New Mountain Finance Corp Form 497 October 22, 2014

Use these links to rapidly review the document TABLE OF CONTENTS
INDEX TO FINANCIAL STATEMENTS

Table of Contents

Filed Pursuant to Rule 497 Securities Act File No. 333-197004

This preliminary prospectus supplement relates to an effective registration statement under the Securities Act of 1933, as amended, but the information in this preliminary prospectus supplement is not complete and may be changed. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell and are not soliciting an offer to buy these securities in any jurisdiction where the offer and sale is not permitted.

Subject to Completion, Dated October 22, 2014

PRELIMINARY PROSPECTUS SUPPLEMENT (to Prospectus dated September 18, 2014)

5,000,000 Shares

New Mountain Finance Corporation

Common Stock

We are a Delaware corporation that was originally incorporated on June 29, 2010. We are a closed end, non-diversified management investment company that has elected to be regulated as a business development company under the Investment Company Act of 1940. Our investment objective is to generate current income and capital appreciation through the sourcing and origination of debt securities at all levels of the capital structure, including first and second lien debt, notes, bonds and mezzanine securities. In some cases, our investments may also include equity interests. The primary focus is in the debt of defensive growth companies, which are defined as generally exhibiting the following characteristics: (i) sustainable secular growth drivers, (ii) high barriers to competitive entry, (iii) high free cash flow after capital expenditure and working capital needs, (iv) high returns on assets and (v) niche market dominance.

The securities that we invest in are almost entirely rated below investment grade or may be unrated, which are often referred to as "leveraged loans," "high yield" or "junk" debt investments, and may be considered "high risk" or speculative compared to debt investments that are rated investment grade. Such issuers are considered more likely than investment grade issuers to default on their payments of interest and principal and such risk of default could reduce our net asset value and income distributions. Our investments are also primarily floating rate debt investments that contain interest reset provisions that may make it more difficult for borrowers to make debt repayments to us if interest rates rise. In addition, some of our debt investments will not fully amortize during their lifetime, which could result in a loss or a substantial amount of unpaid principal and interest due upon maturity. Our debt investments may

also lose significant market value before a default occurs. Furthermore, an active trading market may not exist for these securities. This illiquidity may make it more difficult to value our investments.

We are offering for sale 5,000,000 shares of our common stock. We have granted the underwriters a 30-day option to purchase up to 750,000 additional shares of our common stock at the public offering price, less the underwriting discounts and commissions.

Our common stock is listed on the New York Stock Exchange under the symbol "NMFC". On October 21, 2014, the last reported sales price on the New York Stock Exchange for our common stock was \$14.85 per share.

An investment in our common stock is very risky and highly speculative. Shares of closed-end investment companies, including business development companies, frequently trade at a discount to their net asset value. In addition, the companies in which we invest in are subject to special risks. See "Risk Factors" beginning on page 28 of the accompanying prospectus to read about factors you should consider, including the risk of leverage, before investing in our common stock.

This prospectus supplement and the accompanying prospectus contain important information about us that a prospective investor should know before investing in our common stock. Please read this prospectus supplement and the accompanying prospectus before investing and keep it for future reference. We file annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission (http://www.sec.gov), which is available free of charge by contacting us by mail at 787 Seventh Avenue, 48th Floor, New York, New York 10019 or on our website at http://www.newmountainfinance.com. Information contained on our website is not incorporated by reference into this prospectus supplement and the accompanying prospectus, and you should not consider that information to be part of this prospectus supplement and the accompanying prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities, or determined if this prospectus supplement or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	Per Share	Total(2)
Public Offering Price	\$	\$
Sales Load paid by us (Underwriting Discounts and Commissions)(1)(3)	\$	\$
Proceeds to us (before expenses)(1)	\$	\$
Sales Load payable to the underwriters by Investment Adviser (Underwriting Discounts		
and Commissions)(1)(3)	\$	\$

- New Mountain Finance Advisers BDC, L.L.C. (the "Investment Adviser") has agreed to bear \$, or \$ per share, of sales load only in connection with this offering, which is reflected in the above table. All payments made by the Investment Adviser will not be subject to reimbursement by us. All other expenses of the offering will be borne by us. We will incur approximately \$344,817 of estimated expenses in connection with this offering.
- To the extent that the underwriters sell more than 5,000,000 shares of our common stock, the underwriters have the option to purchase up to an additional 750,000 shares of our common stock at the public offering price, less the sales load, within 30 days of the date of this prospectus supplement. If the underwriters exercise this option in full, the total public offering price, sales load payable by us, sales load payable by the

Investment Adviser and proceeds to us will be \$, \$, \$ and \$, respectively, which will not be subject to reimbursement by us. See "Underwriting".

(3) See "Underwriting" for details of compensation to be received by the underwriters.

The underwriters expect to deliver the shares against payment in New York, New York on or about October 2014.

