Waterstone Financial, Inc. Form 424B3 December 23, 2013

Filed pursuant to Rule 424(b)(3) Registration Statement No. 333-189160

PROSPECTUS SUPPLEMENT

(To Prospectus dated November 6, 2013)

(Proposed Holding Company for WaterStone Bank SSB) Up to 25,300,000 Shares of Common Stock

This supplements the prospectus of Waterstone Financial, Inc. dated November 6, 2013 and should be read together with the prospectus.

Reflecting continued difficult conditions in the mortgage banking industry, Waterstone Mortgage Corporation, the mortgage banking subsidiary of Waterstone-Federal and WaterStone Bank, had an operating loss for the two months ended November 30, 2013, and we expect Waterstone Mortgage Corporation to have an operating loss for the quarter ending December 31, 2013. The operating loss was primarily due to decreased loan originations, combined with decreased hedging income and increased costs associated with the recent expansion of Waterstone Mortgage Corporation. As a result, we have been and will continue to take actions to reduce Waterstone Mortgage Corporation's operating costs, including reducing non-loan originator staff. Despite the operating losses for Waterstone Mortgage Corporation for the two months ended November 30, 2013, Waterstone-Federal had consolidated pre-tax income for the two months ended November 30, 2013 of \$1.5 million.

Resolicitation of Persons Who Have Placed Orders in the Subscription and Community Offering

The subscription and community offering period expired on December 17, 2013. In light of the information discussed herein, we are extending the offering and providing this Prospectus Supplement and a Supplemental Order Form to those persons who placed orders for shares in the offering to provide them with an opportunity to consider the information contained in this Prospectus Supplement in making their investment decision.

If you wish to maintain your order, you do not need to take any action. If you wish to increase, decrease or cancel your order, you must complete and return the enclosed Supplemental Order Form, which must be received by us in our Stock Information Center by 5:00 p.m., Central Time, on January 8, 2014. Supplemental Order Forms may be returned by mail using the enclosed postage paid envelope or delivered by hand or overnight delivery service to our Stock Information Center located at 6560 South 27th Street, Oak Creek, Wisconsin 53154. If we do not receive a Supplemental Order Form from you by 5:00 p.m., Central Time, January 8, 2014, your order will remain unchanged.

Orders that are not canceled are irrevocable unless the offering is extended beyond January 31, 2014. If we extend the offering beyond January 31, 2014, we will again notify all persons who placed orders and promptly return the funds of those persons who do not reconfirm their orders. Subscription funds will continue to earn interest at 0.01% per annum until the offering is completed or terminated.

During the resolicitation period, only persons who have previously submitted an order in the Subscription and Community Offering may submit a Supplemental Order Form. No new orders will be accepted during the resolicitation period. To the extent that shares remain available for sale after the resolicitation period, we may extend the community offering and solicit additional purchasers. The community offering, if extended, may be terminated at any time in our sole discretion, and we retain the right to accept or reject, in whole or in part, any order received in the

community offering.

This investment involves a degree of risk, including the possible loss of principal. Please read "Risk Factors" beginning on page 17 of the Prospectus.

These securities are not deposits or accounts and are not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency. Neither the Securities and Exchange Commission, the Board of Governors of the Federal Reserve System, the Wisconsin Department of Financial Institutions, the Federal Deposit Insurance Corporation, nor any state securities regulator has approved or disapproved of these securities or determined if this prospectus supplement is accurate or complete. Any representation to the contrary is a criminal offense.

For assistance, please contact the Stock Information Center at (414) 459-4700. The date of this prospectus supplement is December 23, 2013

OUESTIONS AND ANSWERS REGARDING THE RESOLICITATION

Why are you conducting a resolicitation?

The purpose of the resolicitation is to provide potential investors with an opportunity to consider new information regarding our recent and expected operating results as part of their investment decision.

Has there been a change in the size or terms of the offering?

No. The offering range continues to be based on the independent appraisal described in the prospectus dated November 6, 2013, which establishes a value for New Waterstone on a pro forma basis. There has been no change in the number of shares being offered or the price per share.

What if I don't want to change my existing order?

If you want to maintain your order, you do not need to take any action.

How do I increase or decrease my order?

