

ALIGN TECHNOLOGY INC  
Form 10-K  
March 01, 2006

## SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

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### FORM 10-K

(Mark One)

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE  
SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2005

Or

☐ TRANSITION REPORT PURSUANT TO SECTION 13 Or 15(d) OF THE  
SECURITIES EXCHANGE ACT OF 1934

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number: 0-32259

## ALIGN TECHNOLOGY, INC.

(Exact name of registrant as specified in its charter)

**Delaware**  
(State or other jurisdiction of  
incorporation or organization)

**94-3267295**  
(I.R.S. Employer  
Identification Number)

**881 Martin Avenue**  
**Santa Clara, California 95050**

(Address of principal executive offices, including Zip Code)

**(408) 470-1000**

Registrant's telephone number, including area code:

Securities registered pursuant to Section 12(b) of the Act:

**None**

Securities registered pursuant to Section 12(g) of the Act:

**Common Stock, \$0.0001 par value**  
**Series A Participating Preferred Stock \$0.0001 par value**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

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Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer. See definition of accelerated filer and large accelerated filer in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐ Accelerated filer ☒ Non-accelerated filer ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of June 30, 2005, the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was \$371,791,641 (based on the closing sale price as reported on the National Association of Securities Dealers Automated Quotation System National Market System). Shares of the registrant's common stock held by each executive officer and director and by each entity or person that, to the registrant's knowledge, owned 5% or more of registrant's outstanding common stock as of June 30, 2005 have been excluded in that such persons may be deemed to be affiliates of the registrant. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

On February 24, 2006, 62,675,855 shares of registrant's common stock were outstanding.

### DOCUMENTS INCORPORATED BY REFERENCE

Portions of registrant's definitive Proxy Statement relating to its 2006 Annual Stockholders' Meeting to be filed pursuant to Regulation 14A within 120 days after the registrant's fiscal year end of December 31, 2005 are incorporated by reference into Part III of this Annual Report on Form 10-K.

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**ALIGN TECHNOLOGY, INC.**  
**FORM 10-K**  
**For the Year Ended December 31, 2005**  
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*In addition to historical information, this annual report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. These statements include, among other things, statements concerning our expectations regarding the anticipated benefit of increased collaboration between orthodontists and general practitioner dentists and the impact this collaboration will have on sales of Invisalign and on our revenue, our expectation that the percentage of revenue generated by general practitioner dentists will represent an increasingly larger percentage of our revenue, our intention to continue the integration of Invisalign into the curriculums of additional universities, our expectation regarding the benefits of new product development and product enhancements, including the bracket positioning template and the compliance indicator, including the expected impact these new products and product enhancements will have on our market share, our expectations regarding the impact the introduction of Invisalign Express will have on our market share, our intention to invest in capital equipment, including the purchase of additional SLA machines in 2006, our expectations regarding the impact of the decline in our average selling prices on revenue, gross margin and net profits, our expectations regarding increased case shipment volume in 2006, our expectations regarding further expansion into North American and international markets, including Japan, our expectation regarding the anticipated level of our operating expenses in 2006, our expectations regarding relocation of our stereolithography mold fabrication operations to Juarez, Mexico, as well as the timing of such relocation, our expectations regarding the impact of FAS123(R) in 2006, as well as other statements regarding our future operations, financial condition and prospects and business strategies. These statements may contain words such as expects, anticipates, intends, plans, believes, estimates, or other words indicating future results. These forward-looking statements are subject to certain risks and uncertainties that could cause actual results to differ materially from those reflected in the forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in Part II, Item 7 Management's Discussion and Analysis of Financial Condition and Results of Operations, and in particular, the risks discussed below in Item 1A Risk Factors. We undertake no obligation to revise or update these forward-looking statements. Given these risks and uncertainties, readers are cautioned not to place undue reliance on such forward-looking statements.*

## **PART I**

### **ITEM 1. BUSINESS**

#### **Our Company**

Align Technology, Inc. was incorporated in April 1997 under the laws of the state of Delaware. We design, manufacture and market the Invisalign® system, a proprietary method for treating malocclusion, or the misalignment of teeth. Invisalign corrects malocclusion using a series of clear, nearly invisible, removable appliances that gently move teeth to a desired final position. Because it does not rely on the use of metal or ceramic brackets and wires, Invisalign significantly reduces the aesthetic and other limitations associated with braces. Invisalign is appropriate for treating adults and teens with mature dentition. Align Technology received FDA clearance to market Invisalign in 1998.

Under the Corporate Information/Investor Relations section of our corporate website which can be accessed at either [www.aligntech.com](http://www.aligntech.com) or [www.invisalign.com](http://www.invisalign.com), we make our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, our proxy statement on Schedule 14-A for our annual stockholders' meeting and amendments to such reports available as soon as reasonably practicable after they are electronically filed with or furnished to the Securities and Exchange Commission, or SEC. All such filings are available free of charge. The information in, or that can be accessed through, our web site is not part of this report.

## Industry Background

### *Malocclusion*

Malocclusion, the misalignment of teeth, is one of the most prevalent clinical dental conditions, affecting over 200 million individuals, or approximately 75% of the U.S. population. Approximately two million people annually elect treatment by orthodontists in the U.S. While most individuals seek orthodontic treatment to improve their appearance, malocclusion may also be responsible for dental problems such as tooth decay, tooth loss, gum disease, jaw joint pain and headaches. Because of the compromised aesthetics, discomfort and other drawbacks associated with conventional orthodontic treatments, only a relatively small proportion of people with malocclusion seek traditional treatment.

### *Traditional Orthodontic Treatment*

In the U.S., dental professionals treat malocclusion primarily with metal archwires and brackets, commonly referred to as braces. Occasionally, dental professionals attempt to improve treatment aesthetics by using ceramic, tooth-colored brackets or bond brackets on the inside, or lingual surfaces, of the patient's teeth. Dental professionals also augment braces with elastics, metal bands, headgear and other ancillary devices.

The average treatment takes approximately 12 to 24 months to complete and requires several hours of direct dental professional involvement, or chair time. To initiate treatment, a dental professional will diagnose a patient's condition and create an appropriate treatment plan. In a subsequent visit, the dental professional will bond brackets to the patient's teeth with cement and attach an archwire to the brackets. Thereafter, by tightening or otherwise adjusting the braces approximately every six weeks, the dental professional is able to exert sufficient force on the patient's teeth to achieve desired tooth movement. Because of the length of time between visits, the dental professional must tighten the braces to a degree sufficient to achieve sustained tooth movement during the interval. In a final visit, the dental professional removes each bracket and residual cement from the patient's teeth.

Fees for traditional orthodontic treatment typically range between U.S. \$3,500 to \$7,000 with a median fee of approximately \$4,800; generally only a portion of the fees are reimbursed by insurance, if covered at all. In addition, dental professionals commonly charge a premium for lingual or ceramic alternatives. Fees are based on the difficulty of the particular case and on the dental professional's estimate of chair time, and are generally negotiated in advance. A treatment that exceeds the dental professional's estimate of chair time generally results in decreased fees per hour of chair time, or reduced profitability for the dental professional.

### *Limitations of Traditional Orthodontic Treatment*

Although braces are generally effective in correcting a wide range of malocclusions, they are subject to many limitations and disadvantages. Conventional orthodontic treatment is associated with:

- *Unattractive appearance.* Braces call attention to the patient's condition and treatment. In addition, braces trap food, which can further compromise appearance. Braces can also result in permanent discoloration of teeth. Many adults associate braces with adolescence. As a result of these and other limitations, less than one percent of American adults with malocclusion elect traditional orthodontic treatment annually.
- *Oral discomfort.* Braces are sharp and bulky and can abrade and irritate the interior surfaces of the mouth. The tightening or adjustment of braces results in root and gum soreness and discomfort, especially in the few days immediately following an orthodontic visit.

- *Poor oral hygiene.* Braces compromise oral hygiene by making it more difficult to brush and floss. These problems can result in tooth decay and periodontal damage. Additionally, the bonding of brackets to teeth can cause permanent markings on the teeth.
- *Inability to project treatment.* Historically, dental professionals have not had a means to model the movement of teeth over a course of treatment. Accordingly, dental professionals must rely on intuition and judgment to plan and project treatment. As a result, they cannot be precise about the direction or distance of expected tooth movement between patient visits. This lack of predictability may result in unwanted tooth movements and can limit the dental professional's ability to estimate the duration of treatment. Because most orthodontic treatment is performed on a fixed price basis, extended treatment duration reduces profitability for the dental professional.
- *Physical demands on dental professional.* The manipulation of wires and brackets requires sustained manual dexterity and visual acuity, and may place other physical burdens on the dental professional.
- *Root resorption.* The sustained high levels of force associated with conventional treatment can result in root resorption, which is a shortening of tooth roots. This shortening can have substantial adverse periodontal consequences for the patient.
- *Emergencies.* At times, braces need to be repaired or replaced on an emergency basis. Such emergencies cause significant inconvenience to both the patient and the dental professional.

Due to the poor aesthetics, discomfort and other limitations of braces, relatively few people with malocclusion elect traditional orthodontic treatment. Accordingly, we believe there is a large unmet need for an orthodontic system that addresses these patient concerns. We also believe there is an unmet need among dental professionals for a treatment system that increases the predictability and efficiency of treatment and enhances practice profitability.

#### **The Align Solution**

Invisalign (which includes full Invisalign treatment and Invisalign® Express discussed below under "Our Products") is a proprietary system for treating malocclusion. The Invisalign treatment process is comprised of several phases, the principal steps of which are: the creation of electronic treatment plans using ClinCheck® and the manufacturing of Invisalign aligners (referred to in this Form 10-K as "Aligners"). The complete Invisalign treatment process is described in greater detail under "Business" "The Invisalign Treatment Process".

*ClinCheck.* ClinCheck is an internally developed computer modeling program that allows dental professionals to diagnose and plan treatments for their patients. We use a dental impression and a treatment form submitted by a dental professional to develop a customized, three-dimensional treatment plan that simulates appropriate tooth movement in a series of two-week increments. ClinCheck allows the dental professional to view this three-dimensional simulation with a high degree of magnification and from any angle. Accordingly, ClinCheck enables the dental professional to project tooth movement with a level of accuracy not previously possible.

Upon review of the ClinCheck simulation, the dental professional may immediately approve the projected treatment, or may provide us with feedback for modification. We reflect any requested adjustments in a modified simulation. Upon the dental professional's approval of the ClinCheck simulation, we use the data underlying the simulation, in conjunction with stereolithography technology, to manufacture Aligner molds. A third party shelter services provider in Juarez, Mexico uses these molds to fabricate the patient's Aligners.

*Aligners.* Aligners are custom-manufactured, thin, clear plastic, removable dental appliances that are manufactured in a series to correspond to each two-week stage of the ClinCheck simulation. Aligners are customized to perform the treatment prescribed for an individual patient by dental professionals using ClinCheck. Each Aligner covers a patient's teeth and is nearly invisible when worn. Aligners are commonly worn in pairs, over the upper and lower dental arches. Aligners are generally worn for consecutive two-week periods which correspond to the approved ClinCheck treatment simulation. After two weeks of use, the patient replaces them with the next pair in the series. This process is repeated until the final Aligners are used and treatment is complete. Upon completion of the treatment, the dental professional may, at his or her discretion, have the patient use an Invisalign retainer or go directly to a conventional retainer.

## **Our Products**

The vast majority of our revenue is generated from the sale of full Invisalign treatment and Invisalign® Express treatment. Approximately 5% of our revenue is generated by the sale of training and the sale of ancillary products.

*Full Invisalign Treatment.* Commercial sales of full Invisalign treatment commenced in the U.S. in July 1999. Our traditional, full Invisalign treatment option is intended to be used as a complete treatment for a broad range of malocclusions. Each treatment plan is unique to the individual patient and the treatment plan will consist of as many Aligners as is necessary to achieve the doctor's treatment goals.

*Invisalign Express.* In the third quarter of 2005, we launched Invisalign Express, a lower-cost solution for less complex orthodontic cases. Invisalign Express is a dual arch orthodontic treatment consisting of up to ten Aligners. Invisalign Express is intended to help a broader range of patients elect orthodontic treatment by providing a lower-cost option for adult relapse cases, for minor crowding and spacing, and as a pre-cursor to restorative or cosmetic treatment such as veneers.

## **Benefits of Invisalign**

We believe that Invisalign provides benefits to dental professionals and patients that have the potential to establish Invisalign as the preferred alternative to conventional braces.

### *Benefits to the dental professional*

- *Ability to visualize treatment and likely outcomes.* ClinCheck enables dental professionals to preview a course of treatment and the likely outcome of treatment in an interactive three-dimensional computer model. ClinCheck allows dental professionals to analyze multiple treatment alternatives before selecting the course of action they feel is most appropriate for the patient.
- *Begin using Invisalign with minimal additional training.* The biomechanical principles that underlie treatment with the Invisalign system are consistent with those of traditional orthodontics. Dental professionals can complete our initial training within two days. We provide additional clinical support following the initial training and encourage dental professionals to attend continuing education classes, seminars and workshops.
- *Expanded patient base.* We believe that Invisalign has the potential to transform the practice of orthodontics. Currently, approximately two million people annually elect treatment by orthodontists in the U.S. These patients represent approximately 1 percent of the population of people with malocclusion. Of these, we estimate approximately 40 percent, or approximately 800,000 patients have mature dentition with mild to moderate malocclusion and are therefore potential candidates





for Invisalign. We believe that Invisalign will allow dental professionals to attract patients who would not otherwise seek orthodontic treatment.