Joint-Lead Bookrunners

Goldman, Sachs & Co. Wells Fargo Securities Morgan Stanley

Co-Lead Managers

Baird Keefe, Bruyette & Woods

A Stifel Company

Co-Managers

BB&T Capital Markets Janney Montgomery Scott Oppenheimer & Co.

Prospectus Supplement dated , 2014

TABLE OF CONTENTS

PROSPECTUS SUPPLEMENT

TROST DETER SETT DENTER (T	
ABOUT THIS PROSPECTUS SUPPLEMENT	<u>S-iv</u>
PROSPECTUS SUPPLEMENT SUMMARY	<u>S-1</u>
THE OFFERING	S-11
FEES AND EXPENSES	S-16
CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS	S-19
CAPITALIZATION	S-21
USE OF PROCEEDS	S-22
UNDERWRITING	<u>S-23</u>
LEGAL MATTERS	S-26
INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM	S-26
AVAILABLE INFORMATION	S-27
	<u>5 2.</u>
PROSPECTUS	
ABOUT THIS PROSPECTUS	<u>ii</u>
PROSPECTUS SUMMARY	<u>1</u>
THE OFFERING	<u>10</u>
FEES AND EXPENSES	
SELECTED FINANCIAL AND OTHER DATA	18
SELECTED QUARTERLY FINANCIAL DATA	15 18 22 24 28
DESCRIPTION OF RESTRUCTURING	24
RISK FACTORS	29
CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS	<u>20</u>
USE OF PROCEEDS	<u>58</u> <u>60</u>
	<u>60</u>
PRICE RANGE OF COMMON STOCK AND DISTRIBUTIONS MANNAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND DESUITE OF OPERATIONS	
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS	<u>64</u>
SENIOR SECURITIES	<u>95</u>
BUSINESS PORTEON IO COMPANIES	<u>96</u>
PORTFOLIO COMPANIES	<u>110</u>
MANAGEMENT PORTEON IO MANAGEMENT	<u>116</u>
PORTFOLIO MANAGEMENT	<u>126</u>
INVESTMENT MANAGEMENT AGREEMENT	<u>128</u>
ADMINISTRATION AGREEMENT	<u>136</u>
LICENSE AGREEMENT	<u>136</u>
CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS	<u>137</u>
CONTROL PERSONS AND PRINCIPAL STOCKHOLDERS	<u>140</u>
SELLING STOCKHOLDERS	<u>142</u>
DETERMINATION OF NET ASSET VALUE	<u>144</u>
DIVIDEND REINVESTMENT PLAN	<u>146</u>
DESCRIPTION OF SECURITIES	<u>148</u>
DESCRIPTION OF CAPITAL STOCK	<u>148</u>
DESCRIPTION OF PREFERRED STOCK	<u>152</u>
DESCRIPTION OF SUBSCRIPTION RIGHTS	<u>153</u>
DESCRIPTION OF WARRANTS	<u>155</u>
DESCRIPTION OF DEBT SECURITIES	<u>156</u>
SHARES ELIGIBLE FOR FUTURE SALE	<u>171</u>
MATERIAL FEDERAL INCOME TAX CONSIDERATIONS	<u>172</u>
REGULATION	<u>181</u>
PLAN OF DISTRIBUTION	<u>186</u>
S-ii	

SAFEKEEPING AGENT, TRANSFER AND DISTRIBUTION PAYING AGENT AND REGISTRAR	<u>188</u>
BROKERAGE ALLOCATION AND OTHER PRACTICES	188
<u>LEGAL MATTERS</u>	<u>188</u>
INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM	<u>188</u>
AVAILABLE INFORMATION	<u>189</u>
PRIVACY NOTICE	<u>189</u>
INDEX TO FINANCIAL STATEMENTS	<u>F-1</u>
S-iii	

Table of Contents

ABOUT THIS PROSPECTUS SUPPLEMENT

You should rely only on the information contained in this prospectus supplement and the accompanying prospectus. Neither we nor the underwriters have authorized any other person to provide you with different information from that contained in this prospectus supplement or the accompanying prospectus. If anyone provides you with different or inconsistent information, you should not rely on it. This prospectus supplement and the accompanying prospectus do not constitute an offer to sell, or a solicitation of an offer to buy, any shares of our common stock by any person in any jurisdiction where it is unlawful for that person to make such an offer or solicitation or to any person in any jurisdiction to whom it is unlawful to make such an offer or solicitation. The information contained in this prospectus supplement and the accompanying prospectus is complete and accurate only as of their respective dates, regardless of the time of their delivery or sale of our common stock. This prospectus supplement supersedes the accompanying prospectus to the extent it contains information different from or additional to the information in that prospectus.

This document is in two parts. The first part is this prospectus supplement, which describes the terms of this offering of common stock and also adds to and updates information contained in the accompanying prospectus. The second part is the accompanying prospectus, which gives more general information and disclosure. To the extent the information contained in this prospectus supplement differs from the information contained in the accompanying prospectus, the information in this prospectus supplement shall control. Please carefully read this prospectus supplement and the accompanying prospectus together with any exhibits and the additional information described under "Available Information" and in the "Summary" and "Risk Factors" sections of this prospectus supplement and the accompanying prospectus before you make an investment decision. Unless otherwise indicated, all information included in this prospectus supplement assumes no exercise by the underwriters of their option to purchase up to an additional 750,000 shares of our common stock.

