BLACKROCK MUNIYIELD QUALITY FUND III, INC.
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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM N-CSR

CERTIFIED SHAREHOLDER REPORT OF REGISTERED MANAGEMENT

INVESTMENT COMPANIES

Investment Company Act file number: 811-06540

Name of Fund: BlackRock MuniYield Quality Fund III, Inc. (MYI)

Fund Address: 100 Bellevue Parkway, Wilmington, DE 19809

Name and address of agent for service: John M. Perlowski, Chief Executive Officer, BlackRock MuniYield

Quality Fund III, Inc., 55 East 52nd Street, New York, NY 10055

Registrant s telephone number, including area code: (800) 882-0052, Option 4

Date of fiscal year end: 07/31/2016

Date of reporting period: 07/31/2016

Item 1 Report to Stockholders

JULY 31, 2016

ANNUAL REPORT

BlackRock MuniHoldings Quality Fund II, Inc. (MUE)

BlackRock MuniYield California Quality Fund, Inc. (MCA)

BlackRock MuniYield New York Quality Fund, Inc. (MYN)

BlackRock MuniYield Quality Fund III, Inc. (MYI)

Not FDIC Insured May Lose Value No Bank Guarantee

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The Markets in Review

Dear Shareholder,

Uneven economic outlooks and the divergence of monetary policies across regions have been the overarching themes driving financial markets over the past couple of years. In the latter half of 2015, as U.S. growth outpaced other developed markets, investors were focused largely on the timing of the Federal Reserve s (the Fed) decision to end its near-zero interest rate policy. The Fed ultimately hiked rates in December, whereas the European Central Bank and the Bank of Japan took additional steps to stimulate growth, even introducing negative interest rates. The U.S. dollar had strengthened considerably ahead of these developments, causing profit challenges for U.S. companies that generate revenues overseas, and pressuring emerging market currencies and commodities prices.

Also during this time period, oil prices collapsed due to excess global supply. China, one of the world s largest consumers of oil, was another notable source of stress for financial markets as the country showed signs of slowing economic growth and took measures to devalue its currency. Declining confidence in the country s policymakers stoked investors worries about the potential impact of China s weakness on the global economy. Global market volatility increased and risk assets (such as equities and high yield bonds) suffered in this environment.

The elevated market volatility spilled over into 2016, but as the first quarter wore on, fears of a global recession began to fade, allowing markets to calm and risk assets to rebound. Central bank stimulus in Europe and Japan, combined with a more tempered outlook for rate hikes in the United States, helped bolster financial markets. A softening in U.S. dollar strength brought relief to U.S. exporters and emerging market economies. Oil prices rebounded as the world s largest producers agreed to reduce supply.

Volatility spiked again in late June when the United Kingdom shocked investors with its vote to leave the European Union. Uncertainty around how the British exit might affect the global economy and political landscape drove investors to high-quality assets, pushing already low global yields to even lower levels. But markets recovered swiftly in July as economic data suggested that the negative impact had thus far been contained to the United Kingdom and investors returned to risk assets.

At BlackRock, we believe investors need to think globally, extend their scope across a broad array of asset classes and be prepared to adjust accordingly as market conditions change over time. We encourage you to talk with your financial advisor and visit blackrock.com for further insight about investing in today s markets.

Sincerely,

Rob Kapito

President, BlackRock Advisors, LLC

Rob Kapito

President, BlackRock Advisors, LLC

Total Returns as of July 31, 2016

	6-month	12-month
U.S. large cap equities (S&P 500® Index)	13.29%	5.61%
U.S. small cap equities (Russell 2000® Index)	18.76	0.00
International equities (MSCI Europe, Australasia, Far East Index)	8.25	(7.53)
	19.52	(0.75)

Emerging market equities (MSCI Emerging Markets Index)		
3-month Treasury bills (BofA Merrill Lynch 3-Month U.S. Treasury Bill Index)	0.17	0.22
U.S. Treasury securities (BofA Merrill Lynch 10-Year U.S. Treasury Index)	5.01	8.53
U.S. investment grade bonds (Barclays U.S. Aggregate Bond Index)	4.54	5.94
Tax-exempt municipal bonds (S&P Municipal Bond Index)	3.27	7.06
U.S. high yield bonds (Barclays U.S. Corporate High Yield 2% Issuer Capped Index)	13.84	5.01

Past performance is no guarantee of future results. Index performance is shown for illustrative purposes only. You cannot invest directly in an index.

