (USD million)	8094.1	7547.4	7635.1	7772.2	11359.3	-8.1 <sup>4</sup>
Problem Loans / Gross Loans (%)	11.0	15.0	17.0	16.3	12.8	14.4 <sup>5</sup>
Tangible Common Equity / Risk Weighted Assets (%)	13.2	11.1	8.5	8.9	11.4	10.9 <sup>6</sup>
Problem Loans / (Tangible Common Equity + Loan Loss Reserve) (%)	74.9	98.1	114.5	121.2	89.3	99.6 <sup>5</sup>
Net Interest Margin (%)	1.8	1.7	1.4	0.9	0.9	1.3 <sup>5</sup>
PPI / Average RWA (%)	2.4	2.2	1.8	0.1	0.3	2.1 <sup>6</sup>
Net Income / Tangible Assets (%)	0.6	1.1	-0.4	-0.8	-1.1	-0.1 <sup>5</sup>
Cost / Income Ratio (%)	58.3	57.2	58.2	97.8	86.2	71.5 <sup>5</sup>
Market Funds / Tangible Banking Assets (%)	10.0	15.4	20.4	27.2	37.4	22.1 <sup>5</sup>
Liquid Banking Assets / Tangible Banking Assets (%)	19.6	20.1	19.6	21.6	18.5	19.9 <sup>5</sup>
Gross loans / Due to customers (%)	113.0	119.6	125.6	133.3	149.9	128.3 <sup>5</sup>

[1] All figures and ratios are adjusted using Moody's standard adjustments [2] Basel III - fully-loaded or transitional phase-in; IFRS [3] Basel II; IFRS [4] Compound Annual Growth Rate based on IFRS reporting periods [5] IFRS reporting periods have been used for average calculation [6] Basel III - fully-loaded or transitional phase-in & IFRS reporting periods have been used for average calculation

Source: Moody's Financial Metrics

### Detailed Rating Considerations

The financial data in the following sections are sourced from BOI's consolidated financial statements unless otherwise stated.

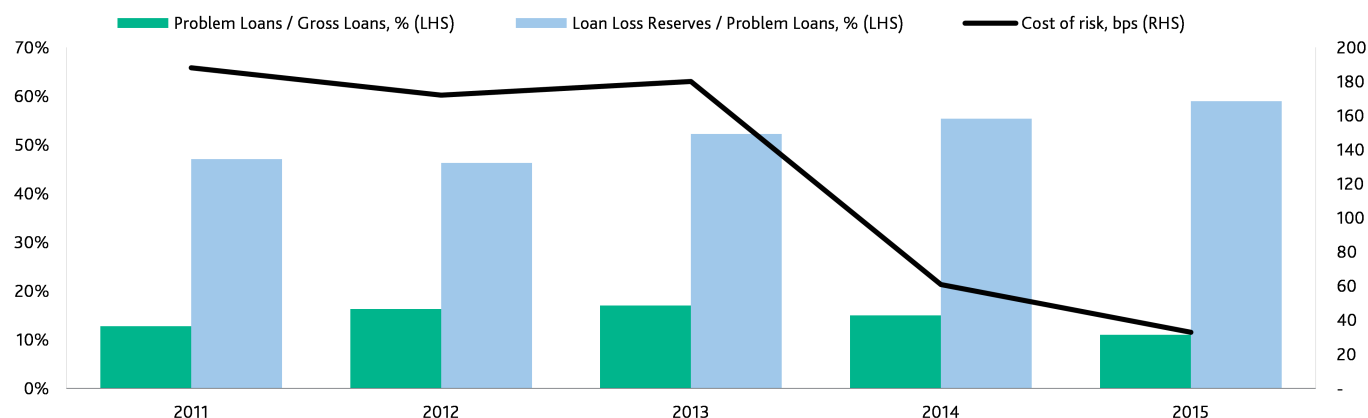
#### Improving asset quality, albeit stock of problem loans remains elevated

BOI continues to report improvements in its asset risk metrics: the impaired loan ratio declined to 11.0% at end of December 2015 compared to 15.0% as of December 2014 with the total level of impaired loans declining by €3.4 billion. The cost of risk (measured by loan loss provisions over gross loans) fell to 33 basis points from 61 basis points in the same period, and problem loan provision