S-iv

Table of Contents

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights some of the information in this prospectus supplement and the accompanying prospectus. It may not contain all the information that is important to you. For a more complete understanding, we encourage you to read this entire prospectus supplement and the accompanying prospectus and the documents to which we have referred in this prospectus supplement, together with the accompanying prospectus, including the risks set forth under "Risk Factors" in the accompanying prospectus and the other information included in this prospectus supplement and the accompanying prospectus.

In this prospectus supplement, unless the context otherwise requires, references to:

"NMFC", the "Company", "we", "us" and "our" refers to New Mountain Finance Corporation, a Delaware corporation, which was incorporated on June 29, 2010, including, where appropriate, its wholly-owned direct and indirect subsidiaries;

"NMF SLF" refers to New Mountain Finance SPV Funding, L.L.C., a Delaware limited liability company;

"NMF Holdings" and "Predecessor Operating Company" refers to New Mountain Finance Holdings, L.L.C., a Delaware limited liability company. References to NMF Holdings include its wholly-owned subsidiary, NMF SLF, unless the context otherwise requires. References to NMF Holdings exclude NMF SLF when referencing NMF Holdings' common membership units, board of directors, and credit facility or leverage;

"Guardian AIV" refers to New Mountain Guardian AIV, L.P.;

"AIV Holdings" refers to New Mountain Finance AIV Holdings Corporation, a Delaware corporation which was incorporated on March 11, 2011, of which Guardian AIV was the sole stockholder;

"Investment Adviser" refers to New Mountain Finance Advisers BDC, L.L.C., our investment adviser;

"Administrator" refers to New Mountain Finance Administration, L.L.C., our administrator;

"New Mountain Capital" refers to New Mountain Capital Group, L.L.C. and its affiliates;

"Predecessor Entities" refers to New Mountain Guardian (Leveraged), L.L.C. and New Mountain Guardian Partners, L.P., together with their respective direct and indirect wholly-owned subsidiaries prior to our initial public offering;

"NMFC Credit Facility" refers to our Senior Secured Revolving Credit Agreement with Goldman Sachs Bank USA and Morgan Stanley Bank, N.A., dated June 4, 2014 (together with the related guarantee and security agreement);

"Holdings Credit Facility" refers to NMF Holdings' Amended and Restated Loan and Security Agreement with Wells Fargo Bank, National Association, dated May 19, 2011, as amended;

"SLF Credit Facility" refers to NMF SLF's Loan and Security Agreement with Wells Fargo Bank, National Association, dated October 27, 2010, as amended;

"Credit Facilities" refers to the Holding Credit Facility and the SLF Credit Facility, collectively; and

"Convertible Notes" refers to the our convertible notes issued on June 3, 2014 under an indenture between us and U.S. Bank National Association.

For the periods prior to and as of March 31, 2014, all financial information provided in this prospectus supplement and accompanying prospectus reflect our organizational structure prior to the restructuring on May 8, 2014 described under "Description of Restructuring" in the accompanying prospectus, where NMF Holdings functioned as the operating company.

Table of Contents

Overview

We are a Delaware corporation that was originally incorporated on June 29, 2010. We are a closed-end, non-diversified management investment company that has elected to be regulated as a business development company ("BDC") under the Investment Company Act of 1940, as amended (the "1940 Act"). As such, we are obligated to comply with certain regulatory requirements. We have elected to be treated, and intend to comply with the requirements to continue to qualify annually, as a regulated investment company ("RIC") under Subchapter M of the Internal Revenue Code of 1986, as amended, (the "Code"). We are also registered as an investment adviser under the Investment Advisers Act of 1940, as amended (the "Advisers Act").

NMF Holdings is a Delaware limited liability company. Until May 8, 2014, NMF Holdings was externally managed and was regulated as a BDC under the 1940 Act. As such, NMF Holdings was obligated to comply with certain regulatory requirements. NMF Holdings was treated as a partnership for U.S. federal income tax purposes for so long as it had at least two members. With the completion of the underwritten secondary offering on February 3, 2014, NMF Holdings' existence as a partnership for U.S. federal income tax purposes terminated and NMF Holdings became an entity that is disregarded as a separate entity from its owner for U.S. federal tax purposes. See "Material Federal Income Tax Considerations" in the accompanying prospectus. For additional information on our organizational structure prior to May 8, 2014, see "Description of Restructuring" in the accompanying prospectus.