- *Decreased dental professional and staff time.* Invisalign eliminates the need for time-intensive processes such as bonding appliances to the patient's teeth, adjusting archwires during the course of treatment and removing the appliances at the conclusion of treatment. As such, use of Invisalign reduces dental professional and staff chair time and can increase practice throughput.
- *Practice productivity.* We believe that as dental professionals move to a higher volume of Invisalign patients, they will be able to better leverage their existing resources, including office space and staff time, resulting in an increase in daily patient appointments and practice productivity.

#### *Benefits to the Patient*

- *Excellent aesthetics.* Aligners are nearly invisible when worn, significantly reducing the aesthetic concerns associated with conventional braces.
- *Comfort.* By replacing the six-week adjustment cycle of traditional braces with two-week stages, Aligners move teeth more gently than conventional braces. Also, Aligners are thin, smooth and low in profile. As a result, Aligners are substantially more comfortable and less abrasive than conventional braces.
- *Improved oral hygiene.* Patients can remove Aligners for tasks that are difficult with conventional braces, such as eating, brushing and flossing. We believe this feature has the potential to reduce tooth decay and periodontal damage during treatment, which may result from conventional braces.
- *Potentially reduced overall treatment time.* Aligners control force by distributing it broadly over the exposed surfaces of the teeth. In addition, the ClinCheck simulation from which Aligners are produced is designed to reduce unintended and unnecessary tooth movements. Together, these factors may reduce overall treatment time relative to conventional braces.
- *Potentially reduced root resorption.* We believe that controlling force and shortening treatment time has the potential to reduce the incidence of root resorption, which is the breakdown or destruction of root structure.
- *Reduced incidence of emergencies.* Typically, a lost or broken Aligner is simply replaced with the next Aligner in the treatment series, minimizing inconvenience to both patient and dental professional.

We believe that these benefits will prove attractive to people who currently do not seek treatment because of the limitations of conventional braces.

#### **Limitations of Invisalign**

In some instances, the Invisalign system may have certain limitations relative to conventional treatment. Aligners cost more to produce than conventional braces, and we charge dental professionals more than they generally pay for the supplies used in conventional treatment. Depending on the individual pricing policies of each dental professional, the cost of full Invisalign treatment to the patient may be greater than for conventional braces. Dental professionals must also incorporate our manufacturing cycle times into their overall treatment plan. Once a dental professional submits a case to us, there is generally a turn-around time of a month or more before the corresponding Aligners are delivered. Aligners may not be appropriate for all cases, such as severe malocclusion, which may require Aligners to be used in combination with conventional braces for optimal results. In addition, because Aligners are removable, treatment using Invisalign depends on patients wearing their Aligners as recommended. Some patients may experience a temporary period of adjustment to wearing Aligners that may mildly affect speech. In



some instances, patients have experienced scratched or irritated gums, cheeks and lips and in some rare instances allergic reactions have occurred. We believe that these limitations are generally outweighed by the many benefits of Invisalign to both patients and dental professionals.

### **Our Target Market and Patient Base**

Medical devices are classified into one of three classes based on the controls necessary to reasonably assure their safety and effectiveness. Class I or II devices require the manufacturer to submit a pre-market notification to the Food and Drug Administration, or the FDA, requesting permission for commercial distribution, which is known as 510(k) clearance. We obtained our 510(k) clearance in September 1998. Our 510(k) clearance allows us to market Invisalign to treat patients with any type of malocclusion provided that the patient has mature dentition. We currently restrict the use of Invisalign to adults and teens with mature dentition. Individuals with mature dentition have fully erupted second molars and substantially completed jaw growth, which typically occurs between the ages of 11 and 15 years. We do not treat children whose teeth and jaws are still developing, as the effectiveness of Invisalign relies on our ability to accurately predict the movement of teeth over the course of treatment. Based on our clinical studies to date, we recommend that dental professionals use Invisalign as a complete treatment for a broad range of malocclusions and as a component of treatment for severe malocclusions. Approximately two million people annually elect treatment by orthodontists in the U.S. These patients represent approximately one percent of the population of people with malocclusion. Of these, we estimate 40 percent, or more than 800,000 patients, have mature dentition and are therefore potential candidates for Invisalign. Our market research indicates that the vast majority of people with malocclusion who desire treatment do not elect traditional treatment because of its many limitations. We believe that, since Invisalign addresses the primary limitations of braces, persons with malocclusion will be more likely to seek treatment. We believe that adults, who are particularly sensitive to the aesthetic limitations of traditional treatment, represent our most immediate and significant market expansion opportunity.

In an effort to more fully penetrate our target market, in August 2005, we launched Invisalign Express, a lower-cost solution for less complex cases. Invisalign Express is a simple, dual arch orthodontic treatment consisting of up to ten Aligners. We expect Invisalign Express will increase the overall market for Invisalign, as patients who would not have otherwise sought orthodontic treatment due to its relatively high cost are introduced to this lower-cost treatment option. We continue to market and sell our traditional full Invisalign treatment option for more complex cases.

As of December 31, 2005, approximately 380,000 patients worldwide have started treatment using Invisalign. Internationally, we operate in the geographic regions of Europe, Asia-Pacific, Japan and Latin America. In 2005, international sales accounted for 12% of our net revenues.

In each of fiscal 2005, 2004 and 2003, no single customer accounted for 10% or more of our total revenues.

### **Business Strategy**

Our objective is to establish Invisalign as the standard method for treating orthodontic malocclusion through customer responsiveness, product leadership and operational effectiveness. Key elements of our strategy include the following.

#### *Customer Responsiveness*

*Focus on education and customer support.* In order to build long-term relationships with our customers, we focus on delivering superior training, support and services. Each year, we provide numerous clinical education and training programs, which include certification classes, conference calls, seminars and workshops. By participating in these events, we believe that our customers will emerge with a better

understanding of the product and its applicability, and with a greater awareness for starting and finishing Invisalign cases. We also maintain an online clinical education center which is intended to augment our training workshops, conference calls and seminars by enabling Invisalign-trained doctors to obtain continuing education credits and access a full range of case studies and best practices.

*Educate future orthodontists and general practitioners.* By educating dental students and orthodontic residents on the benefits of the Invisalign technique, we believe they will be more likely to use this technology in their future practices and offer Invisalign as a treatment option. Currently, we have incorporated the Invisalign technique into selected orthodontic and dental undergraduate curriculums. In 2006, we intend to continue the integration of Invisalign into the programs of additional universities and post-graduate institutions.

*Stimulate demand for Invisalign treatment.* Our market research indicates that the vast majority of people with malocclusion who desire treatment do not elect traditional treatment because of its many limitations, such as compromised aesthetics and oral discomfort. By communicating the benefits of Invisalign to both dental professionals and consumers, we intend to increase the number of patients who seek orthodontic treatment annually. In the second quarter of 2005, we launched a new consumer marketing campaign designed to raise the profile of Invisalign and drive more consumers to our most experienced dental professionals. As of December 31, 2005, we had trained approximately 35,800 dental professionals worldwide on the use and benefits of Invisalign.

*Improving the collaboration and referral relationships between orthodontists and GPs.* We have two customer channels: the orthodontist and the general practitioner dentist, or GP. Although we have historically generated a majority of our revenues from orthodontists, there exists a significantly greater number of GPs in North America than orthodontists. As the primary care dental provider, GPs have access to a greater number of patients than orthodontists, and possess a unique opportunity to educate these patients and introduce them to Invisalign. GPs also have the ability to refer appropriate cases to orthodontists and, in certain instances, may choose to treat less complex cases themselves. We are committed to improving the collaboration and referral relationships between orthodontists and GPs. We continue to support study clubs, which pair experienced orthodontists with less experienced GPs. These orthodontists act as mentors to the GPs and lend them support and guidance in their Invisalign practice. Through these study clubs, GPs are introduced to an experienced Invisalign practitioner and are able to refer appropriate cases to these orthodontists. We believe that improved collaboration is beneficial to the orthodontist and the GP and will accelerate growth in Invisalign cases and consequently increase our revenues. As specialists, orthodontists are a critical part of our business, and we expect that orthodontists will continue to treat the majority of complex cases and continue to drive research for expanding Invisalign applications. We expect, however, that the percentage of revenue generated by GPs will increase, largely due to the fact that there are significantly more GPs than orthodontists. We believe the expected increase in the number of cases treated by GPs will result in an increase in the overall market for Invisalign as patients that would not have otherwise sought orthodontic treatment are introduced to Invisalign by GPs. Information regarding risks related to our expectation that orthodontists and GPs will collaborate may be found in Part I, Item 1A of this Report on Form 10-K under the heading Risk Factors.

*Product Leadership*

*New Products and Enhancements to Products.* Our strategy for ensuring product leadership focuses on delivering new products and product features as well as enhancing the user experience. In 2005 we launched Invisalign Express, a lower-cost solution for less complex cases, allowing the dental professional to treat a broader range of patients. Currently we are in early testing of a bracket positioning template (or BPT). The BPT product, which is intended to be used in conjunction with our digital treatment plan, will, if successfully launched, allow dental professionals to place traditional brackets on teeth with minimal effort, thereby increasing their efficiency and reducing patient chair time. New product features and enhancements include the compliance indicator, Aligner branding and next generation aligner material. The compliance indicator will help the dental professional and the patient understand if the patient has worn their Aligner for enough time to effectively move their teeth. Aligner branding is intended to distinguish and grow the Invisalign brand, differentiating us from our competitors. Next generation Aligner material will more consistently deliver force to the teeth over a longer period of time, improving efficacy of treatment. We believe continuing to introduce new products and product features as well as enhancing the user experience will keep us at the forefront of the market.

*Extend and defend technology leadership.* Invisalign represents a significant technological advancement in orthodontics. Our issued U.S. patents broadly cover the Invisalign system, including digital modeling and manipulation of scanned patient data, treatment planning, and fabrication of dental appliances, among others. We continue to pursue further intellectual property protection through U.S. and foreign patent applications and non-disclosure agreements. We also seek to protect our software, documentation and other written materials under trade secret and copyright laws. Nonetheless, our intellectual property rights may not be successfully asserted in the future or may be invalidated, circumvented or challenged. In addition, the laws of various countries where the Invisalign system is distributed do not protect our intellectual property rights to the same extent as U.S. laws. Information regarding risks associated with failure to protect our proprietary technology and our intellectual property rights may be found in Part I, Item 1A of this Report on Form 10-K under the heading Risk Factors. See also Part I, Item 3 of this Report on Form 10-K under the heading Legal Proceedings.

*Operational Effectiveness*

*Expand and enhance manufacturing capability.* Our manufacturing operations are designed to produce large numbers of custom Aligners at a high level of quality. To improve cost efficiency, we conduct labor intensive processes in relatively low-wage countries. We believe that our existing facilities are adequate to meet current requirements and that additional or substitute space will be available as needed to accommodate any expansion of operations. Our proprietary software underlies our manufacturing process. By continually developing this software and other manufacturing processes, we plan to increase the level of production automation. Increased automation will enhance production capacity and reduce both production times and unit costs.

**Manufacturing**

We produce highly customized, precise, medical quality products in volume. To do so, we have developed a number of proprietary processes and technologies. These technologies include complex software solutions, computed tomography, known as CT scanning, stereolithography and automated Aligner fabrication.

We rely on two vendors who are each the sole source of the polymer and resin used in our manufacturing process. In the event that either of these vendors becomes unable for any reason to supply us with their respective products, we would experience a manufacturing disruption while we qualify and obtain an alternate source.



As of December 31, 2005, we employed a manufacturing staff in the U.S. and Costa Rica of approximately 573 people. Manufacturing is coordinated in Santa Clara, California. Digital dental modeling is processed in our 63,000 square foot facility in San Jose, Costa Rica. The operations team in Costa Rica creates ClinCheck treatments using simulation software. In the second quarter of 2005, in an effort to optimize operations, improve efficiency and reduce operating costs, we announced our intention to relocate our stereolithography (SLA) mold fabrication operations from our Santa Clara, California facility and outsource this process to a third party shelter services provider based in Juarez, Mexico. We expect this relocation to be complete by the second quarter of 2006. We also outsource the fabrication and packaging of Aligners to this same third party shelter services provider. Information regarding risks associated with our manufacturing process and foreign operations may be found in Part I, Item 1A of this Annual Report on Form 10-K under the heading Risk Factors.

### **The Invisalign Treatment Process**

The Invisalign treatment process comprises the following five stages:

*Orthodontic diagnosis and transmission of treatment data to us.* In an initial patient visit, the dental professional determines whether Invisalign is an appropriate treatment. The dental professional then prepares a treatment data package which consists of a polyvinyl-siloxane, or PVS, impression of the relevant dental arches, x-rays of the patient's dentition, photographs of the patient, a bite impression depicting the relationship between the patient's upper and lower dental arches and an Invisalign treatment planning form, or prescription. The impression is a critical component of Invisalign as it depicts the three-dimensional geometry of the patient's teeth and hence forms the basis for our computer models. An impression requires the patient to bite into a viscous material. This material hardens, capturing the shape of the patient's teeth. The prescription is also a critical component of Invisalign, describing the desired positions and movement of the patient's teeth. The dental professional sends the treatment data to our Santa Clara facility.