Municipal Market Overview

For the Reporting Period Ended July 31, 2016

Municipal Market Conditions

Municipal bonds generated positive performance for the period due to falling interest rates and a favorable supply-and-demand environment. Interest rates were volatile in 2015 (bond prices rise as rates fall) leading up to a long-awaited rate hike from the Fed that ultimately came in December. However, ongoing reassurance from the Fed that rates would be increased gradually and would likely remain low overall resulted in strong demand for fixed income investments. Investors favored the relative yield and stability of municipal bonds amid bouts of volatility resulting from uneven U.S. economic data, volatile oil prices, global growth concerns, geopolitical risks (particularly the U.K. s decision to leave the European Union), and widening central bank divergence i.e., policy easing outside the United States while the Fed was posturing to commence policy tightening. During the 12 months ended July 31, 2016, municipal bond funds garnered net inflows of approximately $49 billion (based on data from the Investment Company Institute).

For the same 12-month period, total new issuance remained relatively strong from a historical perspective at $386 billion (though lower than the $417 billion issued in the prior 12-month period). A noteworthy portion of new supply during this period was attributable to refinancing activity (roughly 59%) as issuers continued to take advantage of low interest rates and a flatter yield curve to reduce their borrowing costs.

S&P Municipal Bond Index
Total Returns as of July 31, 2016
6 months: 3.27%
12 months: 7.06%

A Closer Look at Yields

From July 31, 2015 to July 31, 2016, yields on AAA-rated 30-year municipal bonds decreased by 100 basis points (bps) from 3.12% to 2.12%, while 10-year rates fell by 79 bps from 2.19% to 1.40% and 5-year rates decreased 46 bps from 1.30% to 0.84% (as measured by Thomson Municipal Market Data). The municipal yield curve experienced significant flattening over the 12-month period with the spread between 2- and 30-year maturities flattening by 90 bps and the spread between 2-and 10-year maturities flattening by 69 bps.

During the same time period, on a relative basis, tax-exempt municipal bonds broadly outperformed U.S. Treasuries with the greatest outperformance experienced in longer-term issues. In absolute terms, the positive performance of municipal bonds was driven largely by falling interest rates as well as a supply/demand imbalance within the municipal market as investors sought income and incremental yield in an environment where opportunities became increasingly scarce. More broadly, municipal bonds benefited from the greater appeal of tax-exempt investing in light of the higher tax rates implemented in 2014. The asset class is known for its lower relative volatility and preservation of principal with an emphasis on income as tax rates rise.

Financial Conditions of Municipal Issuers

The majority of municipal credits remain strong, despite well-publicized distress among a few issuers. Four of the five states with the largest amount of debt outstanding California, New York, Texas and Florida have exhibited markedly improved credit fundamentals during the slow national recovery. However, several states with the largest unfunded pension liabilities have seen their bond prices decline noticeably and remain vulnerable to additional price deterioration. On the local level, Chicago s credit quality downgrade is an outlier relative to other cities due to its larger pension liability and inadequate funding remedies. BlackRock maintains the view that municipal bond defaults will remain minimal and in the periphery while the overall market is fundamentally sound. We continue to advocate careful credit research and believe that a thoughtful approach to structure and security selection remains imperative amid uncertainty in a modestly improving economic environment.

The opinions expressed are those of BlackRock as of July 31, 2016, and are subject to change at any time due to changes in market or economic conditions. The comments should not be construed as a recommendation of any individual holdings or market sectors. Investing involves risk including loss of principal. Bond values fluctuate in price so the value of your investment can go down depending on market conditions. Fixed income risks include interest-rate and credit risk. Typically, when interest rates rise, there is a corresponding decline in bond values. Credit risk refers to the possibility that the bond issuer will not be able to make principal and interest payments. There may be less information on the financial condition of municipal issuers than for public corporations. The market for municipal bonds may be less liquid than for taxable bonds. Some investors may be subject to Alternative Minimum Tax (AMT). Capital gains distributions, if any, are taxable.