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on [www.moody's.com](http://www.moody's.com) for the most updated credit rating action information and rating history.

coverage improved to 59.0%. The reduction in impaired loans was driven by improvements in the operating environment in Ireland, which have led to a significant decline in the unemployment rate, and the bank's significant effort to provide sustainable restructuring solutions to troubled borrowers. However, the overall level of impaired loans is still elevated at €9.0 billion at end-2015 (compared to tangible common equity of €7.5 billion), exposing the bank to material downside risk. We expect a gradual recovery given the industry-wide reluctance to repossess residential properties in Ireland. We also note that the level of provisions has been deemed adequate by Irish and European authorities following successive asset quality reviews.

Exhibit 2

**BOI's Asset Risk metrics**

Source: Moody's Financial Metrics

Following improvements in property prices, the bank is better positioned - in the event of borrower default - to reclaim higher-value collateral, assuming the positive economic conditions are maintained. Residential property prices in Ireland increased by 7.1% in the year to April 2016. We believe that despite the deceleration in property prices triggered by the macro-prudential measures imposed by Ireland's Central Bank, housing supply limitations will contribute to further increases in house prices. As a result, the proportion of the bank's portfolio in negative equity continues to decline with the proportion of residential mortgages in Ireland with a loan-to-value above 120% falling to 7% as of December 2015 from 15% as of December 2014. We expect these improvements to eventually lead to further provisioning releases.

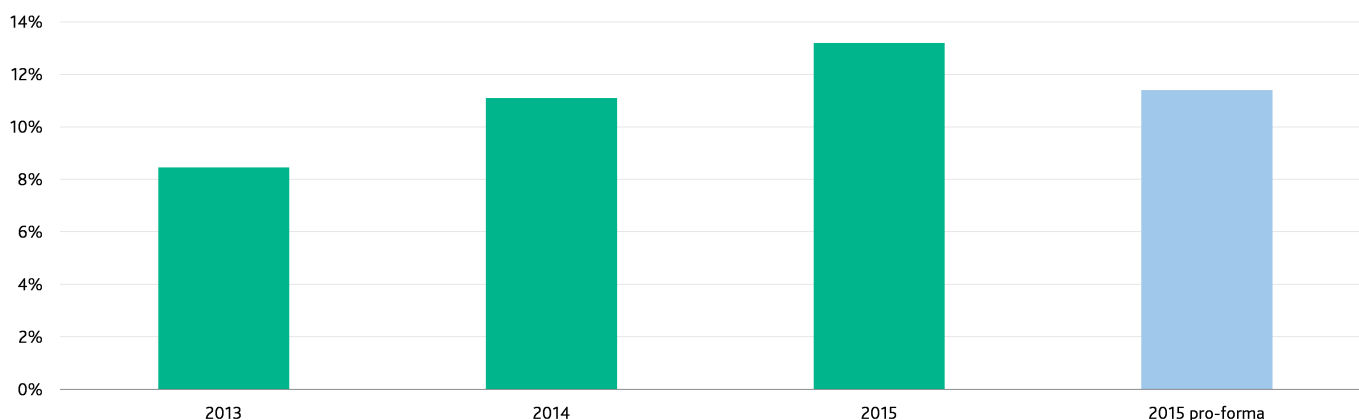
However, we believe that the bank still faces asset quality challenges in its domestic loan book: 12.2% of BOI's mortgage loans in Ireland, including buy-to-let loans, were non-performing as of end-2015. In addition, as of the same date 21.9% of Irish non-property SME was non-performing, while the non-property corporate book recorded an NPL ratio of 4.6%. BOI's domestic buy-to-let portfolio continues to face challenges since defaulted loans accounted for 21.5% of the loan book at end-2015 (27.2% at end- 2014).

The reduced inflow of new NPLs should continue to support strengthening in BOI's asset quality and profitability metrics. The bank has historically reported lower levels of problem loans compared to those of its Irish peers reflecting geographic diversification derived from its lending activities in the UK as well as its more conservative underwriting standards. However, given the size of the problem loan portfolio and the past volatility of asset prices in Ireland, we consider the bank's asset risk remains a relative weakness for the BCA with an assigned score of b2.