Until May 8, 2014, NMF Holdings was externally managed by the Investment Adviser. As of May 8, 2014, the Investment Adviser now serves as the external investment adviser to us. The Administrator provides the administrative services necessary for operations. The Investment Adviser and Administrator are wholly-owned subsidiaries of New Mountain Capital. New Mountain Capital is a firm with a track record of investing in the middle market and with assets under management totaling approximately \$15.0 billion⁽¹⁾, which includes total assets held by us. New Mountain Capital focuses on investing in defensive growth companies across its private equity, public equity, and credit investment vehicles. NMF Holdings, formerly known as New Mountain Guardian (Leveraged), L.L.C., was originally formed as a subsidiary of Guardian AIV by New Mountain Capital in October 2008. Guardian AIV was formed through an allocation of approximately \$300.0 million of the \$5.1 billion of commitments supporting New Mountain Partners III, L.P., a private equity fund managed by New Mountain Capital. In February 2009, New Mountain Capital formed a co-investment vehicle, New Mountain Guardian Partners, L.P., comprising \$20.4 million of commitments.

On May 19, 2011, we priced our initial public offering (the "IPO") of 7,272,727 shares of common stock at a public offering price of \$13.75 per share. Concurrently with the closing of the IPO and at the public offering price of \$13.75 per share, we sold an additional 2,172,000 shares of our common stock to certain executives and employees of, and other individuals affiliated with, New Mountain Capital in a concurrent private placement (the "Concurrent Private Placement"). Additionally, 1,252,964 shares were issued to the partners of New Mountain Guardian Partners, L.P. at that time for their ownership interest in the Predecessor Entities. In connection with our IPO and through a series of transactions, NMF Holdings acquired all of the operations of the Predecessor Entities, including all of the assets and liabilities related to such operations.

NMF SLF is a Delaware limited liability company. NMF SLF is a wholly-owned subsidiary of us and is bankruptcy-remote and non-recourse to us. During 2014, we established wholly-owned subsidiaries, NMF Ancora Holdings Inc. ("NMF Ancora") and NMF YP Holdings Inc. ("NMF YP"), which are structured as Delaware entities that serve as tax blockers that hold equity or equity-like

Includes amounts committed, not all of which have been drawn down and invested to-date, as of September 30, 2014.

Table of Contents

investments in portfolio companies organized as limited liability companies (or other forms of pass-through entities). Tax blockers are not consolidated for income tax purposes and may incur income tax expense as a result of their ownership of portfolio companies. We have a wholly-owned subsidiary, New Mountain Finance Servicing, L.L.C. that serves as the administrative agent on certain investment transactions. New Mountain Finance SBIC, L.P. ("SBIC LP"), and its general partner, New Mountain Finance SBIC G.P., L.L.C. ("SBIC GP"), were organized in Delaware as a limited partnership and limited liability company, respectively. SBIC LP and SBIC GP are our consolidated wholly-owned subsidiaries.

The diagram below depicts our organizational structure as of October 21, 2014.

NMFC owns 100.0% of SBIC GP which owns 1.0% of SBIC LP.

Our investment objective is to generate current income and capital appreciation through the sourcing and origination of debt securities at all levels of the capital structure, including first and second lien debt, notes, bonds and mezzanine securities. In some cases, our investments may also include equity interests. The primary focus is in the debt of defensive growth companies, which are defined as generally exhibiting the following characteristics: (i) sustainable secular growth drivers, (ii) high barriers to competitive entry, (iii) high free cash flow after capital expenditure and working capital needs, (iv) high returns on assets and (v) niche market dominance. Our portfolio may be concentrated in a limited number of industries. As of June 30, 2014, our top five industry concentrations were education, software, business services, distribution & logistics and energy.

The securities that we invest in are almost entirely rated below investment grade or may be unrated, which are often referred to as "leveraged loans," "high yield" or "junk" debt investments,

Includes partners of New Mountain Guardian Partners, L.P.

Table of Contents

and may be considered "high risk" or speculative compared to debt investments that are rated investment grade. Such issuers are considered more likely than investment grade issuers to default on their payments of interest and principal and such risk of default could reduce our net asset value and income distributions. Our investments are also primarily floating rate debt investments that contain interest reset provisions that may make it more difficult for borrowers to make debt repayments to us if interest rates rise. In addition, some of our debt investments will not fully amortize during their lifetime, which could result in a loss or a substantial amount of unpaid principal and interest due upon maturity. Our debt investments may also lose significant market value before a default occurs. Furthermore, an active trading market may not exist for these securities. This illiquidity may make it more difficult to value our investments.

As of June 30, 2014, our net asset value was \$762.6 million and our portfolio had a fair value of approximately \$1,310.9 million in 67 portfolio companies, with a weighted average yield to maturity at cost ("Yield to Maturity at Cost") of approximately 10.7%. This Yield to Maturity at Cost calculation assumes that all investments not on non-accrual are purchased at the adjusted cost on the quarter end date and held until their respective maturities with no prepayments or losses and exited at par at maturity. Adjusted cost reflects the accounting principles generally accepted in the United States of America ("GAAP") cost for post-IPO investments and a stepped up cost basis of pre-IPO investments (assuming a step-up to fair market value occurred on the IPO date). This calculation excludes the impact of existing leverage. Yield to Maturity at Cost uses the London Interbank Offered Rate ("LIBOR") curves at each quarter's end date. The actual yield to maturity may be higher or lower due to the future selection of the LIBOR contracts by the individual companies in our portfolio or other factors.