*Preparation of three-dimensional computer models of the patient's initial malocclusion.* Upon receipt, we use the treatment data to construct digital models of the patient's dentition. Using CT scanning, we scan the PVS impression to develop a digital, three-dimensional computer model of the patient's current dentition. We then transmit this initial computer model together with the dental professional's prescription and supplemental materials electronically to our facilities in Costa Rica.

*Preparation of computer-simulated treatment and viewing of treatment using ClinCheck.* In Costa Rica we transform this initial digital model into a customized, three-dimensional treatment plan that simulates appropriate tooth movement in a series of two-week increments. This simulation is then reviewed for adherence to prescribed clinical, treatment and quality standards. Upon passing review, the simulation is then made available to the prescribing dental professional via Virtual Invisalign Practice (VIP), our proprietary customer interfacing software, which is available on our websites located at [www.invisalign.com](http://www.invisalign.com) and [www.aligntech.com](http://www.aligntech.com). The dental professional then reviews the ClinCheck simulation and determines whether to ask us to make adjustments. By reviewing and amending the treatment simulation, the dental professional retains control over the treatment plan and, thus, participates in the customized design of the Aligners. At this point, the dental professional may also invite the patient to review ClinCheck, allowing the patient to see the projected course of treatment. The dental professional then approves the proposed treatment and, in doing so, engages us for the manufacture of corresponding Aligners.

*Construction of molds corresponding to each step of treatment.* We use the approved ClinCheck simulation to construct a series of molds of the patient's teeth. Each mold is a replica of the patient's teeth at each two-week stage of the simulated course of treatment. These molds are currently fabricated at our Santa Clara, California manufacturing facility using stereolithography that we have adapted for use in orthodontic applications. As noted above, we intend to relocate our SLA mold fabrication operations from





our Santa Clara, California facility and outsource this process to a third party shelter services provider based in Juarez, Mexico. We expect this relocation to be complete by the second quarter of 2006.

*Manufacture of Aligners and shipment to the dental professional.* From these molds, our third party shelter services provider in Juarez, Mexico fabricates Aligners by pressure-forming polymeric sheets over each mold. The Aligners are then trimmed, polished, cleaned and packaged. Following final inspection, the Aligners are shipped directly to the prescribing dental professional. We ship all of the Aligners in a single batch. In certain cases, dental professionals may use Invisalign in conjunction with tooth-colored attachments bonded to the patient's teeth. These attachments are used to increase the force applied to a tooth or teeth in circumstances where the Aligners alone may have difficulty in effecting the desired movement. In certain cases, we provide an aligner-like template to the dental professionals to aid the placement of bonding attachments to the patient's teeth. Also, in cases where interproximal reduction, or IPR, is requested by the dental professional, we provide an IPR treatment form, quantifying the amount of space to be created through enamel reduction, location, and timing of IPR.

### **Throughput Management**

Because we manufacture each case on a build-to-order basis, we do not build inventories. As a result, we must conservatively build manufacturing throughput for anticipated demand. To increase throughput, we must improve the efficiency and increase the scale of our manufacturing processes.

In order to increase the efficiency of our manufacturing processes, we focus our efforts on software development and the improvement of rate-limiting processes, or bottlenecks. We continue to upgrade our proprietary, three-dimensional treatment-planning software to enhance computer analysis of treatment data and to reduce time spent on manual and judgmental tasks for each case, thereby increasing the efficiency of our technicians in Costa Rica. We are also continuing the development of automated systems for the fabrication and packaging of Aligners manufactured in Juarez, Mexico. In order to scale our manufacturing capacity, we expect that we will continue to invest in capital equipment including the purchase of additional SLA machines during 2006.

### **Quality Assurance**

Align's quality system is in compliance with Food & Drug Administration's Medical Device regulations, 21CFR Part 820, and Health Canada's Medical Device Regulations. We are certified to EN ISO 13485:2003, internationally recognized standards for Medical Device manufacturing and ISO 13485:1996, recognized standards of the Council of Canada. Align has a formal, documented quality system by which quality objectives are defined, understood and achieved. Systems, processes and procedures are implemented to ensure high levels of product and service quality. We monitor the effectiveness of the quality system based on internal data and direct customer feedback and strive to continually improve our systems and processes, taking corrective action, as needed.

Since we custom manufacture Aligners on a build-to-order basis, we do not offer refunds on our products. Because each ClinCheck and each Aligner is unique, we inspect 100% of the product at various points in the manufacturing process, to ensure that the product meets our customers expectations. Aligners are subject to the Invisalign product warranty, which covers defects in materials and workmanship. Our materials and workmanship warranty is in force until the Invisalign case is completed. In the event the Aligners fall within the scope of the Invisalign product warranty, we will replace the Aligners at our expense. Our warranty is contingent upon proper use of the Aligners for the purposes for which they are intended. If a patient chooses not to wear the Aligners, and as a result, requests additional Invisalign treatment, the dental professional pays the additional expense of the replacement Aligners.

The Invisalign product warranty does not provide any assurances regarding the outcome of treatment using Invisalign. Actual treatment results may deviate significantly from the approved ClinCheck treatment

plan. Deviations not covered under warranty have typically been the result of unpredictable biological factors, such as variations in bone density or tooth topography and abnormal jaw growth.

## **Sales and Marketing**

We market Invisalign by communicating Invisalign's benefits directly to dental professionals through our training, certification programs and direct mail campaigns and to consumers with a nationwide advertising campaign. Based on our experience with advertising and commercial sales in our test markets, we believe that making consumers aware of Invisalign as a new treatment alternative generates significant demand for Invisalign. In order to serve anticipated demand, we are training a broad base of dental professionals.

### *Professional Marketing*

Our sales and support staff has been engaged in marketing Invisalign to orthodontists since July 1999. In 2001, we began marketing Invisalign to general practitioner dentists in our domestic market. We provide training, certification, marketing and clinical support to orthodontists and general practitioner dentists in the U.S. and Canada, which we consider our domestic market, and internationally.

As of December 31, 2005, we had trained approximately 35,800 dental professionals worldwide to use Invisalign. Of those trained dental professionals, approximately 73% are dental professionals in our domestic market (United States and Canada). Within our domestic market, we have trained approximately 7,900 orthodontists and approximately 18,200 active general practitioner dentists.

Invisalign relies on the same orthodontic principles that apply to traditional treatment. Our sales and orthodontic teams conduct training primarily in a workshop format. The key topics covered in training include Invisalign applicability, instructions on filling out the Invisalign treatment form, clinical tips and techniques, guidance on pricing and instructions on interacting with our ClinCheck software and the many other features of our website.

After training, sales representatives follow up with the dental professional to ensure that their staff is prepared to handle Invisalign cases. Such follow up may include assisting the dental professional in taking dental impressions, establishing an Internet connection and familiarizing them with our website. Sales representatives may also provide practice-building assistance, including helping the dental professional to market Invisalign to prospective patients through direct mail or other forms of media. Many dental professionals have commenced promotional activity in their local region with our assistance.

### *Consumer Marketing*

Our experience indicates that prospective patients seek information from six primary sources:

- an orthodontist;
- a general practice dentist;
- consumer marketing and advertising;
- our website, which can be accessed at either [www.invisalign.com](http://www.invisalign.com) or [www.aligntech.com](http://www.aligntech.com).
- direct-to-consumer mail advertising and public relations efforts; and
- other Invisalign patients.

In the second quarter of 2005, we launched a new consumer marketing campaign and advertising strategy involving television, radio, print media and consumer website. This marketing program is designed to raise the profile of Invisalign and drive more consumers to our most experienced dental professionals.

### Research and Development

Our research and development effort is focused on extending the range of dental applicability of Invisalign, enhancing the software used in the manufacturing process and enhancing our Invisalign system product lines. Our research and development expenses were \$18.6 million for fiscal 2005, \$15.8 million for fiscal 2004 and \$13.1 million for fiscal 2003.

In an effort to demonstrate Invisalign's broad treatment capabilities, a series of clinical case studies and articles have been published that highlight the applicability of Invisalign to malocclusion cases, including those of severe complexity. We are also undertaking post-marketing studies and making additional technological improvements to the product and manufacturing process. Our product development team is testing enhanced materials and a number of complementary products, such as the bracket positioning template that when used in conjunction with our digital treatment plan, will, if successfully launched, guide doctors in proper bracket placement in traditional wires and brackets therapy and the compliance indicator, which will help doctors and patients understand if the patients have worn their Aligners for enough time to effectively move their teeth.

### Intellectual Property

We believe our intellectual property position represents a substantial business advantage. As of December 31, 2005, we had 62 issued U.S. patents, 97 pending U.S. patent applications, and numerous foreign issued patents, as well as pending foreign patent applications. *See Part I, Item 3 Legal Proceedings for a discussion on Reexamination Proceedings pending with the United States Patent and Trademark Office.*

We continue to pursue further intellectual property protection through U.S. and foreign patent applications and non-disclosure agreements. We also seek to protect our software, documentation and other written materials under trade secret and copyright laws. We cannot be certain that patents will be issued as a result of any patent application or that patents that have been issued to us or that may be issued in the future will be found to be valid and enforceable and sufficient to protect our technology or products. Our intellectual property rights may not be successfully asserted in the future or may be invalidated, circumvented or challenged. In addition, the laws of various foreign countries where Invisalign is distributed do not protect our intellectual property rights to the same extent as U.S. laws. Our inability to protect our proprietary information could harm our business. *Information regarding risks associated with failure to protect our proprietary technology and our intellectual property rights may be found in Part I, Item 1A of this Report on Form 10-K under the heading Risk Factors.*

### Competition

We compete for the attention of dental professionals with manufacturers of traditional orthodontic appliances (or wires and brackets), which include 3M Company, Sybron Dental Specialties and Dentsply International, Inc. We also compete directly with established companies that manufacture and distribute products that are similar in use to Invisalign, including the product called Red, White & Blue manufactured and distributed byOrmco Orthodontics, a wholly owned subsidiary of Sybron Dental Specialties. *See Part I, Item 3 Legal Proceedings for a summary of our litigation with Ormco and the permanent injunction issued by the Court to enjoin Ormco from selling the infringing Red, White & Blue.* In May 2005, OrthoClear, Inc. announced the commercial launch of the OrthoClear system, a product that is intended to compete directly with our Invisalign system. We believe that OrthoClear's product infringes on our intellectual property, including our trade secrets. *See Part I, Item 3 Legal Proceedings for a*

*summary of our litigation with OrthoClear.* In the future, we may face further competition from other early stage and more mature companies who enter our target markets to manufacture and distribute products that are similar in use to Invisalign. Information regarding risks associated with increased competition may be found in Part I, Item 1A of this Report on Form 10-K under the heading *Risk Factors*.

We believe that in addition to price, the principal competitive factors in the market for orthodontic appliances include the following:

- aesthetic appeal of the treatment method;
- effectiveness of treatment;
- customer support;
- comfort associated with the treatment method;
- oral hygiene;
- ease of use; and
- dental professionals' chair time.

We believe that Invisalign compares favorably with our competitors' products with respect to each of these factors.

#### **Government Regulation**

*FDA's Quality System Regulation for Medical Devices.* Invisalign has recently been informed by the Food and Drug Administration, or FDA that our Invisalign system has been classified as a Class II medical device, correcting what the FDA described as a prior classification error. The Invisalign system was previously regulated as a Class I medical device and was exempted from requiring 510(k) pre-market notification prior to commercialization. In 1998, however, we voluntarily filed with and subsequently received pre-market clearance from the FDA pursuant to the 510(k) premarket notification procedure, allowing us to market the product in the U.S. Therefore, we currently possess the necessary 510(k) clearance from the FDA to continue to market our product under the Class II classification. Prior to this classification correction, our product development, manufacturing processes, packaging, labeling, handling, storage and distribution activities were subject to extensive oversight by the FDA. We believe our Invisalign system is in compliance in all material respects with applicable quality system regulations, record keeping and reporting requirements in the production and distribution of the Invisalign system. We do not anticipate any significant difficulty or material cost increases in complying with applicable performance standards as a result of the incremental regulatory requirements resulting from the Class II classification.

Our Aligners are manufactured by International Manufacturing Solutions Operaciones, S.R.L. (IMS), a third party shelter services provider based in Juarez, Mexico. IMS is registered with the FDA as a medical device manufacturer and is certified to ISO 9001:2000 requirements. We have also ensured that our quality system procedures and processes have been implemented at IMS to comply with the FDA's Quality Systems standards. IMS has dedicated an area in its facilities and trained personnel in the manufacture and distribution of Invisalign. We and IMS are subject to routine inspections by the FDA and state agencies to determine compliance with Quality System requirements. We are registered with the State of California as a medical device manufacturer.

If the FDA determines that we or IMS failed to comply with the applicable FDA regulations, it can institute a wide variety of enforcement actions against us, ranging from a public Warning Letter to more severe sanctions, including but not limited to financial penalties, withdrawal of our right to market our products and criminal prosecution.



*Health Canada's Medical Device Regulations.* In Canada, we are required to comply with Health Canada's Medical Device Regulations. Our products are registered with Health Canada. We believe we are in compliance with their regulations and have been granted clearance to market our products in Canada.