### **Enhanced ability to generate capital organically, but regulatory capital ratios affected by pension deficit volatility**

BOI's capital continued to strengthen with a tangible common equity to risk-weighted assets (TCE/RWA) ratio increasing to 13.2% as of December 2015 from 11.1% as of December 2014. The ratio will come down as the bank's €1.0 billion high trigger contingent convertible capital notes (CoCos) mature in July, although eventually we expect the effect to be offset by strong internal capital generation. On a pro-forma basis the end-2015 TCE/RWA ratio excluding the CoCos was 11.4%.

Exhibit 3

**BOI's Tangible Common Equity/ Risk-weighted Assets (%)**

Source: Moody's Financial Metrics

In line with our capital ratio, the bank reported an increase in the regulatory fully loaded Common Equity Tier 1 ratio (CET1) ratio to 11.3% from 9.3% during the same period. Despite the strong profitability in Q1 2016, the CET1 ratio slightly declined to 11.2% as of March 2016 driven by an increase in the defined pension deficit by €0.2 billion to €0.9 billion. While we believe that the bank's regulatory metrics will remain volatile, its improved ability to generate capital organically will largely offset the uncertainty caused by the periodic movements arising from changes in its pension deficit. BOI's fully loaded leverage ratio stood at 5.7% as of December 2015 (excluding 2009 Preference Stock as of December 2014: 4.0%), well above the Basel committee's current requirement of 3%.

The strengthened capital position facilitated the redemption in January 2016 of the remaining €1.3 billion of the 10.25% 2009 Preference Stock originally issued to the Irish State.

We see the bank's strong internal capital generation and its current TCE level as a relative strength for the BCA. The assigned score of baa2 also reflects the pension deficit volatility and expected negative effect on capital metrics of the forthcoming CoCo maturity.

### **Improvements in profitability driven by lower impairment charges and cost of funding, but margin pressures likely to arise**

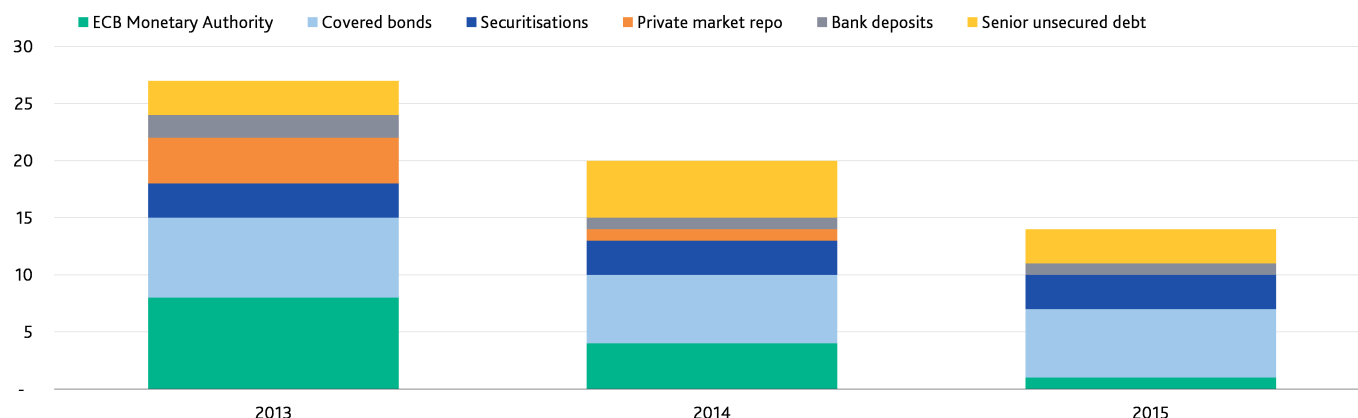
Net interest income increased by 5% in 2015 with improved net interest margin (NIM) of 2.19% for the period, compared to 2.11% in 2014. The higher NIM in 2015 was mainly driven by lower funding costs and higher lending volumes. However, we anticipate some pressure on the margins to materialise due to the increasing competition in the UK and the Irish government's commitment to lower mortgage rates. Total reported non-interest income decreased by 14% due to lower life assurance investment proceeds, but the bottom line profitability in 2015 was supported by a 45% drop in loan impairment charges. As a result, the bank reported statutory profit before tax of €1.2 billion in 2015, a 34% increase on 2014.