The Investment Adviser

The Investment Adviser, a wholly-owned subsidiary of New Mountain Capital, manages our day-to-day operations and provides us with investment advisory and management services. In particular, the Investment Adviser is responsible for identifying attractive investment opportunities, conducting research and due diligence on prospective investments, structuring our investments and monitoring and servicing our investments. We currently do not have, and do not intend to have, any employees. As of June 30, 2014, the Investment Adviser was supported by approximately 100 staff members of New Mountain Capital, including approximately 60 investment professionals.

The Investment Adviser is managed by a five member investment committee (the "Investment Committee"), which, as of September 29, 2014, is responsible for approving purchases and sales of our investments above \$10.0 million in aggregate by issuer. The Investment Committee currently consists of Steven B. Klinsky, Robert A. Hamwee, Adam Collins, Douglas Londal and John Kline. In addition, the executive officers and certain investment professionals are invited to all Investment Committee meetings. The Investment Committee is responsible for approving all of our investment purchases above \$10.0 million. The Investment Committee also approves all asset dispositions above \$10.0 million. Purchases and dispositions below \$10.0 million may be approved by our Chief Executive Officer. These approval thresholds are subject to change over time. We expect to benefit from the extensive and varied relevant experience of the investment professionals serving on the Investment Committee, which includes expertise in private equity, primary and secondary leveraged credit, private mezzanine finance and distressed debt.

Recent Developments

Dividend

On July 30, 2014, our board of directors declared a special distribution of \$0.12 per share, which was paid on September 3, 2014 to holders of record as of August 20, 2014.

Table of Contents

On August 5, 2014, our board of directors declared a third quarter 2014 distribution of \$0.34 per share, which was paid on September 30, 2014 to holders of record as of September 16, 2014.

U.S. Small Business Administration

On August 1, 2014, our wholly-owned subsidiary, SBIC LP received approval for a license from the United States Small Business Administration to operate a Small Business Investment Company.

Preliminary Estimates of Net Asset Value and Adjusted Net Investment Income

Set forth below is a preliminary estimate of our net asset value per share as of October 22, 2014 and a preliminary estimate of our adjusted net investment income per share range for the three months ended September 30, 2014. The following estimates are not a comprehensive statement of our financial condition or results for the period from December 31, 2013 through September 30, 2014. We advise you that our actual results for the three and nine months ended September 30, 2014 may differ materially from these estimates, which are given only as of the date of this prospectus supplement, as a result of the completion of our financial closing procedures, final adjustments and other developments, including changes in interest rates or changes in the businesses to whom we have made loans, which may arise between now and the time that our financial results for the three and nine months ended September 30, 2014 are finalized. This information is inherently uncertain.

As of the date of this prospectus supplement, we currently expect that our adjusted net investment income per share was between \$0.34 and \$0.35 for the three months ended September 30, 2014.

As of the date of this prospectus supplement, we estimate that our net asset value per share as of October 22, 2014 is approximately \$14.35 which reflects developments in our investment portfolio since June 30, 2014 including a partial write-down related to UniTek Global Services, Inc. ("UniTek") due to developments described below.

The preliminary financial estimates provided herein have been prepared by, and are the responsibility of, management. Neither Deloitte & Touche LLP, our independent registered public accounting firm, nor any other independent accountants, have audited, reviewed, compiled, or performed any procedures with respect to the accompanying preliminary financial data. Accordingly, Deloitte & Touche LLP does not express an opinion or any form of assurance with respect thereto and assumes no responsibility for, and disclaims any association with, this information.

UniTek Global Services, Inc.

One of our portfolio companies, UniTek, announced on October 21, 2014 that it had agreed to terms of a comprehensive debt restructuring with its lenders. To implement the restructuring, UniTek intends to file a voluntary petition for a "Pre-Packaged" Chapter 11 Bankruptcy in the U.S. Bankruptcy Court for the District of Delaware, which will be filed prior to November 11, 2014.

Competitive Advantages

We believe that we have the following competitive advantages over other capital providers to middle market companies:

Proven and Differentiated Investment Style With Areas of Deep Industry Knowledge

In making its investment decisions, the Investment Adviser applies New Mountain Capital's long-standing, consistent investment approach that has been in place since its founding more than

Table of Contents

10 years ago. We focus on companies in less well followed defensive growth niches of the middle market space where we believe few debt funds have built equivalent research and operational size and scale.

We benefit directly from New Mountain Capital's private equity investment strategy that seeks to identify attractive investment sectors from the top down and then works to become a well positioned investor in these sectors. New Mountain Capital focuses on companies and industries with sustainable strengths in all economic cycles, particularly ones that are defensive in nature, that are non-cyclical and can maintain pricing power in the midst of a recessionary and/or inflationary environment. New Mountain Capital focuses on companies within sectors in which it has significant expertise (examples include federal services, software, education, niche healthcare, business services, energy and distribution and logistics) while typically avoiding investments in companies with products or services that serve markets that are highly cyclical, have the potential for long-term decline, are overly-dependent on consumer demand or are commodity-like in nature.