If you want to increase your order, you must complete the applicable section of the Supplemental Order Form and return it to our Stock Information Center no later than 5:00 p.m., Central Time, on January 8, 2014, together with full payment for the additional shares. If you want to decrease your order, but not cancel it in its entirety, you must complete the applicable section of the Supplemental Order Form and return it to our Stock Information Center no later than 5:00 p.m., Central Time, on January 8, 2014. You will receive a prompt refund with interest, or a reduction in the amount of your withdrawal authorization, as applicable, for the canceled portion of your original order. Follow the instructions on the Supplemental Order Form to indicate how many more or fewer shares you wish to purchase.

What if I want to cancel my order?

If you want to cancel your order entirely, please complete the applicable section of the Supplemental Order Form and return it to our Stock Information Center no later than 5:00 p.m., Central Time, on January 8, 2014. We will promptly cancel your order and return your subscription funds, with interest, or cancel your withdrawal authorization.

What if I don't submit any Supplemental Order Form?

Your order will remain unchanged.

Why did I receive more than one Supplemental Order Form?

You may have received more than one Supplemental Order Form if you submitted more than one order. For example, you may have submitted one order form for stock to be registered in your name alone and another for stock to be registered with you and your spouse as joint tenants. You must submit a Supplemental Order Form for each order that you wish to increase, decrease or cancel.

May I change the stock registration or make other changes to my order?

No, you may only change the number of shares you are ordering or cancel your order. You may not make any other changes to your order, such as changes in stock registration.

May I or my associates submit new orders in addition to my existing order?

No. You may only modify or cancel your existing order. No new orders will be accepted during the resolicitation period.

Who do I call if I have any questions?

If you have any questions concerning the offering or your order, please call our Stock Information Center at (414) 459-4700.

RECENT OPERATING RESULTS

During the two-months ended November 30, 2013, Waterstone Mortgage Corporation had a pre-tax loss of \$112,000. The pre-tax loss included a \$1.5 million operating loss, which was offset by a \$1.4 million gain on the sale of mortgage servicing rights. An increase in market interest rates beginning in the spring of 2013 has contributed to a decrease in mortgage loan origination volumes nationally as well as at Waterstone Mortgage Corporation. Loans originated for sale in the secondary market by Waterstone Mortgage Corporation totaled \$210.4 million for the two months ended November 30, 2013, compared to \$441.5 million for three months ended September 30, 2013, resulting in average monthly originations of \$105.2 million for the two months ended November 30, 2013 compared to average monthly originations of \$147.2 million for the quarter ended September 30, 2013. The decrease in loan origination volumes primarily reflected a decrease in demand for refinanced loans in a rising interest rate environment. Loan origination volumes were further affected by the federal government shutdown in October 2013, as described in "Risk Factors—Risks Related to Our Business—The recent federal government shutdown is expected to result in reduced loan originations and related gains on sale during the fourth quarter of 2013, and any future federal government shutdown could negatively affect our financial condition and results of operations" included in the prospectus.

Waterstone Mortgage Corporation's pre-tax income was further negatively impacted by a significant decrease in hedging income on interest rate risk management activities. Waterstone Mortgage Corporation commits to sell fixed amounts of loans to third parties, and makes certain investments to mitigate the interest rate risk associated with those sales. During the quarter ended September 30, 2013, Waterstone Mortgage Corporation earned \$1.2 million in pre-tax income, or an average of \$394,000 per month, on such activities, compared to \$269,000 of pre-tax income, or an average of \$134,000 per month, for the two months ended November 30, 2013.

In addition to the decline in mortgage banking revenue, our mortgage banking expenses increased due to start-up costs related to new mortgage company branch offices added in October and November, and during the quarter ended September 30, 2013. These costs have partially offset the reduction in compensation and benefits expense that occurred at Waterstone Mortgage Corporation resulting from decreased loan commissions paid to our loan originators because of decreased loan originations during this period. As part of our strategy of increasing mortgage banking revenue during periods of rising interest rates and declining mortgage refinance activity, we added new mortgage company branch offices to increase total loan origination volume. This strategy resulted in start-up costs primarily comprised of recruiting fees or bonuses for office managers and loan officers, salary guarantees for up to three months during which time the new office builds its production pipeline, and office occupancy and improvement costs. We added one office during the two months ended November 30, 2013 and six offices during the three months ended September 30, 2013. New branch office start-up costs included in noninterest expense totaled \$579,000 for the two months ended November 30, 2013 and \$325,000 for the three months ended September 30, 2013.

The above effects were partially offset by the sale in November 2013 of mortgage servicing rights related to \$254.0 million of loans receivable, which resulted in gain on sale of \$1.4 million.