We expect improvements in BOI's profitability metrics to continue, aided by low impairment charges and strengthened core income, although at a slower pace given the margin pressures mentioned above. We therefore assign a Profitability score of ba2, in line with the macro-adjusted score.

### **Demonstrated market access and relatively low reliance on wholesale funding**

The bank has significantly reduced the use of wholesale funding and lowered the negative funding gap, reflected in a gross loans to customer deposits ratio (LTD) of 112.5% at 31 December 2015, according to our calculations (net LTD of 106% at the same date). Wholesale funding reduced to €14.0 billion from €20.0 billion at end-2014. The bank also reduced its use of funding provided by monetary authorities by €2.9 billion during 2015 with this type of funding now making up 11% of total wholesale funding and less than 2% of total funding. BOI's Market Funds/Tangible Banking Assets ratio of 10.0% as of December 2015 (down from 15.4% at end-2014) compares favourably to peers.

Exhibit 4

**Evolution of BOI's wholesale funding composition (€ billion)**

Source: BOI financial reports

Supported by a strong franchise in the UK and Ireland, customer deposits increased to €80.2 billion at 31 December 2015 from €74.8 billion at 31 December 2014. The bank has also proven its ability to raise funds from private investors since 2012 at different levels of its liability structure. BOI continued to access the market in 2015 issuing about €3.25 billion of term funding, making three secured issuances and one senior unsecured issuance. Overall, the bank has a diverse market funding mix, most of it is secured, and 84% of funding has maturity of over a year. The bank also issued €750 million of low trigger contingent capital notes in June 2015. We see the improved funding profile as a relative strength and therefore, we assign a Funding score of a3 to reflect this view.

BOI's has sufficient stock and good quality of liquid assets in both Ireland and the UK. As of December 2015, the bank had a Liquid Banking Assets / Tangible Banking Assets ratio of 19.6%. BOI also comfortably meets the regulatory liquidity requirements - it reported a Net Stable Funding Ratio of 120% and a Liquidity Coverage Ratio of 108% as of end-2015. We do not expect significant changes over the medium term in the bank's liquidity profile and assign a Liquid Resources score of baa3, in line with the macro-adjusted score.

**BOI's BCA is supported by its Strong- Macro Profile**

Despite being based in Ireland (macro profile of Moderate +) the bank has significant operations in the UK (Very Strong-), which in combination lead to its 'Strong-' macro profile. Both countries are wealthy countries with very high institutional strength and low level of susceptibility to event risk. Both economies have returned to growth and shown sustainable recoveries, supporting the financial sector performance. Consumer confidence is gradually being restored driven by positive employment trends, contributing to improvements in banks' credit fundamentals in both jurisdictions.

Negative considerations in both the UK and Ireland operating environments include elevated, although decreasing, private sector indebtedness and credit conditions that are sensitive to interest rates and housing prices.

Funding conditions have materially improved for Irish banks. However, even though the Irish banking industry structure is highly concentrated, the barriers to entry are relatively low compared to other non-European countries.

Moody's scorecard suggests a BCA range of baa3-ba2. We position BOI's BCA at the bottom of this range as ba2, reflecting the need for further confirmation that the improvements shown to date will be sustained. The positive outlook reflects the likelihood of the bank's BCA moving to the middle of the range and for its long term debt and deposit ratings to be upgraded on the back of further improvements in its credit fundamentals.