In making its investment decisions, the Investment Adviser has adopted the approach of New Mountain Capital, which is based on three primary investment principles:

- A generalist approach, combined with proactive pursuit of the highest quality opportunities within carefully selected industries, identified via an intensive and structured ongoing research process;
- Emphasis on strong downside protection and strict risk controls; and
- Continued search for superior risk adjusted returns, combined with timely, intelligent exits and outstanding return
 performance.

Experienced Management Team and Established Platform

The Investment Adviser's team members have extensive experience in the leveraged lending space. Steven B. Klinsky, New Mountain Capital's Founder, Chief Executive Officer and Managing Director and Chairman of our board of directors, was a general partner of Forstmann Little & Co., a manager of debt and equity funds totaling multiple billions of dollars in the 1980s and 1990s. He was also a co-founder of Goldman, Sachs & Co.'s Leverage Buyout Group in the period from 1981 to 1984. Robert A. Hamwee, our Chief Executive Officer and President and Managing Director of New Mountain Capital, was formerly President of GSC Group, Inc. ("GSC"), where he was the portfolio manager of GSC's distressed debt funds and led the development of GSC's CLOs. Douglas Londal, President, Chief Operating Officer and Managing Director of New Mountain Capital, was previously co-head of Goldman, Sachs & Co.'s United States ("U.S.") mezzanine debt team. John Kline, our Chief Operating Officer and Executive Vice President and Managing Director of New Mountain Capital, worked at GSC as an investment analyst and trader for GSC's control distressed and corporate credit funds and at Goldman, Sachs & Co. in the Credit Risk Management and Advisory Group.

Many of the debt investments that we have made to date have been in the same companies with which New Mountain Capital has already conducted months of intensive acquisition due diligence related to potential private equity investments. We believe that private equity underwriting due diligence is usually more robust than typical due diligence for loan underwriting. In its underwriting of debt investments, the Investment Adviser is able to utilize the research and hands-on operating experience that New Mountain Capital's private equity underwriting teams possess regarding the individual companies and industries. Business and industry due diligence is led by a team of investment professionals of the Investment Adviser that generally consists of three to seven individuals, typically based on their relevant company and/or industry specific knowledge. Additionally, the Investment Adviser is also able to utilize its relationships with operating

Table of Contents

management teams and other private equity sponsors. We believe this differentiates us from many of our competitors.

Significant Sourcing Capabilities and Relationships

We believe the Investment Adviser's ability to source attractive investment opportunities is greatly aided by both New Mountain Capital's historical and current reviews of private equity opportunities in the business segments we target. To date, a significant majority of the investments that we have made are in the debt of companies and industry sectors that were first identified and reviewed in connection with New Mountain Capital's private equity efforts, and the majority of our current pipeline reflects this as well. Furthermore, the Investment Adviser's investment professionals have deep and longstanding relationships in both the private equity sponsor community and the lending/agency community which they have and will continue to utilize to generate investment opportunities.

Risk Management through Various Cycles

New Mountain Capital has emphasized tight control of risk since its inception and long before the recent global financial distress began. To date, New Mountain Capital has never experienced a bankruptcy of any of its portfolio companies in its private equity efforts or with respect to the Predecessor Entities' business. The Investment Adviser seeks to emphasize tight control of risk with our investments in several important ways, consistent with New Mountain Capital's historical approach. In particular, the Investment Adviser:

Emphasizes the origination or purchase of debt in what the Investment Adviser believes are defensive growth companies, which are less likely to be dependent on macro-economic cycles;

Targets investments in companies that are preeminent market leaders in their own industries, and when possible, investments in companies that have strong management teams whose skills are difficult for competitors to acquire or reproduce; and

Emphasizes capital structure seniority in the Investment Adviser's underwriting process.

Access to Non Mark to Market, Seasoned Leverage Facilities

The amounts available under the Credit Facilities are generally not subject to reduction as a result of mark to market fluctuations in our portfolio investments. For a detailed discussion of the Credit Facilities, see "Management's Discussion and Analysis of Financial Conditions and Results of Operations Liquidity and Capital Resources" in the accompanying prospectus.

Market Opportunity

We believe that the size of the market for investments that we target, coupled with the demands of middle market companies for flexible sources of capital at competitive terms and rates, create an attractive investment environment for us.

The leverage finance market has a high level of financing needs over the next several years due to significant bank debt maturities. We believe that the large dollar volume of loans that need to be refinanced will present attractive opportunities to invest capital in a manner consistent with our stated objectives.

Middle market companies continue to face difficulties in accessing the capital markets. We believe opportunities to serve the middle market will continue to exist. While many middle market companies were formerly able to raise funds by issuing high-yield bonds, we believe

Table of Contents

this approach to financing has become more difficult in recent years as institutional investors have sought to invest in larger, more liquid offerings.

