

NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORP /DC/  
 Form 424B3  
 December 23, 2014

Rule 424 (b) (3)  
 Registration No. 333-199914

CALCULATION OF REGISTRATION FEE

| Title of Each Class of Securities Offered | Maximum Aggregate Offering Price | Amount of Registration Fee(1)(2) |
|---|----------------------------------|----------------------------------|
| Subordinated Debt Securities              | \$1,000,000.00                   | \$128.80                         |

(1) Calculated in accordance with Rule 457(r) of the Securities Act of 1933.

(2) The amount in this column has been transmitted to the SEC in connection with the securities offered by means of this pricing supplement.

TRADE DATE: December 23, 2014  
 PRICING SUPPLEMENT NO. 678 DATED December 23, 2014  
 TO PROSPECTUS SUPPLEMENT DATED November 10, 2014  
 AND BASE PROSPECTUS DATED November 6, 2014

NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION (“National Rural”)

MEMBER CAPITAL SECURITIES

|                         |   |
|-------------------------|---|
| Principal Amount:       | \$1,000,000.00  |
| Issue Price:            | 100% of Principal Amount  |
| Original Issue Date:    | 12/29/2014  |
| Maturity Date:          | 12/29/2044  |
| Interest Rate:          | 5.00%   |
| Regular Record Dates:   | Each March 15 and September 15  |
| Interest Payment Dates: | Each April 1 and October 1  |
| First Coupon Date:      | 4/1/2015  |
| Product Ranking:        | Subordinate to all existing and future senior indebtedness of National Rural and all existing and future subordinated indebtedness of National Rural that is held by or transferrable by non-members of National Rural. |
| Optimal Redemption      | Redeemable at the option of National Rural, in whole or in part, at any time after December 29, 2024 at a redemption price equal to 100% of the principal amount to be redeemed   |

together with accrued and unpaid interest, if any, to the redemption date.

|   |  |
|---|--|
| Option to Extend Interest Payment Period:     | National Rural will have the right to extend the interest payment period to a period not exceeding 10 consecutive semi-annual interest payment periods. At the end of a deferral period, National Rural must pay all interest then accrued and unpaid together with interest thereon at the same rate as specified for the securities. |
| Restrictions on Transfer:                     | The securities can only be sold or transferred to other National Rural voting members upon the written consent of National Rural.  |
| Agent's Commission:                           | None   |
| Form of Note:<br>(Book-Entry or Certificated) | Certificated   |
| Denominations / Multiples:                    | \$25,000 / \$5,000   |
| Listing:                                      | None   |

Member Capital Securities may be issued by National Rural in an unlimited aggregate principal amount.

#### Validity of the Medium-Term Note

In the opinion of Hogan Lovells US LLP, as counsel to the Company, when the notes offered by this pricing supplement have been executed and issued by the Company and authenticated by the trustee pursuant to the indenture, and delivered against payment as contemplated herein, such notes will constitute valid and binding obligations of the Company, subject to bankruptcy, insolvency, reorganization, receivership, moratorium and other laws affecting creditors' rights (including, without limitation, the effect of statutory and other law regarding fraudulent conveyances, fraudulent transfers and preferential transfers), and by the exercise of judicial discretion and the application of principles of equity, good faith, fair dealing, reasonableness, conscionability and materiality (regardless of whether the applicable agreements are considered in a proceeding in equity or at law).

This opinion is based as to matters of law solely on applicable provisions of the following, as currently in effect: (i) the District of Columbia Cooperative Association Act, as amended (the "Cooperative Association Act") and (ii) the laws of the State of New York (but not including any laws, statutes, ordinances, administrative decisions, rules or regulations of any political subdivision below the state level). In addition, this opinion is subject to customary assumptions about the trustee's authorization, execution and delivery of the indenture and its authentication of the notes and the validity, binding nature and enforceability of the indenture with respect to the trustee, all as stated in the letter of such counsel dated November 10, 2014, which has been filed as an exhibit to a Current Report on Form 8-K by the Company on November 10, 2014.