**Notching Considerations****Loss Given Failure and additional notching**

BOI is subject to the EU Bank Resolution and Recovery Directive (BRRD), which we consider to be an Operational Resolution Regime. We assume residual tangible common equity of 3% and losses post-failure of 8% of tangible banking assets, a 25% run-off in "junior" wholesale deposits, a 5% run-off in preferred deposits, and assigns a 25% probability to deposits being preferred to senior unsecured

debt. We also assume that the junior proportion of BOI's deposits is in line with our estimated EU-wide average of 26%. These are in line with our standard assumptions. Our Advanced LGF analysis indicates that BOI's deposits and senior unsecured debt are likely to face very low loss-given-failure, due to the loss absorption provided by subordinated debt and, potentially, by senior unsecured debt -- if deposits are treated preferentially in a resolution -- as well as the substantial volume of deposits and senior unsecured debt themselves. This results in a Preliminary Rating Assessment for BOI's deposits and senior unsecured debt of baa3, two notches above the ba2 BCA.

BOI's subordinated instruments are likely to face a high level loss-given-failure according to our LGF analysis given the relatively small volume of debt and limited protection from more subordinated instruments and residual equity. However, we note that the bank continues to increase the amount of junior liabilities after the issue of €750 million fixed rate perpetual additional tier 1 notes. We assigned a rating of (P)B2 (hyb) to these notes. The rating of BOI's subordinated debt and junior subordinated debt is Ba3 and B1(hyb) respectively. The rating of the non-cumulative preference shares is B2(hyb).

### Government support

We believe that there is a moderate probability of government support for BOI should the bank fail, which leads to one notch of uplift from the Preliminary Rating Assessments to Baa2 for both deposits and senior unsecured ratings.

For other junior securities, we continue to believe that the probability of government support is low, and, as such, the ratings for these instruments do not include any related uplift.

### Counterparty Risk Assessment

CR Assessments are opinions of how counterparty obligations are likely to be treated if a bank fails and are distinct from debt and deposit ratings in that they (1) consider only the risk of default rather than both the likelihood of default and the expected financial loss suffered in the event of default and (2) apply to counterparty obligations and contractual commitments rather than debt or deposit instruments. The CR assessment is an opinion of the counterparty risk related to a bank's covered bonds, contractual performance obligations (servicing), derivatives (e.g., swaps), letters of credit, guarantees and liquidity facilities.

The CR Assessment is positioned at Baa1(cr)/ Prime 2(cr). The CR Assessment, prior to government support, is positioned three notches above the BOI's BCA of ba2, based on the cushion against default provided to the senior obligations represented by the CR Assessment by subordinated instruments. The main difference with our Advanced LGF approach used to determine instrument ratings is that the CR Assessment captures the probability of default on certain senior obligations, rather than expected loss, therefore we focus purely on subordination and take no account of the volume of the instrument class.

The CR Assessment also benefits from one notch of government support, in line with our support assumptions on deposits and senior unsecured debt. This reflects our view that any support provided by governmental authorities to a bank which benefits senior unsecured debt or deposits is very likely to benefit operating activities and obligations reflected by the CR Assessment as well, consistent with our belief that governments are likely to maintain such operations as a going-concern in order to reduce contagion and preserve a bank's critical functions.

### About Moody's Bank Scorecard

Our Scorecard is designed to capture, express and explain in summary form our Rating Committee's judgment. When read in conjunction with our research, a fulsome presentation of our judgment is expressed. As a result, the output of our Scorecard may materially differ from that suggested by raw data alone (though it has been calibrated to avoid the frequent need for strong divergence). The Scorecard output and the individual scores are discussed in rating committees and may be adjusted up or down to reflect conditions specific to each rated entity.