Consolidation among commercial banks has reduced the focus on middle market lending. We believe that many traditional bank lenders to middle market businesses have either exited or de-emphasized their service and product offerings in the middle market. These traditional lenders have instead focused on lending and providing other services to large corporate clients. We believe this has resulted in fewer key players and the reduced availability of debt capital to the companies we target.

Attractive pricing. Reduced access to, and availability of, debt capital typically increases the interest rates, or pricing, of loans for middle market lenders. Recent primary debt transactions in this market often include upfront fees, prepayment protections and, in some cases, warrants to purchase common stock, all of which should enhance the profitability of new loans to lenders.

Conservative deal structures. As a result of the credit crisis, many lenders are requiring larger equity contributions from financial sponsors. Larger equity contributions create an enhanced margin of safety for lenders because leverage is a lower percentage of the implied enterprise value of the company.

Large pool of uninvested private equity capital available for new buyouts. We expect that private equity firms will continue to pursue acquisitions and will seek to leverage their equity investments with mezzanine loans and/or senior loans (including traditional first and second lien, as well as unitranche loans) provided by companies such as ours.

Operating and Regulatory Structure

We are a closed-end, non-diversified management investment company that has elected to be regulated as a BDC under the 1940 Act and are required to maintain an asset coverage ratio, as defined in the 1940 Act, of at least 200.0%. We include the assets and liabilities of our consolidated subsidiaries for purposes of satisfying the requirements under the 1940 Act. See "Regulation" in the accompanying prospectus. NMF Holdings and NMF SLF have long term liabilities related to the Credit Facilities.

We have elected to be treated, and intend to comply with the requirements to continue to qualify annually, as a RIC under Subchapter M of the Code. See "Material Federal Income Tax Considerations" in the accompanying prospectus. As a RIC, we generally will not have to pay corporate-level federal income taxes on any net ordinary income or capital gains that we timely distribute to our stockholders as dividends if it meets certain source-of-income, distribution and asset diversification requirements. We intend to distribute to our stockholders substantially all of our annual taxable income except that we may retain certain net capital gains for reinvestment. See discussion on distributions within "Price Range of Common Stock and Distributions" in the accompanying prospectus.

Risks

An investment in our common stock involves risk, including the risk of leverage and the risk that our operating policies and strategies may change without prior notice to our stockholders or prior stockholder approval. See "Risk Factors" and the other information included in this prospectus supplement and the accompanying prospectus for a discussion of factors you should carefully consider before deciding to invest in our common stock. The value of our assets, as well as the market price of our common stock, will fluctuate. Our investments may be risky, and you

Table of Contents

may lose all or part of your investment. Investing in our common stock involves other risks, including the following:

We may suffer credit losses;

We do not expect to replicate the Predecessor Entities' historical performance or the historical performance of other entities managed or supported by New Mountain Capital;

There is uncertainty as to the value of our portfolio investments because most of our investments are, and may continue to be in private companies and recorded at fair value;

Our ability to achieve our investment objective depends on key investment personnel of the Investment Adviser. If the Investment Adviser were to lose any of its key investment personnel, our ability to achieve our investment objective could be significantly harmed;

The Investment Adviser has limited experience managing a BDC or a RIC, which could adversely affect our business;

We operate in a highly competitive market for investment opportunities and may not be able to compete effectively;

Our investments in securities rated below investment grade are speculative in nature and are subject to additional risk factors such as increased possibility of default, illiquidity of the security, and changes in value based on changes in interest rates;

Our business, results of operations and financial condition depends on our ability to manage future growth effectively;

We borrow money, which could magnify the potential for gain or loss on amounts invested in us and increase the risk of investing in us;

Changes in interest rates may affect our cost of capital and net investment income;

Regulations governing the operations of BDCs will affect our ability to raise additional equity capital as well as our ability to issue senior securities or borrow for investment purposes, any or all of which could have a negative effect on our investment objectives and strategies;

We may experience fluctuations in our annual and quarterly results due to the nature of our business;

Our board of directors may change our investment objective, operating policies and strategies without prior notice or member approval, the effects of which may be adverse to your interests;

We will be subject to corporate-level U.S. federal income tax on all of our income if we are unable to maintain RIC status under Subchapter M of the Code, which would have a material adverse effect on our financial performance;

We may not be able to pay distributions on our common stock, our distributions may not grow over time and a portion of our distributions to you may be a return of capital for U.S. federal income tax purposes;

Our investments in portfolio companies may be risky, and we could lose all or part of any of our investments;

The lack of liquidity in our investments may adversely affect our business;

Economic recessions or downturns could impair our portfolio companies and harm our operating results;

Table of Contents

The market price of our common stock may fluctuate significantly; and

Sales of substantial amounts of our common stock in the public market may have an adverse effect on the market price of its common stock.