*European Union's MDD Requirements & ISO 13485.* In Europe, Invisalign is regulated as a custom device and as such, we follow the requirements of the Medical Device Directives. We are ISO 13485 certified, which facilitates commercialization of Invisalign outside the United States and especially in Europe.

*Health Insurance Portability and Accountability Act of 1996.* Under the Health Insurance Portability and Accountability Act of 1996, or HIPAA, Congress mandated a package of interlocking administrative simplification rules to establish standards and requirements for electronic transmission of certain health information. Confidentiality of patient records and the circumstances under which these records may be released are subject to substantial regulations under the HIPAA Standards for Privacy of Individually Identifiable Health Information, referred to as the Privacy Standard, and other state laws and regulations. The Privacy Standard governs both the disclosure and the use of confidential patient medical information. Although compliance is principally the responsibility of the hospital, physician or other healthcare provider, we are required to maintain the confidentiality of patient information when providing technical services and when handling patient information and records. We have designed our product and service offerings to be consistent with the requirements of the Privacy and Security standards under HIPAA and applicable corresponding state laws and regulations. Maintaining systems that are consistent with these laws and regulations is costly and could require complex changes in the way we do business or provided services to our customers. Additionally, our success may be dependent on the success of healthcare participants in dealing with HIPAA requirements.

*Other Federal and State Laws.* As a participant in the health care industry we are subject to extensive and frequently changing regulation under many other laws administered by governmental entities at the federal, state and local levels, some of which are, and others of which may be, applicable to our business. Furthermore, our health care service provider customers are also subject to a wide variety of laws and regulations that could affect the nature and scope of their relationships with us.

Laws regulating medical device manufacturers and health care providers cover a broad array of subjects. For example, the confidentiality of patient medical information and the circumstances under which such information may be used by us, released for inclusion in our databases, or released by us to third parties, are subject to substantial regulation by state governments. These state laws and regulations govern both the disclosure and the use of confidential patient medical information and are evolving rapidly. In addition, provisions under the federal anti-kickback statute prohibit, among other things, paying or offering to pay any remuneration in exchange for the referral of patients to a person participating in, or for the order, purchase or recommendation of items or services that are subject to reimbursement by, Medicare, Medicaid and other similar federal or state health care programs. Most states have also enacted illegal remuneration laws that are similar to the federal laws. These laws are applicable to our financial relationships with, and any marketing or other promotional activities involving, our dental professional customers. Finally, various states regulate the operation of an advertising and referral service for dentists, and may require registration of such services with a state agency as well as compliance with various requirements and restrictions on how they conduct business and structure their relationships with participating dentists. Violations of any of these laws or regulations could subject us to a variety of civil and criminal sanctions.

## Employees

As of December 31, 2005, we had approximately 1,097 employees, approximately 489 of whom were employed in the U.S., 503 in Costa Rica, 60 in Europe, 18 in Russia, 9 in Latin America and 18 in Asia/Pacific and Japan. As of December 31, 2005, of our U.S. employees, approximately 84 were employed in manufacturing and 26 in operations, 97 were employed in various management, administrative and support positions, 90 were marketing and customer support staff, 130 were employed in sales, 25 were employed in engineering and 37 were employed in research and development. Of our Costa Rica employees, 14 were employed in Customer Service and the remaining 489 were employed in manufacturing.

## Executive Officers

The following table sets forth certain information regarding our executive officers as of February 28, 2006:

Name	Age	Position
Thomas M. Prescott	50	President and Chief Executive Officer
Eldon M. Bullington	54	Vice President, Finance and Chief Financial Officer
Hossein Arjomand	45	Vice President, Research and Development
Dan S. Ellis	55	Vice President, North American Sales
Roger E. George	40	Vice President, Legal and Corporate Affairs General Counsel and Corporate Secretary
Len M. Hedge	48	Vice President, Operations
Michael J. Henry	43	Vice President, Information Technology and Chief Information Officer
Gil Laks	40	Vice President, International
Darrell Zoromski	41	Vice President, Global Marketing and Chief Marketing Officer

*Thomas M. Prescott* has served as our President and Chief Executive Officer and as a member of our Board of Directors since March 27, 2002. Prior to joining us, Mr. Prescott was President and Chief Executive Officer of Cardiac Pathways, Inc., a publicly-traded medical device company, from May 1999 until its acquisition by Boston Scientific in August 2001. Mr. Prescott then worked as a consultant for Boston Scientific Corporation until January 2002. Prior to working at Cardiac Pathways, Mr. Prescott held various sales, general management and executive roles at Nellcor Puritan Bennett, Inc. from April 1994 to May 1999. Mr. Prescott serves as a director of Interventional Rhythm Management, Inc., a privately held company.

*Eldon M. Bullington* has served as our Vice President of Finance and Chief Financial Officer since October 2002. Mr. Bullington was previously Vice President, Finance and Chief Financial Officer of Verplex Systems, Inc., an electronic design automation company, from January 2002 until October 2002. Prior to that, Mr. Bullington spent two years as the Vice President and Chief Financial Officer at Cardiac Pathways, Inc., until it was acquired by Boston Scientific in August 2001. Prior to Cardiac Pathways, Mr. Bullington was Vice President and Chief Financial Officer at Saraide, Inc. from September 1998 to March 1999. He also served in executive financial management roles at Verifone, Inc. and Radius, Inc.

*Hossein Arjomand* has served as our Vice President, Research & Development since November 2005. Prior to joining Align as our Senior Director, Research & Development in October 2005, Mr. Arjomand served as Senior Director for the Wireless Networking Division of Symbol Technologies, a provider of mobility products and solutions, from April 2002 to October 2005. Prior to Symbol Technologies, Mr. Arjomand held senior R&D and product engineering positions at Agilent Technologies, from





March 1999 to March 2002. Mr. Arjomand also served for more than ten years in various positions in research and development at Hewlett Packard.

*Dan S. Ellis* has served as our Vice President, North American Sales since June 2005. Prior to joining us, Mr. Ellis was Vice President, Sales for privately-held BARRx Medical, a medical device company, from September 2004 to June 2005. Mr. Ellis spent from June 1999 to May 2004, at Fusion Medical Technologies, a division of Baxter Healthcare, most recently as Vice President, BioSurgery US. From January 1998 to June 1999, Mr. Ellis served as Vice President, Sales & Marketing for Cardiac Pathways, Inc. Earlier in his career, Mr. Ellis held national sales positions of increasing scope and responsibility at Fusion Medical Technologies and Eli Lilly MDD/Guidant Corporation.

*Roger E. George* has served as our Vice President, Legal and Corporate Affairs, General Counsel and Corporate Secretary since July 2002. Prior to joining us, Mr. George was the Chief Financial Officer, Vice President of Finance and Legal Affairs and General Counsel of SkyStream Networks, a privately held broadband and broadcast network equipment company. Prior to SkyStream, Mr. George was a partner at Wilson Sonsini Goodrich & Rosati, P.C. in Palo Alto, California.

*Len M. Hedge* has served as our Vice President, Operations since March 2002, and served as our Vice President of Manufacturing from January 1999 to March 2003. Mr. Hedge served as Vice President of Operations for Plynetics Express Corporation, a rapid-prototyping and stereolithography services supplier, from December 1996 to December 1998. From October 1991 to December 1996, Mr. Hedge worked at Beckman Instruments Corporation as Manager for Prototype Manufacturing and Process Development.

*Michael J. Henry* has served as our Vice President, Information Technology and Chief Information Officer since December 2005. Prior to joining Align, Mr. Henry was Vice President, Global IT & Information Security for IHS Inc., a Colorado-based information services provider, from February 2004. From January 2001 to January 2004, Mr. Henry was at Applied Materials, most recently as Senior Director of Global Architecture and Information Security. From April 1997 to December 2000, Mr. Henry served in various positions at Silicon Graphics, most recently as Director of Enterprise Information Security and Infrastructure. Earlier in his career Mr. Henry held technical positions at Tab Products, the University of California at Berkeley, and Alza Corporation.

*Gil Laks* has served as our Vice President, International since September 2005, and served as our Vice President, Europe since June 2001. Prior to joining us, Mr. Laks was Vice President, Business Development for the diagnostic imaging division of Singapore Technologies, from November 1999 to May 2001. He also served as Director of International for ISIX, Ltd., an educational computing services firm, from October 1996 to October 1999.

*Darrell Zoromski* has served as our Vice President, Global Marketing and Chief Marketing Officer since December 2005. Prior to joining us, Mr. Zoromski most recently held the position of Vice President and General Manager of CZV Labs at Carl Zeiss Vision, a global manufacturer and distributor of optical lenses to eye care physicians and chain retailers, where he worked from January 2002 to December 2005. From December 1999 to January 2002, Mr. Zoromski was Director, Breakfast Foods Division at Pillsbury Company and from December 1992 to November 1999, he served in management positions at S.C. Johnson & Son, Inc, most recently as Director, Home Cleaning Division. Prior to joining S.C. Johnson & Son, Mr. Zoromski was a brand manager at Procter & Gamble Company from 1989 to 1991.

## ITEM 1A. RISK FACTORS

**If we fail to sustain our revenue growth while controlling our expenses, the market price of our common stock may decline.**

You should consider our business and prospects in light of the risks, expenses and difficulties encountered by a company in an early stage of operations. Consistent with a company in an early stage of operations, we continue to incur significant operating expenses to:

- develop new software and increase the automation of our manufacturing processes;
- execute our consumer marketing campaign and dental professional marketing efforts;
- execute clinical research and education plans;
- develop technological improvements to our products and new product development;
- continue our international sales and marketing efforts;
- protect our intellectual property, including trade secrets; and
- undertake quality assurance and improvement initiatives.

For instance, in an effort to raise the profile of Invisalign and drive prospective patients to our most experienced dental professionals, in the second quarter of 2005, we launched a consumer marketing campaign involving television, radio and print media. Marketing programs of this nature are expensive and may have limited success, if any, and may not result in revenue generation commensurate with its costs.

While we achieved profitability beginning in the fourth quarter of fiscal 2003, we experienced a net loss in the third quarter of 2005. If we are to achieve profitability in future periods, we will need to continue to increase our revenues, while controlling our expenses. We generated positive operating cash flow for the first time in fiscal year 2003 and continued to generate positive operating cash flow in fiscal years 2004 and 2005. However, we cannot be certain that we will be able to sustain or increase such positive cash flow from operations, from period to period, in the future. Because our business is evolving, it is difficult to predict our future operating results or levels of growth, and we may not be able to sustain our historical growth rates in future periods. If we do not increase profitability or revenue growth or otherwise meet the expectations of securities analysts or investors, the market price of our common stock will likely decline.

**We have a limited operating history and expect our future financial results to fluctuate which may cause volatility in our stock price.**

We were incorporated in April 1997 and began sales of Invisalign in July 1999. Thus, we have a limited operating history, which makes it difficult to evaluate our future prospects. In addition, we expect our future quarterly and annual operating results to fluctuate as we focus on increasing our commercial sales. These fluctuations could cause our stock price to decline. Some of the factors that could cause our operating results to fluctuate include:

- the development and marketing of directly competitive products by existing and new competitors, such as OrthoClear, Inc.;
- aggressive price competition from competitors, including OrthoClear;
- changes in the timing of product orders;

- unanticipated delays in production caused by insufficient capacity, any disruptions in the manufacturing process, including as a result of unexpected turnover in the labor force or the introduction of new production processes;
- inaccurate forecasting of revenues, production and other operating costs;
- costs and expenditures in connection with ongoing litigation, in particular the litigation related to OrthoClear;
- changes in product mix due to the introduction of Invisalign Express, a lower-cost alternative for treating less complex cases; and
- investments in research and development to develop new products and enhancements to Invisalign.

To respond to these and other factors, we may need to make business decisions that could adversely affect our operating results such as modifications to our pricing policy, business structure or operations. Most of our expenses, such as employee compensation and lease payment obligations, are relatively fixed in the short term. Moreover, our expense levels are based, in part, on our expectations regarding future revenue levels. As a result, if our revenues for a particular period fall below our expectations, we may be unable to adjust spending quickly enough to offset any shortfall in revenues. Therefore, our operating results for a given period may be adversely affected. Due to these and other factors, we believe that quarter-to-quarter comparisons of our operating results may not be meaningful. You should not rely on our results for any one quarter as an indication of our future performance.

**We are currently involved in litigation with several former employees stemming from our efforts to protect our intellectual property. This litigation is costly and could distract our management and cause a decline in our results of operations and stock price.**

We seek to diligently protect our intellectual property rights. On February 2, 2005 we filed a complaint against OrthoClear, Inc., OrthoClear Holdings, Inc., Mr. Chishti, one of our founders, and several former employees. Among other things, the complaint alleges tort, contract, statutory and common law causes of action arising from OrthoClear and the individual defendants' alleged plan to unlawfully utilize our intellectual property, confidential information and employees. The complaint also alleges that OrthoClear, Mr. Chishti, and other defendants are in breach of contractual obligations, statutory law and common law for attempting to intentionally interfere and disrupt our ongoing business operations and improperly gain access to our customer relationships and trade secrets. The complaint seeks injunctive relief and monetary damages in an amount to be determined. On July 19, 2005, we filed a multi-claim lawsuit in the United States District Court for the Northern District of California against OrthoClear. The complaint alleges numerous violations of the federal Lanham Act (15 U.S.C. §1051 et seq.) by OrthoClear and its officers and employees. These violations include unfair competition, trademark infringement and false advertising. The complaint also alleges violations by OrthoClear of California's Unfair Practices Act (California Business and Professions Code §17200 et seq.). On January 11, 2006, we filed a complaint with the International Trade Commission (ITC) against OrthoClear, seeking to halt the importation into the United States of infringing aligners manufactured by OrthoClear in Pakistan in violation of our patents and other intellectual property rights. The ITC Complaint requests the ITC institute an immediate investigation and ultimately issue an exclusionary order, enforced by U.S. Customs and Border Protection, excluding OrthoClear aligners from importation into the United States. The ITC Complaint also requests the ITC issue two cease and desist orders specifically preventing OrthoClear from importing infringing aligners and from selling in the United States imported OrthoClear aligners. The ITC has determined to institute a formal investigation. In addition, on January 11, 2006, we filed a federal court patent infringement action in the Western District of Wisconsin (Madison). This federal action seeks monetary damages and an injunction to augment the exclusionary relief available from the ITC.