## Rating Methodology and Scorecard Factors

Exhibit 5

### BANK OF IRELAND

Macro Factors						
Weighted Macro Profile	Strong -	100%				
Financial Profile						
Factor	Historic Ratio	Macro Adjusted Score	Credit Trend	Assigned Score	Key driver #1	Key driver #2
Solvency						
Asset Risk						
Problem Loans / Gross Loans	14.3%	b2	↓ ↓	b2	Quality of assets	Collateral and provisioning coverage
Capital						
TCE / RWA	13.2%	a3	↑ ↑	baa2	Expected trend	Capital fungibility
Profitability						
Net Income / Tangible Assets	0.5%	ba2	↑ ↑	ba2	Expected trend	Loan loss charge coverage
Combined Solvency Score		ba1		ba2		
Liquidity						
Funding Structure						
Market Funds / Tangible Banking Assets	10.0%	a3	↓ ↓	a3	Expected trend	Market funding quality
Liquid Resources						
Liquid Banking Assets / Tangible Banking Assets	19.6%	ba1	↑ ↑	baa3	Quality of liquid assets	Stock of liquid assets
Combined Liquidity Score		baa2		baa1		
Financial Profile				ba1		
Business Diversification				0		
Opacity and Complexity				0		
Corporate Behavior				0		
Total Qualitative Adjustments				0		
Sovereign or Affiliate constraint:				A3		
Scorecard Calculated BCA range				baa3-ba2		
Assigned BCA				ba2		
Affiliate Support notching				0		
Adjusted BCA				ba2		
Instrument Class	Loss Given Failure notching	Additional notching	Preliminary Rating Assessment	Government Support notching	Local Currency rating	Foreign Currency rating
Counterparty Risk Assessment	3	0	baa2 (cr)	1	Baa1 (cr)	--
Deposits	2	0	baa3	1	Baa2	Baa2
Senior unsecured bank debt	2	0	baa3	1	Baa2	Baa2
Dated subordinated bank debt	-1	0	ba3	0	Ba3	Ba3
Junior subordinated bank debt	-1	-1	b1 (hyb)	0	--	B1 (hyb)
Cumulative bank preference shares	-1	-2	b2 (hyb)	0	B2 (hyb)	--
Non-cumulative bank preference shares	-1	-2	b2 (hyb)	0	B2 (hyb)	B2 (hyb)

Source: Moody's Financial Metrics

## Ratings

Exhibit 6

Category	Moody's Rating
<b>BANK OF IRELAND</b>	
Outlook	Positive
Bank Deposits	Baa2/P-2
Baseline Credit Assessment	ba2
Adjusted Baseline Credit Assessment	ba2
Counterparty Risk Assessment	Baa1(cr)/P-2(cr)
Issuer Rating	Baa2
Senior Unsecured	Baa2
Subordinate	Ba3
Jr Subordinate	B1 (hyb)
Pref. Stock -Dom Curr	B2 (hyb)
Pref. Stock Non-cumulative	B2 (hyb)
Commercial Paper	P-2
Other Short Term	(P)P-2
<b>BANK OF IRELAND (UK) PLC</b>	
Outlook	Positive
Bank Deposits	Ba2/NP
Baseline Credit Assessment	ba2
Adjusted Baseline Credit Assessment	ba2
Counterparty Risk Assessment	Baa2(cr)/P-2(cr)
<b>BANK OF IRELAND UK HOLDINGS PLC</b>	
BACKED Pref. Stock -Dom Curr	B1 (hyb)
<b>AVONDALE SECURITIES SA</b>	
Outlook	Positive(m)
Senior Secured -Dom Curr	Baa3

Source: Moody's Investors Service



© 2016 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S INVESTORS SERVICE, INC. AND ITS RATINGS AFFILIATES ("MIS") ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND CREDIT RATINGS AND RESEARCH PUBLICATIONS PUBLISHED BY MOODY'S ("MOODY'S PUBLICATIONS") MAY INCLUDE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL, FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS AND MOODY'S OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. CREDIT RATINGS AND MOODY'S PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. NEITHER CREDIT RATINGS NOR MOODY'S PUBLICATIONS COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS AND PUBLISHES MOODY'S PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS OR MOODY'S PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER. ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing the Moody's Publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY SUCH RATING OR OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any rating, agreed to pay to Moody's Investors Service, Inc. for appraisal and rating services rendered by it fees ranging from \$1,500 to approximately \$2,500,000. MCO and MIS also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold ratings from MIS and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at [www.moody's.com](http://www.moody's.com) under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors. It would be reckless and inappropriate for retail investors to use MOODY'S credit ratings or publications when making an investment decision. If in doubt you should contact your financial or other professional adviser.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any rating, agreed to pay to MJKK or MSFJ (as applicable) for appraisal and rating services rendered by it fees ranging from JPY200,000 to approximately JPY350,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

REPORT NUMBER 1028508