The Standard & Poor s Municipal Bond Index, a broad, market value-weighted index, seeks to measure the performance of the US municipal bond market. All bonds in the index are exempt from US federal income taxes or subject to the alternative minimum tax. Past performance is no guarantee of future results. Index performance is shown for illustrative purposes only. It is not possible to invest directly in an index.

The Benefits and Risks of Leveraging

The Funds may utilize leverage to seek to enhance the distribution rate on, and net asset value (NAV) of, their common shares (Common Shares). However, these objectives cannot be achieved in all interest rate environments.

In general, the concept of leveraging is based on the premise that the financing cost of leverage, which is based on short-term interest rates, is normally lower than the income earned by a Fund on its longer-term portfolio investments purchased with the proceeds from leverage. To the extent that the total assets of the Funds (including the assets obtained from leverage) are invested in higher-yielding portfolio investments, the Funds shareholders benefit from the incremental net income. The interest earned on securities purchased with the proceeds from leverage is paid to shareholders in the form of dividends, and the value of these portfolio holdings is reflected in the per share NAV.

To illustrate these concepts, assume a Fund s Common Shares capitalization is $100 million and it utilizes leverage for an additional $30 million, creating a total value of $130 million available for investment in longer-term income securities. If prevailing short-term interest rates are 3% and longer-term interest rates are 6%, the yield curve has a strongly positive slope. In this case, a Fund s financing costs on the $30 million of proceeds obtained from leverage are based on the lower short-term interest rates. At the same time, the securities purchased by a Fund with the proceeds from leverage earn income based on longer-term interest rates. In this case, a Fund s financing cost of leverage is significantly lower than the income earned on a Fund s longer-term investments acquired from leverage proceeds, and therefore the holders of Common Shares (Common Shareholders) are the beneficiaries of the incremental net income.

However, in order to benefit Common Shareholders, the return on assets purchased with leverage proceeds must exceed the ongoing costs associated with the leverage. If interest and other costs of leverage exceed the Funds return on assets purchased with leverage proceeds, income to shareholders is lower than if the Funds had not used leverage. Furthermore, the value of the Funds portfolio investments generally varies inversely with the direction of long-term interest rates, although other factors can influence the value of portfolio investments. In contrast, the value of the Funds obligations under their respective leverage arrangements generally does not fluctuate in relation to interest rates. As a result, changes in interest rates can influence the Funds NAVs positively or negatively. Changes in the future direction of interest rates are very diffi-

cult to predict accurately, and there is no assurance that a Fund s intended leveraging strategy will be successful.

The use of leverage also generally causes greater changes in each Fund s NAV, market price and dividend rates than comparable portfolios without leverage. In a declining market, leverage is likely to cause a greater decline in the NAV and market price of a Fund s Common Shares than if the Fund were not leveraged. In addition, each Fund may be required to sell portfolio securities at inopportune times or at distressed values in order to comply with regulatory requirements applicable to the use of leverage or as required by the terms of leverage instruments, which may cause the Funds to incur losses. The use of leverage may limit a Fund s ability to invest in certain types of securities or use certain types of hedging strategies. Each Fund incurs expenses in connection with the use of leverage, all of which are borne by Common Shareholders and may reduce income to the Common Shares. Moreover, to the extent the calculation of the Funds investment advisory fees includes assets purchased with the proceeds of leverage, the investment advisory fees payable to the Funds investment adviser will be higher than if the Funds did not use leverage.

To obtain leverage, each Fund has issued Variable Rate Demand Preferred Shares (VRDP Shares) or Variable Rate Muni Term Preferred Shares (VMTP Shares) (collectively, Preferred Shares) and/or leveraged its assets through the use of tender option bond trusts (TOB Trusts) as described in the Notes to Financial Statements.

Under the Investment Company Act of 1940, as amended (the 1940 Act), each Fund is permitted to issue debt up to 33 1/3% of its total managed assets or equity securities (e.g., Preferred Shares) up to 50% of its total managed assets. A Fund may voluntarily elect to limit its leverage to less than the maximum amount permitted under the 1940 Act. In addition, a Fund may also be subject to certain asset coverage, leverage or portfolio composition requirements imposed by the Preferred Shares governing instruments or by agencies rating the Preferred Shares, which may be more stringent than those imposed by the 1940 Act.