Although each of these lawsuits is in the early stages, litigating claims of this type, whether or not ultimately determined in our favor or settled by us, is costly and diverts the efforts and attention of our management and technical personnel from normal business operations. Any of these results from our litigation could adversely affect our results of operations and stock price.

In addition, we are currently a party to various other legal proceedings and claims. Management does not believe that the ultimate outcome of these other legal proceedings and claims will have a material adverse effect on our financial position or results of operations. However, in the Ormco litigation, there is no assurance that the court's decision will not be overturned on appeal. In addition, litigation is subject to inherent uncertainties and unfavorable rulings could occur. An unfavorable ruling could include monetary damages or, in cases where injunctive relief is sought, an injunction prohibiting us from selling our products. Any of these results from our litigation could adversely affect our results of operations and stock price.

*See Part I Item 3 of this Form 10-K for a summary of our material pending legal proceedings.*

**We experience competition from manufacturers of traditional braces and expect aggressive competition from these and other companies that may introduce new technologies in the future.**

Currently, our Invisalign product competes directly against a product called Red, White and Blue, which is manufactured and distributed by Ormco, a subsidiary of Sybron Dental Specialties, and an aligner product manufactured by OrthoClear, Inc. In addition, manufacturers of traditional braces, such as 3M Company, Sybron Dental Specialties and Dentsply International have substantially greater financial resources and manufacturing and marketing experience than we do and may, in the future, attempt to develop an orthodontic system similar to ours. Large consumer product companies may also enter the orthodontic supply market. Furthermore, we may face competition in the future from new companies that may introduce new technologies. We may be unable to compete with these competitors and one or more of these competitors may render our technology obsolete or economically unattractive. If we are unable to compete effectively with existing products or respond effectively to any products developed by new or existing competitors, our business could be harmed. In May 2005, OrthoClear announced the launch of the OrthoClear system, a product that is intended to compete directly with our Invisalign system. Although we intend to vigorously defend our intellectual property rights and prevent OrthoClear from continuing to market any product that infringes on our intellectual property, if OrthoClear is successful in gaining broad market acceptance of its product, our business could be adversely affected. *See Part I Item 3 of this Report on Form 10-K for a more complete summary of the OrthoClear litigation.* Increased competition from OrthoClear and other competitors has recently resulted in and may in the future result in volume discounting and price reductions, reduced gross margins, reduced profitability and loss of market share, any of which could have a material adverse effect on our revenue, volume growth, net profit and stock price. For instance, in the fourth quarter of 2005, in order to encourage continued use of our products, we extended our volume based discount program directed to all of our doctors. In addition, in the second half of 2005, we introduced Invisalign Express, a lower-cost solution for less complex cases as well as a new pricing initiative which had the effect of reducing our average selling price per case. These programs have adversely affected our revenues, gross margin and net profit. We cannot assure you that we will be able to compete successfully against our current or future competitors or that competitive pressures will not have a material adverse effect on our business, results of operations and financial condition.

**Our information technology systems are critical to our business. System integration and implementation issues and system security risks could disrupt our operations, which could have a material adverse impact on our business and operating results.**

We rely on the efficient and uninterrupted operation of complex information technology systems. All information technology systems are vulnerable to damage or interruption from a variety of sources. As our

business has grown in size and complexity, the growth has placed, and will continue to place, significant demands on our information technology systems. To effectively manage this growth, we will need to continually upgrade and enhance our information systems to more effectively manage our operations.

Throughout 2006 we intend to add additional functionality into our business enterprise systems, which will more efficiently integrate these systems with our other system applications, such as customer facing and manufacturing tools. System upgrades and enhancements require significant expenditures and allocation of valuable employee resources. Delays in integration or disruptions to our business from implementation of these new or upgraded systems could have a material adverse impact on our financial condition and operating results. Furthermore, we continuously upgrade our customer facing software applications, specifically ClinCheck and VIP. Software applications frequently contain errors or defects, especially when they are first introduced or when new versions are released. In addition, we currently do not have adequate resiliency in our information technology systems. The discovery of a defect or error in a new upgraded version or the failure of our primary information systems may result in the following consequences, among others: loss of revenue or delay in market acceptance, damage to our reputation or increased service costs, any of which could have a material adverse effect upon our business, financial condition or results of operations. Further, in the fourth quarter of 2005 we began transitioning to a new information technology outsourcing provider. We terminated this relationship in the first quarter of 2006 and are currently transitioning back to our original information technology outsourcing provider. Delays in transition and failure to migrate smoothly through this transition could cause business disruptions.

In addition, experienced computer programmers and hackers may be able to penetrate our network security and misappropriate our confidential information or that of third parties, create system disruptions or cause shutdowns. Furthermore, sophisticated hardware and operating system software and applications that we either internally produce or procure from third parties may contain defects in design and manufacture, including bugs and other problems that can unexpectedly interfere with the operation of the system. The costs to eliminate or alleviate security problems, viruses and bugs could be significant, and the efforts to address these problems could result in interruptions that may have a material adverse impact on our operations, sales and operating results.

**While we believe we currently have adequate internal control over financial reporting, we are required to assess our internal control over financial reporting on an annual basis and any future adverse results from such assessment could result in a loss of investor confidence in our financial reports and have an adverse effect on our stock price.**

Pursuant to the Sarbanes-Oxley Act of 2002 and the rules and regulations promulgated by the SEC, we are required to furnish in our Form 10-K an annual report by our management regarding the effectiveness of our internal control over financial reporting. The report includes, among other things, an assessment of the effectiveness of our internal control over financial reporting as of the end of our fiscal year, including a statement as to whether or not our internal control over financial reporting is effective. This assessment must include disclosure of any material weaknesses in our internal control over financial reporting identified by management. While we currently believe our internal control over financial reporting is effective, the effectiveness of our internal controls to future periods is subject to the risk that our controls may become inadequate because of changes in conditions, and, as a result, the degree of compliance of our internal control over financial reporting with the policies or procedures may deteriorate. If we are unable to assert that our internal control over financial reporting is effective in any future period (or if our auditors are unable to express an opinion on the effectiveness of our internal controls or conclude that our internal controls are ineffective), we could lose investor confidence in the accuracy and completeness of our financial reports, which would have an adverse effect on our stock price.

**We depend on the sale of Invisalign for the vast majority of our revenues, and any decline in sales of Invisalign or average selling prices would adversely affect revenue, gross margin and net profits.**

We expect that revenues from the sale of Invisalign will continue to account for the vast majority of our total revenues for the foreseeable future. Continued and widespread market acceptance of Invisalign by orthodontists, GPs and consumers is critical to our future success. If orthodontists and GPs experience a reduction in consumer demand for orthodontic services, if consumers prove unwilling to adopt Invisalign as rapidly as we anticipate or in the volume that we anticipate, if orthodontists and GPs do not collaborate as we expect or if the average selling price of our product declines, our operating results would be harmed. Factors that could cause Invisalign not to achieve market acceptance at the rate at which we expect, as well as the risk related to declining average selling prices are described more fully below.

*Dental professionals may not adopt Invisalign in sufficient numbers or as rapidly as we anticipate.*

Our success depends upon increasing acceptance of Invisalign by dental professionals. Invisalign requires orthodontists, GPs and their staff to undergo special training and learn to interact with patients in new ways. In addition, because Invisalign has only been in clinical testing since July 1997 and commercially available only since July 1999, orthodontists and GPs may be reluctant to adopt it until more historical clinical results are available. Also, increasing adoption and cumulative use by orthodontists and GPs will depend on factors such as the capability, safety, efficacy, ease of use, price, quality and reliability of our products, our ability to provide effective sales support, training and service and the availability of competing products, technologies and alternative treatments. In the future, unanticipated poor clinical performance of Invisalign could result in significant adverse publicity and, consequently, reduced acceptance by dental professionals. In addition, increased competition from direct competitors could cause us to lose market share and reduce dental professionals' efforts and commitment to expand their Invisalign practice. If Invisalign does not achieve growing acceptance in the orthodontic and GP communities, our operating results will be harmed.

*Consumers may not adopt Invisalign in sufficient numbers or as rapidly as we anticipate.*

In addition, our success depends upon the acceptance of Invisalign by a substantially larger number of dental professionals as well as potential consumers to whom we are now actively marketing. Invisalign represents a significant change from traditional orthodontic treatment, and consumers may be reluctant to accept it or may not find it preferable to conventional treatment. In addition, consumers may not comply with recommended treatment guidelines for Invisalign, which could compromise the effectiveness of their treatment. We have generally received positive feedback from both orthodontists, GPs and consumers regarding Invisalign as both an alternative to braces and as a clinical method for treatment of malocclusion, but a number of dental professionals believe that Invisalign is appropriate for only a limited percentage of their patients. Market acceptance will depend in part upon the recommendations of dental professionals, as well as other factors including effectiveness, safety, reliability, improved treatment, aesthetics, greater comfort and hygiene compared to conventional orthodontic products and price for Invisalign compared to competing products. Furthermore, consumers may not respond to our direct marketing campaigns or we may be unsuccessful in reaching our target audience. Adoption by consumers may also be affected by general macroeconomic conditions in North America and internationally, which fluctuate and could be affected by unstable global economic, political or other conditions.

*The orthodontist and GPs may choose not to collaborate and referrals between orthodontists and GPs may not increase at the rate that we anticipate or at all.*

Our success depends in part upon improving the collaboration and referral relationships between orthodontists and GP dentists. As specialists, orthodontists are a critical part of our business, and we expect that orthodontists will continue to treat the majority of complex cases and continue to drive

research for expanding Invisalign applications. We expect, however, that the percentage of revenues generated by GPs will increase, largely due to the fact that there are significantly more GPs than orthodontists. As the primary provider of dental care, GPs have access to a greater number of patients than orthodontists, possess a unique opportunity to educate these patients and introduce them to Invisalign, have the ability to refer appropriate cases to orthodontist and, in certain instances, may chose to treat less complex cases themselves. If this collaboration and increase in referrals does not occur or occurs more slowly than we anticipate, our operating results could be harmed.

*Declines in average selling prices of our products.*

In response to challenges in our business, including increased competition, in the second half of 2005, we reduced the list price of full Invisalign cases and introduced Invisalign Express, a lower-cost solution for less complex cases. In addition, in the fourth quarter of 2005, we expanded our volume based discount program to all doctors. As a result of these programs, the blended average selling price for our products has declined. We expect each of these programs, and other similar programs that we may introduce in the future, to adversely affect our revenue, gross margin and net profits.

**Our future success may depend on our ability to develop and successfully introduce new products.**

Our future success may depend on our ability to develop, obtain regulatory approval or clearance of, manufacture and market new products. In the second half of 2005, we launched Invisalign Express a low-cost Aligner system to be used for less complex cases. We are in early testing of a bracket positioning template and other new products. There can be no assurance that we will be able to successfully develop, sell and achieve market acceptance of these and other new products and applications and enhanced versions of our existing product. The extent of, and rate at which, market acceptance and penetration are achieved by future products is a function of many variables, which include, among other things, price, safety, efficacy, reliability, marketing and sales efforts, the availability of third-party reimbursement of procedures using our new products, the existence of competing products and general economic conditions affecting purchasing patterns. Our ability to market and sell new products may also be subject to government regulation, including approval or clearance by the United States Food and Drug Administration, or FDA, and foreign government agencies. Any failure in our ability to successfully develop and introduce new products or enhanced versions of existing products and achieve market acceptance of new products and new applications could have a material adverse effect on our operating results and could cause our revenues to decline.

**We are dependent on our international manufacturing operations, which exposes us to foreign operational, political and other risks that may harm our business.**

Currently, two of our key production steps are performed in operations located outside of the U.S. At our facility in Costa Rica, technicians use a sophisticated, internally developed computer-modeling program to prepare electronic treatment plans, which are transmitted electronically back to the U.S. These electronic files form the basis of ClinCheck and are used to manufacture Aligner molds. A third party shelter services provider in Juarez, Mexico fabricates Aligners and ships the completed products to our customers. We are currently in the process of relocating our SLA mold fabrication operations from our Santa Clara, California facility to this same third party provider. We expect this relocation to be complete by the second quarter of 2006. As a result of this relocation, our reliance on our international manufacturing operations will continue to increase. Our costs associated with these operations are denominated in Costa Rican colons, Mexican pesos and U.S. dollars. Our increasing reliance on

international operations exposes us to risks and uncertainties that may affect our business or results of operation, including:

- difficulties in hiring and retaining employees generally, as well as difficulties in hiring and retaining employees with the necessary skills to perform the more technical aspects of our operations;
- difficulties in managing international operations, including our relationship with IMS, our third party shelter services provider;
- import and export license requirements and restrictions;
- controlling production volume and quality of the manufacturing process;
- political, social and economic instability;
- acts of terrorism and acts of war;
- interruptions and limitations in telecommunication services;
- product or material transportation delays or disruption;
- burdens of complying with a wide variety of local country and regional laws;
- trade restrictions and changes in tariffs;
- fluctuations in currency exchange rates; and
- potential adverse tax consequences.