On a consolidated basis, Waterstone Federal had pre-tax net income of \$1.5 million for the two months ended November 30, 2013, due to unconsolidated pre-tax net income of WaterStone Bank of \$1.5 million for the period.

We expect that Waterstone Mortgage Corporation will incur an operating loss for the month of December 2013, due to continued lower loan origination volumes and the costs related to its recent expansion. We also expect that these expansion costs and the effects of the interest rate environment on our origination volume will continue to negatively affect Waterstone Mortgage Corporation's operating results for the first quarter of 2014. As a result, Waterstone Mortgage Company may incur an operating loss in the first quarter of 2014 and subsequent periods. In its efforts to offset recent operating losses, Waterstone Mortgage Corporation intends to continue to reduce expenses, primarily through non-loan originator staff reductions and the consolidation of certain operations.

Financial information provided in this Prospectus Supplement for the two months ended November 30, 2013 and the quarter ended September 30, 2013 is unaudited.

2

RESOLICITATION PROCEDURES

We are extending the offering and providing this Prospectus Supplement and a Supplemental Order Form to those persons who placed orders for shares in the offering to provide them with an opportunity to consider the information contained in this Prospectus Supplement as part of their investment decision. During the resolicitation period, you may choose to:

increase the number of shares you ordered, subject to the maximum purchase limitations;

decrease the number of shares you ordered, with any excess payment to be refunded promptly with interest thereon or any excess authorization for withdrawal to be canceled promptly; or

cancel your order in its entirety, with any payment to be refunded with interest thereon and any authorization for withdrawal to be canceled promptly.

If you wish to maintain your current order, you do not need to take any action. If you wish to increase, decrease or cancel your order, you must complete and return the enclosed Supplemental Order Form, which must be received by us in our Stock Information Center by 5:00 p.m., Central Time, on January 8, 2014. If we do not receive a completed Supplemental Order Form by 5:00 p.m. on January 8, 2014, your order will remain unchanged.

Persons who desire to increase their orders may do so by returning the Supplemental Order Form along with full payment or with a withdrawal authorization from a deposit account at WaterStone Bank for the amount of additional shares ordered. Persons who desire to decrease or cancel their orders may do so by returning the Supplemental Order Form marked accordingly, and they will receive a prompt refund with interest, or a reduction in the amount of their withdrawal authorization, as applicable, for the canceled portion of their order.

Supplemental order forms may be returned by mail using the enclosed postage paid envelope, or delivered by hand or overnight delivery service to our Stock Information Center located at 6560 South 27th Street, Oak Creek, Wisconsin 53154. We will not accept Supplemental Order Forms at our other offices. Once received, your Supplemental Order Form may not be modified or rescinded unless the offering is further extended beyond January 31, 2014.

If you submitted more than one stock order form in the offering, you should receive a separate Supplemental Order Form for each order form submitted. You should contact the Stock Information Center promptly if you did not receive a Supplemental Order Form for each order you submitted. If an original stock order form contained more than one signature, the Supplemental Order Form should be signed by all persons who signed the original stock order form. If all such persons do not sign the Supplemental Order Form, we reserve the right to treat the supplemental order form as invalid. Please call the Stock Information Center if you have any questions.

If you increase your order, you may pay for the additional shares by:

- (i) personal check, bank check or money order made payable directly to Waterstone Financial, Inc.; or
- (ii) authorizing us to withdraw available funds from your WaterStone Bank deposit accounts.

Personal checks will be immediately cashed, so the funds must be available within the account when your Supplemental Order Form is received by us. Subscription funds submitted by check or money order will be held in a

segregated account at WaterStone Bank. We will pay interest at 0.01% per annum from the date those funds are received until completion or termination of the offering. Withdrawals from certificate of deposit accounts at WaterStone Bank to purchase common stock in the offering may be made without incurring an early withdrawal penalty. All funds authorized for withdrawal from deposit accounts with WaterStone Bank must be available within the deposit accounts at the time the Supplemental Order Form is received. A hold will be placed on the amount of funds designated on your Supplemental Order Form. Those funds will be unavailable to you during the offering; however, the funds will not be withdrawn from the accounts until the offering is completed and will continue to earn interest at the applicable contractual deposit account rate until the completion of the offering.

We have not changed the minimum or maximum amounts of common stock you may purchase in the offering. See "Summary—Limits on How Much Common Stock You May Purchase" in the prospectus.

3