If a Fund segregates or designates on its books and records cash or liquid assets having a value not less than the value of a Fund s obligations under the TOB Trust (including accrued interest), a TOB Trust is not considered a senior security and is not subject to the foregoing limitations and requirements under the 1940 Act.

Derivative Financial Instruments

The Funds may invest in various derivative financial instruments. These instruments are used to obtain exposure to a security, commodity, index, market, and/or other assets without owning or taking physical custody of securities, commodities and/or other referenced assets or to manage market, equity, credit, interest rate, foreign currency exchange rate, commodity and/or other risks. Derivative financial instruments may give rise to a form of economic leverage and involve risk, including the imperfect correlation between the value of a derivative financial instrument and the underlying asset, possible default of the counterparty to the transaction or illiquidity of the instrument. The Funds successful use of derivative financial instruments depends on the investment adviser s ability to predict pertinent market movements accurately, which cannot be assured. The use of these instruments may result in losses greater than if they had not been used, may limit the amount of appreciation a Fund can realize on an investment and/or may result in lower distributions paid to shareholders. The Funds investments in these instruments, if any, are discussed in detail in the Notes to Financial Statements.

Fund Summary as of July 31, 2016

BlackRock MuniHoldings Quality Fund II, Inc.

Fund Overview

BlackRock MuniHoldings Quality Fund II, Inc. s (MUE) (the Fund) investment objective is to provide shareholders with current income exempt from federal income taxes. The Fund seeks to achieve its investment objective by investing primarily in long-term, investment grade municipal obligations exempt from federal income taxes (except that the interest may be subject to the federal alternative minimum tax). Under normal market conditions, the Fund invests at least 80% of its assets in municipal obligations with remaining maturities of one year or more at the time of investment. The Fund may invest directly in such securities or synthetically through the use of derivatives.

No assurance can be given that the Fund s investment objective will be achieved.

Fund Information

Symbol on New York Stock Exchange (NYSE)	MUE
Initial Offering Date	February 26, 1999
Yield on Closing Market Price as of July 31, 2016 ($14.94)[1]	5.14%
Tax Equivalent Yield[2]	9.08%
Current Monthly Distribution per Common Share[3]	$0.0640
Current Annualized Distribution per Common Share[3]	$0.7680
Economic Leverage as of July 31, 2016[4]	36%

1 Yield on closing market price is calculated by dividing the current annualized distribution per share by the closing market price. Past performance does not guarantee future results.

2 Tax equivalent yield assumes the maximum marginal federal tax rate of 43.4%, which includes the 3.8% Medicare tax. Actual tax rates will vary based on income, exemptions and deductions. Lower taxes will result in lower tax equivalent yields.

3 The distribution rate is not constant and is subject to change.

4 Represents VMTP Shares and TOB Trusts as a percentage of total managed assets, which is the total assets of the Fund, including any assets attributable to VMTP Shares and TOB Trusts, minus the sum of accrued liabilities. For a discussion of leveraging techniques utilized by the Fund, please see The Benefits and Risks of Leveraging on page 5.

Performance

Returns for the 12 months ended July 31, 2016 were as follows:

	Returns Based On	
	Market Price	NAV
MUE[1,2]	20.55%	10.33%
Lipper General & Insured Municipal Debt Funds (Leveraged)[3]	21.89%	11.98%

1 All returns reflect reinvestment of dividends and/or distributions.

[2] The Fund s discount to NAV, which narrowed during the period, accounts for the difference between performance based on price and performance based on NAV.

[3] Average return.

The following discussion relates to the Fund s absolute performance based on NAV:

Municipal bonds generated strong performance in the annual period. Municipals were aided by the sharp decline in Treasury yields, which was brought about by the slow global economy and the accommodative policies of the world s central banks. (Bond prices rise as yields fall.) The gains were largely concentrated among intermediate- and longer-term bonds, while shorter-term issues produced much smaller returns. In addition, lower-rated securities generally outpaced their higher-quality counterparts.