If any of these risks materialize in the future, we could experience production delays and lost or delayed revenue. In addition to the risks set forth above, if we do not successfully coordinate the relocation and consolidation of our SLA mold fabrication operations, we may be unable to produce sufficient volume of molds to meet customer demand, which would harm our results of operations.

**Our success depends in part on our proprietary technology, and if we are unable to successfully enforce our intellectual property rights, our competitive position may be harmed.**

Our success will depend in part on our ability to maintain existing intellectual property and to obtain and maintain further intellectual property protection for our products, both in the U.S. and in other countries. Our inability to do so could harm our competitive position. As of December 31, 2005, we had 62 issued U.S. patents, 97 pending U.S. patent applications, and numerous foreign issued patents, as well as pending foreign patent applications.



We intend to rely on our portfolio of issued and pending patent applications in the U.S. and in other countries to protect a large part of our intellectual property and our competitive position. However, our currently pending or future patent filings may not result in the issuance of patents. Additionally, any patents issued to us may be challenged, invalidated, held unenforceable, circumvented, or may not be sufficiently broad to prevent third parties from producing competing products similar in design to our products. During fiscal 2005, requests were filed with the United States Patent and Trademark Office ( USPTO ) by a San Francisco, California, law firm, acting on behalf of an unnamed party, requesting re-examination of a number of our patents. The USPTO has granted the request to reexamine U.S. Patent Nos. 5,975,893, 6,398,548, 6,309,215, 6,705,863, 6,217,325. As of the date of this Report on Form 10-K, the USPTO issued initial Office Actions with regard to U.S. Patent Nos. 6,217,325 (the 325 patent), 6,309,215 (the 215 patent) and 5,975,893 (the 893 patent). While the pending re-examinations are in a preliminary stage and we are still evaluating all issues, we believe that the claims of the patents in re-examination will be determined to be patentable as currently written or as may be amended during the re-examination proceedings. However, there can be no assurance that we will prevail, and the re-examination proceedings could cause some or all of these patent claims to have a narrower scope of coverage or even to be invalidated, which would have an adverse affect on us. *See Part I Item 3 of this Form 10-K for a summary of the USPTO proceedings.* In addition, any protection afforded by foreign patents may be more limited than that provided under U.S. patents and intellectual property laws. We also rely on protection of our copyrights, trade secrets, know-how and proprietary information. We generally enter into confidentiality agreements with our employees, consultants and our collaborative partners upon commencement of a relationship with us. However, these agreements may not provide meaningful protection against the unauthorized use or disclosure of our trade secrets or other confidential information, and adequate remedies may not exist if unauthorized use or disclosure were to occur. *See Part I Item 3 of this Form 10-K for a summary of the OrthoClear litigation.*

Our inability to maintain the proprietary nature of our technology through patents, copyrights or trade secrets would impair our competitive advantages and could have a material adverse effect on our operating results, financial condition and future growth prospects. In particular, a failure of our proprietary rights might allow competitors to copy our technology, which could adversely affect our pricing and market share.

**If we lose our key personnel or are unable to attract and retain key personnel, we may be unable to pursue business opportunities or develop our products.**

We are highly dependent on the key employees in our clinical engineering, technology development, sales and marketing personnel and management teams. The loss of the services of those individuals may significantly delay or prevent the achievement of our product development and other business objectives and could harm our business. Our future success will also depend on our ability to identify, recruit, train and retain additional qualified personnel, including orthodontists. Few orthodontists are accustomed to working in a manufacturing environment since they are generally trained to work in private practices, universities and other research institutions. Thus, we may be unable to attract and retain personnel with the advanced qualifications necessary for the further development of our business. Furthermore, we may not be successful in retaining our key personnel or their services. If we are unable to attract and retain key personnel, our business could be materially harmed.

**If we infringe the patents or proprietary rights of other parties or are subject to a patent infringement claim, our ability to grow our business will be severely limited.**

Extensive litigation over patents and other intellectual property rights is common in the medical device industry. We have been sued for infringement of third party s patents in the past and we may be the subject of patent or other litigation in the future. From time to time, we have received and may in the

future receive letters from third parties drawing our attention to their patent rights. While we do not believe that we infringe upon any valid and enforceable rights that have been brought to our attention, there may be other more pertinent rights of which we are presently unaware. The defense and prosecution of intellectual property suits, interference proceedings and related legal and administrative proceedings could result in substantial expense to us and significant diversion of effort by our technical and management personnel. An adverse determination of any litigation or interference proceeding to which we may become a party could subject us to significant liabilities. An adverse determination of this nature could also put our patents at risk of being invalidated or interpreted narrowly or require us to seek licenses from third parties. Licenses may not be available on commercially reasonable terms or at all, in which event, our business would be materially adversely affected.

*See Part I Item 3 of this Form 10-K for a summary of our material pending legal proceedings.*

**We currently rely on third parties to provide key inputs to our manufacturing process, and if our access to these inputs is diminished, our business may be harmed.**

We currently outsource key portions of our manufacturing process. We rely on a third party shelter services provider located in Juarez, Mexico to fabricate Aligners and to ship the completed product to customers. In addition, by the second quarter of fiscal 2006, we expect to complete the relocation of our SLA mold fabrication process to the same third party shelter services provider in Juarez, Mexico. As a result, if this third party fails to deliver its components or if we lose its services, we may be unable to deliver our products in a timely manner, and our business may be harmed. Any difficulties encountered by the third party shelter services provider with respect to hiring and retaining qualified personnel, and maintaining acceptable manufacturing standards, controls, procedures and policies could disrupt our ability to deliver our products in a timely manner. Finding a substitute manufacturer may be expensive, time-consuming or impossible.

**We maintain single supply relationships for certain of our key machines and materials technologies, and our business and operating results could be harmed if supply is restricted or ends.**

We are highly dependent on manufacturers of specialized scanning equipment, rapid prototyping machines, resin and other advanced materials. We maintain single supply relationships for many of these machines and materials technologies. In particular, we are committed to purchase all of our resin from a single-source and our scanning and stereolithography equipment are provided by single suppliers. Technology changes by our vendors could disrupt access to required manufacturing capacity or require expensive, time consuming development efforts to adapt and integrate new equipment or processes. Our growth may exceed the capacity of one or more of these manufacturers to produce the needed equipment and materials in sufficient quantities to support our growth. In the event of technology changes, delivery delays or shortages of these items, our business and growth prospects may be harmed.

**We have experienced rapid growth, and our failure to manage this growth could harm our business.**

We have expanded rapidly since we commenced commercial sales in 1999. Our headcount increased from approximately 50 employees as of December 31, 1999 to approximately 1,097 employees as of December 31, 2005. This expansion will continue to place significant demands on our management and other resources and will require us to continue to develop and improve our operational, financial and other internal controls, both in the U.S. and internationally. In particular, rapid growth increases the challenges involved in a number of areas, including recruiting and retaining sufficiently skilled personnel, providing adequate training and supervision to maintain our high quality standards, and preserving our culture and values. Our inability to effectively manage this level of growth could harm our business.

**We rely on our direct sales force to sell our products, and any failure to maintain our direct sales force could harm our business.**

Our ability to sell our products and generate revenues depends upon our direct sales force within our domestic market and internationally. As of December 31, 2005 our sales organization consisted of 130 people of which 106 were direct sales representatives and 24 were sales administration and management. We do not have any long-term employment contracts with the members of our direct sales force. The loss of the services of these key personnel may harm our business. In the first half of 2005, approximately 17 orthodontic sales representatives, representing approximately 50% of our orthodontic sales force, left Align and joined OrthoClear. Although we have replaced the majority of these individuals with new sales representatives, to adequately train and successfully deploy new representatives into effected regions and to reestablish strong customer relationships takes time. If we are unable to replace our direct sales force personnel with individuals of equivalent technical expertise and qualifications, or if we are unable to successfully instill such technical expertise or if we fail to reestablish strong relationships with our customers within a relatively short period of time, our revenues and our ability to maintain market share could be materially harmed.

**Complying with regulations enforced by the Food and Drug Administration (FDA) and other regulatory authorities is an expensive and time-consuming process, and any failure to comply could result in substantial penalties.**

Our products are medical devices and are subject to extensive regulation in the U.S. and internationally. FDA regulations are wide ranging and govern, among other things:

- product design, development, manufacture and testing;
- product labeling;
- product storage;
- pre-market clearance or approval;
- advertising and promotion; and
- product sales and distribution.

Our failure to comply with applicable regulatory requirements could result in enforcement action by the FDA or state agencies, which may include any of the following sanctions:

- warning letters, fines, injunctions, consent decrees and civil penalties;
- repair, replacement, refunds, recall or seizure of our products;
- operating restrictions or partial suspension or total shutdown of production;
- refusing our requests for 510(k) clearance or premarket approval of new products, new intended uses, or modifications to existing products;
- withdrawing clearance or premarket approvals that have already been granted; and
- criminal prosecution.

If any of these events were to occur, they could harm our business. We must comply with facility registration and product listing requirements of the FDA and adhere to applicable Quality System regulations. The FDA enforces its Quality System regulations through periodic unannounced inspections. We and our third party shelter services provider have not yet been subject to an FDA inspection, and we cannot assure you we or our third party shelter services provider will successfully pass such an inspection in the future. Our failure or the failure of our third party shelter services provider to take satisfactory



corrective action in response to an adverse inspection or the failure to comply with applicable manufacturing regulations could result in enforcement action, and we may be required to find alternative manufacturers, which could be a long and costly process.

Before we can sell a new medical device in the U.S., or market a new use of or claim for an existing product we must obtain FDA clearance or approval, unless an exemption applies. Obtaining regulatory clearances or approvals can be a lengthy and time-consuming process. Even though the devices we market have obtained the necessary clearances from the FDA, we may be unable to maintain such clearances in the future. Furthermore, we may be unable to obtain the necessary clearances for new devices that we intend to market in the future. Our inability to maintain or obtain regulatory clearances or approvals could materially harm our business.

**If the security of our customer and patient information is compromised, patient care could suffer, and we could be liable for related damages, and our reputation could be impaired.**

We retain confidential customer and patient information in our processing centers. Therefore, it is critical that our facilities and infrastructure remain secure and that our facilities and infrastructure are perceived by the marketplace and our customers to be secure. Despite the implementation of security measures, our infrastructure may be vulnerable to physical break-ins, computer viruses, programming errors, attacks by third parties or similar disruptive problems. If we fail to meet our clients' expectations regarding the security of healthcare information, we could be liable for damages and our reputation could be impaired. In addition, patient care could suffer, and we could be liable if our systems fail to deliver correct information in a timely manner. Our insurance may not protect us from this risk.

**If compliance with healthcare regulations becomes costly and difficult for our customers or for us, we may not be able to grow our business.**

Participants in the healthcare industry are subject to extensive and frequently changing regulations under numerous laws administered by governmental entities at the federal, state and local levels, some of which are, and others of which may be, applicable to our business. Furthermore, our healthcare provider customers are also subject to a wide variety of laws and regulations that could affect the nature and scope of their relationships with us.

The healthcare market itself is highly regulated and subject to changing political, economic and regulatory influences. Regulations implemented pursuant to the Health Insurance Portability and Accountability Act (HIPAA), including regulations affecting the security and privacy of patient healthcare information held by healthcare providers and their business associates may require us to make significant and unplanned enhancements of software applications or services, result in delays or cancellations of orders, or result in the revocation of endorsement of our products and services by healthcare participants. The effect of HIPAA and newly enforced regulations on our business is difficult to predict, and there can be no assurance that we will adequately address the business risks created by HIPAA and its implementation or that we will be able to take advantage of any resulting business opportunities.

**Extensive and changing government regulation of the healthcare industry may be expensive to comply with and exposes us to the risk of substantial government penalties.**

In addition to medical device laws and regulations, numerous state and federal healthcare-related laws regulate our business, covering areas such as:

- storage, transmission and disclosure of medical information and healthcare records;

- prohibitions against the offer, payment or receipt of remuneration to induce referrals to entities providing healthcare services or goods or to induce the order, purchase or recommendation of our products; and
- the marketing and advertising of our products.

Complying with these laws and regulations could be expensive and time-consuming, and could increase our operating costs or reduce or eliminate certain of our sales and marketing activities or our revenues.