Company Information

Our administrative and executive offices are located at 787 Seventh Avenue, 48th Floor, New York, New York 10019, and our telephone number is (212) 720-0300. We maintain a website at http://www.newmountainfinance.com. Information contained on our website is not incorporated by reference into this prospectus, and you should not consider information contained on our website to be part of this prospectus.

Presentation of Historical Financial Information and Market Data

Historical Financial Information

Unless otherwise indicated, historical references contained in the accompanying prospectus for periods prior to and as of March 31, 2014 in "Selected Financial and Other Data", "Selected Quarterly Data", "Management's Discussion and Analysis of Financial Condition and Results of Operations", "Senior Securities" and "Portfolio Companies" relate to NMF Holdings. The consolidated financial statements of New Mountain Finance Holdings, L.L.C., formerly known as New Mountain Guardian (Leveraged), L.L.C., and New Mountain Guardian Partners, L.P. are NMF Holdings' historical consolidated financial statements.

Market Data

Statistical and market data used in this prospectus supplement and accompanying prospectus has been obtained from governmental and independent industry sources and publications. We have not independently verified the data obtained from these sources, and we cannot assure you of the accuracy or completeness of the data. Forward-looking information obtained from these sources is subject to the same qualifications and the additional uncertainties regarding the other forward-looking statements contained in this prospectus supplement and accompanying prospectus. See "Cautionary Statement Regarding Forward-Looking Statements".

Table of Contents

THE OFFERING

Common Stock Offered by us

Shares of Our Common Stock Currently Outstanding Shares of Our Common Stock Outstanding After This Offering

Use of Proceeds

New York Stock Exchange Symbol

5,000,000 shares, excluding 750,000 shares of common stock issuable pursuant to the option to purchase additional shares granted to the underwriters.

52,168,320 shares.

57,168,320 shares, excluding 750,000 shares of common stock issuable pursuant to the option to purchase additional shares granted to the underwriters. This amount does not include any shares which may be issuable upon conversion of existing securities. We intend to use the net proceeds from this offering primarily for new investments in portfolio companies in accordance with our investment objective and strategies described in this prospectus supplement and the accompanying prospectus. We may also use a portion of the net proceeds from the sale of shares of our common stock offered by us for other general corporate purposes, including to temporarily repay indebtedness (which will be subject to reborrowing), and other working capital needs. We are continuously identifying, reviewing and, to the extent consistent with our investment objective, funding new investments. As a result, we typically raise capital as we deem appropriate to fund such new investments. We expect it will take up to three months for us to substantially invest the net proceeds of this offering, depending on the availability of attractive opportunities and market conditions. However, we can offer no assurance that we will be able to achieve this goal. Pending such use, we will invest the net proceeds primarily in cash, cash equivalents, U.S. government securities and other high-quality investments that mature in one year or less from the date of the investment. These securities may have lower yields than the types of investments we would typically make in accordance with our investment objective and, accordingly, may result in lower distributions, if any, during such period. See "Use of Proceeds" in this prospectus supplement. "NMFC"

S-11

Table of Contents

Investment Advisory Fees

We pay the Investment Adviser a fee for its services under an amended and restated investment advisory and management agreement (the "Investment Management Agreement") consisting of two components a base management fee and an incentive fee. The base management fee is calculated at an annual rate of 1.75% of our gross assets, which equals our total assets on the Consolidated Statements of Assets and Liabilities, less (i) the borrowings under the SLF Credit Facility and (ii) cash and cash equivalents. The base management fee is payable quarterly in arrears, and is calculated based on the average value of our gross assets, borrowings under the SLF Credit Facility, and cash and cash equivalents at the end of each of the two most recently completed calendar quarters, and appropriately adjusted on a pro rata basis for any equity capital raises or repurchases during the current calendar quarter. We have not invested, and currently do not invest, in derivatives. To the extent we invest in derivatives in the future, we will use the actual value of the derivatives, as reported on our Consolidated Statements of Assets and Liabilities, for purposes of calculating our base management fee. The incentive fee consists of two parts. The first part is calculated and payable quarterly in arrears and equals 20.0% of our "Pre-Incentive Fee Adjusted Net Investment Income" for the immediately preceding quarter, subject to a "preferred return", or "hurdle", and a "catch-up" feature each as described in the Investment Management Agreement. The second part will be determined and payable in arrears as of the end of each calendar year (or upon termination of the Investment Management Agreement) and will equal 20.0% of our "Adjusted Realized Capital Gains", if any, on a cumulative basis from inception through the end of the year, computed net of all "Adjusted Realized Capital Losses" and "Adjusted Unrealized Capital Depreciation" on a cumulative basis, less the aggregate amount of any previously paid capital gain incentive fee each as described in the Investment Management Agreement. See "Investment Management Agreement" in the accompanying prospectus.

Table of Contents

Administrator

The Administrator serves as the administrator for us and arranges office space for us and provides us with office equipment and administrative services. The Administrator performs, or oversees the performance of, our financial records, prepares reports to our stockholders and reports filed by us with the SEC, monitors the payment of our expenses, and oversees the performance of admini