The Fund s position in the transportation sector made the largest contribution to returns. The Fund s overall duration exposure also contributed positively given that bond yields declined.

The use of leverage helped augment returns at a time of strong market performance. However, leverage had less of an impact to performance in the second half of the period since the Fed s interest rate increase in December 2015 raised the cost of short-term financing.

The Fund utilized U.S. Treasury futures contracts to manage exposure to a rise in interest rates, which had a slightly negative impact on performance due to the strength in the Treasury market. In addition, the Fund s yield declined during the period as the proceeds from bonds that were called away were reinvested at lower yields.

The views expressed reflect the opinions of BlackRock as of the date of this report and are subject to change based on changes in market, economic or other conditions. These views are not intended to be a forecast of future events and are no guarantee of future results.

BlackRock MuniHoldings Quality Fund II, Inc.

Market Price and Net Asset Value Per Share Summary

	7/31/16	7/31/15	Change	High	Low
Market Price	$ 14.94	$ 13.13	13.79%	$ 15.22	$ 12.79
Net Asset Value	$ 15.08	$ 14.48	4.14%	$ 15.23	$ 14.29

Market Price and Net Asset Value History For the Past Five Years

Overview of the Fund s Total Investments*

Sector Allocation

	7/31/16	7/31/15
Transportation	42%	37%
County/City/Special District/School District	21	25
Utilities	14	14
Health	11	11
State	6	7
Education	3	2
Housing	1	1
Tobacco	1	1
Corporate	1	2

For Fund compliance purposes, the Fund s sector classifications refer to one or more of the sector sub-classifications used by one or more widely recognized market indexes or rating group indexes, and/or as defined by the investment adviser. These definitions may not apply for purposes of this report, which may combine such sector sub-classifications for reporting ease.

Credit Quality Allocation[1]

	7/31/16	7/31/15
AAA/Aaa	8%	6%
AA/Aa	59	65
A	27	26
BBB/Baa	5	3
N/R	1	[2]

[1] For financial reporting purposes, credit quality ratings shown above reflect the highest rating assigned by either Standard & Poor s (S&P) or Moody s Investors Service (Moody s) if ratings differ. These rating agencies are independent, nationally recognized statistical rating organizations and are widely used. Investment grade ratings are credit ratings of BBB/Baa or higher. Below investment grade ratings are credit ratings of BB/Ba or lower. Investments designated N/R are not rated by either rating agency. Unrated investments do not necessarily indicate low credit quality. Credit quality ratings are subject to change.

[2] Represents less than 1% of Fund s total investments.

Call/Maturity Schedule[3]

Calendar Year Ended December 31,	
2016	[2]
2017	1%
2018	21
2019	10
2020	3

[3] Scheduled maturity dates and/or bonds that are subject to potential calls by issuers over the next five years.

* Excludes short-term securities.

Fund Summary as of July 31, 2016

BlackRock MuniYield California Quality Fund, Inc.

Fund Overview

BlackRock MuniYield California Quality Fund, Inc. s (MCA) (the Fund) investment objective is to provide shareholders with as high a level of current income exempt from federal and California income taxes as is consistent with its investment policies and prudent investment management. The Fund seeks to achieve its investment objective by investing at least 80% of its assets in municipal obligations exempt from federal income taxes (except that the interest may be subject to the federal alternative minimum tax) and California income taxes. Under normal market conditions, the Fund invests primarily in long-term municipal obligations that are investment grade quality at the time of investment. The Fund may invest directly in such securities or synthetically through the use of derivatives.

No assurance can be given that the Fund s investment objective will be achieved.

Fund Information

Symbol on NYSE	MCA
Initial Offering Date	October 30, 1992
Yield on Closing Market Price as of July 31, 2016 ($16.75)[1]	4.66%
Tax Equivalent Yield[2]	9.50%
Current Monthly Distribution per Common Share[3]	$0.0650
Current Annualized Distribution per Common Share[3]	$0.7800
Economic Leverage as of July 31, 2016[4]	37%

1 Yield on closing market price is calculated by dividing the current annualized distribution per share by the closing market price. Past performance does not guarantee future results.

2 Tax equivalent yield assumes the maximum marginal federal and state tax rate of 50.93%, which includes th