**We face risks related to our international sales, including the need to obtain necessary foreign regulatory clearance or approvals.**

We currently sell our products in Europe, Canada, the United Kingdom, Mexico, Brazil, Australia and Hong Kong, and may expand into other countries from time to time. Recently, we announced our intention to launch sales of Invisalign in Japan. We do not know whether orthodontists, GPs and consumers outside our domestic market will adopt Invisalign in sufficient numbers or as rapidly as we anticipate. In addition, sales of our products outside the U.S. are subject to foreign regulatory requirements that vary widely from country to country. The time required to obtain clearances or approvals required by other countries may be longer than that required for FDA clearance or approval, and requirements for such approvals may differ from FDA requirements. We may be unable to obtain regulatory approvals in one or more of the other countries in which we do business or in which we may do business in the future. We may also incur significant costs in attempting to obtain and maintain foreign regulatory approvals. If we experience delays in receipt of approvals to market our products outside of the U.S., or if we fail to receive these approvals, we may be unable to market our products or enhancements in international markets in a timely manner, if at all.

**Our business exposes us to potential product liability claims, and we may incur substantial expenses if we are subject to product liability claims or litigation.**

Medical devices involve an inherent risk of product liability claims and associated adverse publicity. We may be held liable if any product we develop or any product that uses or incorporates any of our technologies causes injury or is otherwise found unsuitable. Although we intend to continue to maintain product liability insurance, adequate insurance may not be available on acceptable terms, if at all, and may not provide adequate coverage against potential liabilities. A product liability claim, regardless of its merit or eventual outcome, could result in significant legal defense costs. These costs would have the effect of increasing our expenses and diverting management's attention away from the operation of our business, and could harm our business.

**In fiscal 2004 and fiscal 2005, the market price for our common stock was volatile.**

The market price of our common stock could be subject to wide price fluctuations in response to various factors, many of which are beyond our control. The factors include:

- quarterly variations in our results of operations and liquidity;
- changes in recommendations by the investment community or in their estimates of our revenues or operating results;
- speculation in the press or investment community concerning our business and results of operations;
- strategic actions by our competitors, such as product announcements or acquisitions;

- announcements of technological innovations or new products by us, our customers or competitors; and
- general market conditions.

In addition, the stock market in general, and the market for technology and medical device companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated to or disproportionate to the operating performance of those companies. These broad market and industry factors may seriously harm the market price of our common stock, regardless of our operating performance. In the past, class action litigation has often been brought against the issuing company following periods of volatility in the market price of a company's securities. If a securities class action suit is filed against us in the future, we would incur substantial legal fees, and our management's attention and resources would be diverted from operating our business in order to respond to the litigation.

**Future sales of significant amounts of our common stock may depress our stock price.**

A large percentage of our outstanding common stock is currently owned by a small number of significant stockholders. These stockholders have sold in the past, and may sell in the future, large amounts of common stock over relatively short periods of time. Sales of substantial amounts of our common stock in the public market by our existing stockholders may adversely affect the market price of our common stock. Such sales could create public perception of difficulties or problems with our business and may depress our stock price.

**Changes in, or interpretations of, accounting rules and regulations, such as expensing of stock options, could result in unfavorable accounting charges.**

We prepare our consolidated financial statements in conformity with accounting principles generally accepted in the United States of America. These principles are subject to interpretation by the SEC and various bodies formed to interpret and create appropriate accounting policies. A change in these policies can have a significant effect on our reported results and may even retroactively affect previously reported transactions. Our accounting policies that recently have been or may be affected by changes in the accounting rules are as follows:

- revenue recognition;
- accounting for share-based payments; and
- accounting for income taxes.

In particular, the FASB recently enacted SFAS No. 123 (revised 2004), Share-Based Payment (SFAS 123R) which we will adopt effective in the first quarter of fiscal 2006. As a result, we expect that SFAS 123R will have a significant adverse effect on our reported financial results and may impact the way in which we conduct our business, which may affect our stock price.

**We have made use of a shareholders rights plan to limit the possibility that we are acquired, which may mean that a transaction that shareholders are in favor of or are benefited by may be prevented.**

Our board of directors has the authority to issue up to 5,000,000 shares of preferred stock and to determine the rights, preferences, privileges and restrictions of such shares without any further vote or action by our shareholders. To date, our board of directors has designated 200,000 shares as Series A participating preferred stock in connection with our shareholder rights plan. The issuance of preferred stock under certain circumstances could have the effect of delaying or preventing an acquisition of our company or otherwise adversely affecting the rights of the holders of our stock. The shareholder rights plan may have the effect of rendering more difficult or discouraging an acquisition of our company which is deemed undesirable by our board of directors. The shareholder rights plan may cause substantial dilution to a person or group attempting to acquire us on terms or in a manner not approved by our board of directors, except pursuant to an offer conditioned on the negation, purchase or redemption of the rights issued under the shareholder rights plan.

#### **ITEM 1B. UNRESOLVED STAFF COMMENTS**

None.

#### **ITEM 2. PROPERTIES**

Our headquarters are located in Santa Clara, California. We lease approximately 127,000 square feet of space where we house our manufacturing, customer support, software engineering and administrative personnel. We lease our Santa Clara facilities under four leases, which expire in June 2010. The combined monthly rent for the Santa Clara facilities is approximately \$70,000. Commencing July 1, 2005 and continuing on the first day of each calendar month thereafter, \$10,575 will be deducted from the \$1,269,000 security deposit previously paid by us to the lessor and such amount will be applied against the monthly base rent for the Santa Clara facilities.

We operate a facility in San Jose, Costa Rica. The facility comprises approximately 63,000 square feet of manufacturing and office space. The monthly rent for the Costa Rica facility is approximately \$56,000. The lease for this facility expires at the end of 2008.

Our European headquarters are located in Amsterdam, The Netherlands. The facility comprises approximately 11,000 square feet of office space. The monthly rent for the Amsterdam facility is approximately \$17,000. The lease for this facility expires in 2014 with an option to terminate with a fee of approximately \$220,000 during 2009. We expect this lease will not be renewed beyond 2009.

We operate a facility in Moscow, Russia. The facility comprises approximately 6,000 square feet of office space where we conduct certain research and development activities. The monthly rent for the Russian facility is approximately \$17,000. The lease for this facility expires in March 2006 and we currently expect that this lease will be renewed.

We believe that our existing facilities are adequate to meet current requirements and that additional or substitute space will be available as needed to accommodate any expansion of operations.

#### **ITEM 3. LEGAL PROCEEDINGS.**

##### *OrthoClear*

*State Action.* On February 2, 2005, we filed a multi-claim lawsuit in San Francisco County Superior Court against defendants OrthoClear, Inc., OrthoClear Holdings, Inc., Muhammad Ziaullah Chishti, Bao Tran, Peter Riepenhausen, Joe Breeland, Jeff Tunnell, Christopher Kawaja, and Charles Wen (the *State Action*). Among other things, the *State Action* alleges tort, contract, statutory and common law causes of



action arising from OrthoClear and the individual defendants' alleged plan to unlawfully utilize our intellectual property, confidential information and employees. The State Action also alleges that OrthoClear, Chishti and other defendants are in breach of contractual obligations, statutory law and common law for attempting to intentionally interfere and disrupt our ongoing business operations and improperly gain access to our customer relationships and trade secrets. The State Action seeks injunctive relief and monetary damages in an amount to be determined.

On February 15, 2005, OrthoClear, Chishti, Riepenhausen, Breeland, Tunnell, Kawaja and Wen filed a multi-claim cross-complaint against Align, Thomas Prescott, Roger George, Eldon Bullington, David Thrower, Patricia Wadors, Gil Laks and Kelsey Wirth (collectively, the Align Parties) alleging conspiracy, breach of contract, libel, slander, unjust enrichment, intentional interference with prospective economic advantage, and unfair competition. The cross-complaint seeks injunctive relief and monetary damages in an amount to be determined.

On February 18, 2005, the Court granted our request for and issued a Temporary Restraining Order (TRO) prohibiting OrthoClear and the individual OrthoClear defendants from engaging, assisting, or participating, directly or indirectly, in soliciting, inducing to leave, recruiting, or encouraging any current Align employee or consultant to terminate or alter his or her employment or business relationship with Align or attempting to do the same. The Court also granted our request and issued a TRO prohibiting OrthoClear and the individual OrthoClear defendants from disclosing, using, lecturing upon or publishing any of our proprietary information without our express prior written permission. In addition, in response to a cross-application for TRO filed by certain OrthoClear defendants, the Court enjoined Chishti and the Align Parties from disparaging each other in such a manner as to violate the mutual non-disparagement clause contained in the Separation Agreement between Align and Chishti dated as of March 27, 2002. The Court also enjoined the Align Parties from advising any Align employee or consultant that he or she will be subject to criminal charges or a civil lawsuit if that person elects to change his or her employment status with Align, unless we have good cause to believe criminal conduct has been or will be committed or that a civil cause of action will lie against the employee or consultant. The Court also required the Align Parties to refrain from taking any actions inconsistent with Federal or State securities laws relating to the issuance or redemption of Align stock. On March 1, 2005, the Court signed a Stipulated Preliminary Injunction Order, whereby the Court ordered that the express terms of the TRO remain in place until the earlier of (i) trial, (ii) written agreement of the parties or further Court order setting an earlier termination, or (iii) as to the preliminary injunction regarding non-solicitation or recruiting of Align employees or consultants only, October 27, 2005.

The defendants and the Align Parties filed demurrers to the complaint and the cross-complaint, respectively. On June 6, the Court ruled on demurrers on the complaint filed by OrthoClear and denied OrthoClear's challenges to the core of our complaint Align's claims of Misappropriation of Trade Secrets and Breach of Contract by overruling the OrthoClear demurrers to these causes of action. In addition, the Court granted our request for permission to amend our original complaint to consolidate several duplicative causes of action and to add specific evidence not available to us when the original complaint was filed. OrthoClear did not oppose the demurrer filed by us and amended its original pleading by filing a first supplemental and amended cross-complaint.

On July 6, 2005, OrthoClear filed a demurrer to our first amended complaint. On August 23, 2005, the Court issued an order overruling all of OrthoClear's demurrers. As a result, on September 9, 2005, OrthoClear filed answers to eleven causes of action brought by us. On September 6, 2005, defendant Bao Tran filed answers to our causes of action and also filed a cross-complaint against us. In September 2005, we presented demurrers to OrthoClear's first supplemental and amended cross-complaint. In November 2005, the Court agreed with the Align Parties' challenges to 18 of the 19 causes of action. Of the 18 causes of action successfully challenged by Align, the Court ordered that 6 be dismissed entirely. As to the remaining 12 challenged causes of action, OrthoClear is required to either dismiss them or attempt to

state a valid claim against the Align Parties. On December 5, 2005, OrthoClear filed a second amended cross-complaint alleging unfair competition, intentional interference with prospective economic advantage, intentional interference with contract, libel, slander, breach of contract, wrongful withholding of wages, and abuse of process. The second amended cross-complaint eliminates David Thrower as a cross-defendant and attempts to add a new cross-defendant. On December 9, 2005, defendant Bao Tran filed a first amended cross-complaint alleging wrongful termination, intentional interference with contract, wrongful withholding of wages, breach of contract, libel, slander, false light, abuse of process, and unfair competition.

On January 4, 2006, the Align Parties filed a demurrer to OrthoClear's second amended cross-complaint, and a motion to strike the portions of the second amended cross-complaint that refer to the new cross-defendant. On January 12, 2006, the Align Parties filed a demurrer to Bao Tran's first amended cross-complaint and also filed special motions to strike certain causes of action in both OrthoClear's and Bao Tran's cross-complaints. Bao Tran subsequently agreed to dismiss his cause of action for abuse of process, and in response Align has agreed to withdraw its special motion to strike Bao Tran's cross-complaint. The demurrers against OrthoClear's second amended cross-complaint and against Bao Tran's first amended cross-complaint, the motion to strike the portions of OrthoClear's second amended cross-complaint that refer to the new cross-defendant, and the special motion to strike certain causes of action in OrthoClear's second amended cross-complaint was heard on February 27, 2006. The judge has taken the matters presented under submission and no ruling has been issued.

No trial date has been set by the Court in this case.

*Federal Lanham Action.* On July 19, 2005, we filed a multi-claim lawsuit in the United States District Court for the Northern District of California against OrthoClear (the "Federal Lanham Action"). The Federal Lanham Action alleges numerous violations of the federal Lanham Act (15 U.S.C. §1051 et seq.) by OrthoClear and its officers and employees. These violations include unfair competition, trademark infringement and false advertising. The Federal Lanham Action also alleges violations by OrthoClear of California's Unfair Practices Act (California Business and Professions Code §17200 et seq.).

The Federal Lanham Action seeks monetary damages according to proof at trial and an injunction preventing OrthoClear from further false advertising and unfair competition including any use of our trademarks or any advertising which deceives consumers into incorrectly believing that OrthoClear has a program for training and certifying dentists and orthodontists or that dentists or orthodontists have used OrthoClear to successfully treat patients. We also seek an order requiring OrthoClear to conduct corrective advertising to counteract its misleading advertising. A trial date has been scheduled for October 30, 2006.

*Patent Infringement ITC Complaint.* On January 11, 2006, we filed a formal complaint with the United States International Trade Commission (ITC) against OrthoClear, seeking to halt the importation into the United States of infringing aligners manufactured by OrthoClear in Pakistan in violation of our patents and other intellectual property rights (the "ITC Complaint"). The ITC Complaint alleges that OrthoClear utilizes our trade secrets and infringes 12 of our patents in the production of the OrthoClear aligners at a facility in Lahore, Pakistan. The ITC Complaint requests the ITC institute an immediate investigation and ultimately issue an exclusionary order, enforced by U.S. Customs and Border Protection, excluding OrthoClear aligners from importation into the United States. The ITC Complaint also requests the ITC issue two cease and desist orders specifically preventing OrthoClear from importing infringing aligners and from selling in the United States imported OrthoClear aligners. The ITC has announced that it has instituted a formal investigation.

*Patent Infringement Federal Action.* On January 11, 2006, we filed a federal court patent infringement action against OrthoClear in the Western District of Wisconsin (Madison) (the "Patent Infringement Federal Action") asserting infringement of our U.S. Patents Nos. 6,685,469; 6,450,807; 6,394,801;

6,398,548; 6,722,880; 6,629,840; 6,669,037; 6,318,994; 6,729,876; 6,602,070; 6,471,511 and 6,227,850. The Patent Infringement Federal Action seeks monetary damages and an injunction to augment the exclusionary relief available from the ITC.

*Ormco*

On January 6, 2003, Ormco Corporation (Ormco) filed suit against us in the United States District Court for the Central District, Orange County Division, asserting infringement of U.S. Patent Nos. 5,447,432, 5,683,243 and 6,244,861. The complaint sought unspecified monetary damages and injunctive relief. On February 18, 2003, we answered the complaint and asserted counterclaims seeking a declaration by the Court of invalidity and non-infringement of the asserted patents. In addition, we counterclaimed for infringement of our U.S. Patent No. 6,398,548, seeking unspecified monetary damages and injunctive relief. Ormco filed a reply to our counterclaims on March 10, 2003 and asserted counterclaims against us seeking a declaration by the Court of invalidity and non-infringement of U.S. Patent No. 6,398,548. We amended our counterclaim to add Allesee Orthodontic Appliances, Inc. (AOA), a wholly-owned subsidiary of Ormco, as a counterdefendant in regard to our counterclaim of infringement of U.S. Patent No. 6,398,548. The Court then permitted Ormco to amend its Complaint and permitted us to amend our counterclaim to add an additional patent each. Ormco filed a first amended complaint for infringement of U.S. Patent No. 6,616,444 on October 15, 2003. On October 27, 2003, we filed an answer to Ormco's first amended complaint and a counterclaim for invalidity and non-infringement of U.S. Patent No. 6,616,444 and for infringement of U.S. Patent No. 6,554,611.

In connection with these claims, the Court granted five motions for summary judgment that we filed. First, on May 14, 2004, the Court granted our motion for summary judgment of non-infringement, finding that our Invisalign system does not infringe any of the asserted Ormco patents (5,477,432, 5,683,243, 6,244,861 and 6,616,444). Second, on July 2, 2004, the Court granted in part our motion for summary judgment of infringement, finding that Ormco and AOA infringe certain, but not all, claims of our patents Nos. 6,398,548 and 6,554,611 through the manufacture and sale of Red, White & Blue appliances. Third, on August 26, 2004, the Court granted our motion for summary judgment of invalidity of Ormco's asserted patents claims (5,477,432, 5,683,243, 6,244,861 and 6,616,444). As noted above, the Court earlier found that we do not infringe these patents. In addition, the Court also denied Ormco's and AOA's motion for summary judgment seeking a finding of invalidity of our asserted patent claims (6,398,548 and 6,554,611). Fourth, the Court granted our summary judgment motion that our asserted patent claims are not invalid based on the evidence currently before the Court. Although the Court granted that motion, it reopened discovery on two additional invalidity arguments Ormco and AOA asserted. Fifth, the Court also granted our summary judgment motion that our patents are not unenforceable and granted Ormco's and AOA's summary judgment motion that Ormco and AOA did not willfully infringe our patents.

On December 20, 2004, we filed a further summary judgment motion that our asserted claims are not invalid based on Ormco's and AOA's new evidence. Ormco and AOA filed a counter-summary judgment motion that our asserted claims are invalid based on this new evidence. The motions were heard by the Court on February 7, 2005. On February 24, 2005, the Court granted our motion in part, confirming the validity of all of the asserted claims of our 6,554,611 patent and two of the asserted claims of our 6,398,548 patent. The Court also granted Ormco's and AOA's motion in part, finding certain claims of our 6,398,548 patent to be invalid in view of prior use evidence. On March 10, 2005, Ormco and AOA moved for reconsideration of the Court's ruling that Claims 10 and 17 of our U.S. Patent No. 6,398,548 are not invalid. On April 8, 2005, upon a motion for reconsideration made by Ormco and AOA, the Court advised that it would adhere to its previous ruling that Claims 10 and 17 of our 6,398,548 patent are not invalid.

On March 28, 2005, we filed a motion for permanent injunction to prevent Ormco and AOA from selling the infringing Red, White & Blue system. On May 26, 2005, the Court issued a permanent injunction (the Permanent Injunction) to enjoin Ormco and AOA from further infringement of Claims

10 and 17 of our 6,398,548 patent and Claims 1-3 and 7 of our 6,554,611 patent. On May 31, 2005, Ormco and AOA noticed an appeal to the Federal Circuit from the Permanent Injunction. As of the date of this Report on Form 10-K, the Permanent Injunction remains in full force and effect.

On February 1, 2006, we entered into a settlement agreement (the *Settlement Agreement*) with Ormco and AOA. Pursuant to the Settlement Agreement, the issues of past damages, willfulness and attorneys' fees for Ormco's and AOA's adjudged infringement of our U.S. patent Nos. 6,398,548 and 6,554,611 (the *Align Patents*) through the manufacture and sale by Ormco and AOA of its Red, White & Blue appliances has been settled. The Settlement Agreement does not affect (1) Ormco and AOA's currently pending appeal of the permanent injunction preventing Ormco and AOA from selling the infringing Red, White & Blue system; (2) any appeal by Ormco of the decisions and orders of the United States District Court relating to Ormco's patents; or (3) any appeal by us of the orders of the United States District Court relating to our patents.

In accordance with the terms of the Settlement Agreement, Ormco and AOA will pay us \$884,000 (the *Settlement Amount*) to resolve the issues of past damages, willfulness and attorneys' fees for the adjudged infringement of the Align Patents through the manufacture and sale of Ormco's and AOA's Red, White & Blue appliances. The Settlement Amount will be paid into escrow pending the completion of the appeals process. Our receipt of the payments out of escrow is contingent upon the Court, in a final, non-appealable judgment, finding that Ormco or AOA infringes at least one of the claims in the Align Patents. If, however, the Court issues a final, non-appealable judgment of non-infringement, invalidity or unenforceability with respect to each asserted claim of the Align Patents, all funds in the escrow account will be returned to Ormco and AOA. Once final judgment was entered, Ormco filed a Notice of Appeal from the final judgment. The time has not yet expired for us to file a cross-appeal on the few issues that were not previously resolved in our favor.

#### *Other matters*

During fiscal 2005, requests were filed with the United States Patent and Trademark Office (USPTO) by a San Francisco, California, law firm, acting on behalf of an unnamed party, requesting re-examination of six of our patents (U.S. Patent Nos. 5,975,893, 6,398,548, 6,309,215, 6,705,863, 6,217,325 and 6,722,880). The USPTO has granted the request to reexamine five of the six patents, specifically, Patent No. 5,975,893, Patent No. 6,398,548, Patent No. 6,309,215, Patent No. 6,705,863 and Patent No. 6,217,325. As of the date of this Report on Form 10-K, the USPTO issued initial Office Actions with regard to US Patent Nos. 6,217,325 (the 325 patent), 6,309,215 (the 215 patent) and 5,975,893 (the 893 patent). In these initial Office Actions, the examiners confirmed the validity of three of the twenty-six claims of the 325 patent and five of the eleven claims of the 215 patent without amendment and preliminarily rejected the remaining claims of the patents. In addition, the examiners preliminarily rejected all the claims in the 893 patent. These non-final initial Office Actions present Align with its first opportunity to respond to the USPTO's review and interpretation of the prior art. We may and intend to submit amendments, affidavits or declarations, or other documents as evidence of patentability in response to its actions on the 325, 215 and 893 patents. The re-examination proceedings on Patent Nos. 6,398,548, 6,705,863 (collectively, the *Remaining Patents*) are currently pending but no Office Action has been received by us. While the pending re-examinations are in a preliminary stage, we believe that claims of the patents in re-examination will be determined to be patentable as currently written or as may be amended during the re-examination proceeding. However, there can be no assurance that we will prevail, and re-examination proceedings could result in some or all of the Remaining Patent claims (as well as the 215, 325 and 893 patent claims) having a narrower scope of coverage or even to being invalidated, which could have an adverse effect on us. On December 23, 2005, in a non-appealable, final Order, the USPTO denied the request for re-examination with respect to all twenty-one claims of our U.S. Patent No. 6,722,880 (the 880 patent). Accordingly, the validity of all twenty-one claims of our 880 patent stand reaffirmed by the

USPTO. On January 23, 2006, a Petition Seeking Review of Denial of Request for Re-examination of the 880 Patent was filed by the same San Francisco, California law firm. As of the date of this Report on Form 10-K, we have not received a response from the USPTO.

On July 25, 2005, Bay Materials, LLC ( Bay ) filed suit against us in the Superior Court of the State of California for the County of San Mateo. The complaint, as amended, asserts, among other things, breach of contract, promissory estoppel, fraud and negligent misrepresentation by us. Bay alleges that we breached the terms of a purchase order by failing to pay for unshipped goods manufactured by Bay pursuant to such order. Bay further alleges that we promised to purchase from Bay an alternative polyurethane product, and Bay relied on this representation to develop such an alternative product which we determined not to use. The complaint seeks monetary damages of \$1.1 million related to breach of contract and research and development costs incurred plus unspecified damages related to lost profit, punitive and exemplary damages, and legal expenses. We intend to vigorously defend ourselves.

Litigating claims of these types, whether or not ultimately determined in our favor or settled by us, is costly and diverts the efforts and attention of our management and technical personnel from normal business operations. Any of these results from litigation could adversely affect our results of operations and stock price. From time to time, we have received, and may again receive, letters from third parties drawing our attention to their patent rights. While we do not believe that we infringe any such rights that have been brought to our attention, there may be other more pertinent proprietary rights of which we are presently unaware.

#### **ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS.**

There were no matters submitted to a vote of security holders during the fourth quarter of fiscal 2005.

**PART II****ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY AND RELATED STOCKHOLDER MATTERS.***(a) Price Range of Common Stock*

Our common stock is listed on The NASDAQ National Market under the symbol ALGN. Public trading of our common stock commenced on January 26, 2001. Prior to that date, there was no public market for our common stock. The following table shows, for the periods indicated, the high and low per share closing prices of our common stock, as reported by The NASDAQ National Market:

	High	Low
Year Ended December 31, 2005:		
Fourth quarter	\$ 7.59	\$ 6.27
Third quarter	\$ 8.34	\$ 5.88
Second quarter	\$ 8.80	\$ 5.89
First quarter	\$ 10.72	\$ 5.96
Year Ended December 31, 2004:		
Fourth quarter	\$ 16.34	\$ 8.97
Third quarter	\$ 18.72	\$ 13.90
Second quarter	\$ 22.80	\$ 17.36
First quarter	\$ 21.79	\$ 16.69

On February 24, 2006, the last reported sale price of our common stock on The NASDAQ National Market was \$8.38 per share. As of February 24, 2006 there were approximately 277 holders of record of our common stock. Because the majority of our shares of outstanding common stock is held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

We have never declared or paid any cash dividends on our common stock. We currently intend to retain any future earnings to fund the development and growth of our business and do not anticipate paying any cash dividends in the foreseeable future. In addition, in December 2005, we renegotiated our existing revolving line of credit. The new credit facility contains certain restrictive loan covenants, including, our ability to pay dividends. *See Part II, Item 7 Management's Discussion and Analysis of Financial Condition and Results of Operations Liquidity and Capital Resources*.

**ITEM 6. SELECTED CONSOLIDATED FINANCIAL DATA**

The following discussion and analysis of our selected consolidated financial data should be read together with our consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K.

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The following tables set forth the selected consolidated financial data for each of the years in the five-year period ended December 31, 2005. The selected consolidated financial data is qualified in its entirety and should be read in conjunction with the Consolidated Financial Statements and related Notes thereto set forth on pages 52 to 83 and Management's Discussion and Analysis of Financial Condition and Results of Operations beginning on page 40. We have derived the statement of income data for the years ended December 31, 2005, 2004 and 2003 and the balance sheet data as of December 31, 2005 and December 31, 2004 from the consolidated audited financial statements included elsewhere in this Annual Report on Form 10-K. The statement of income data for the years ended December 31, 2002 and 2001 and the balance sheet data as of December 31, 2003, 2002 and 2001 were derived from the consolidated audited financial statements that are not included in this Annual Report on Form 10-K.

## SELECTED CONSOLIDATED FINANCIAL DATA (in thousands, except per share data)

	Years Ended December 31,				
	2005	2004	2003	2002	2001
<b>Consolidated Statement of Operations Data:</b>					
Revenues	\$207,125	\$ 172,830	\$ 122,725	\$ 69,698	\$ 44,808
Gross profit (loss)	\$143,341	\$ 115,304	\$ 71,160	\$ 24,707	\$ (2,022 )
Profit (loss) from operations	2,446	9,765	(19,937 )	(72,935 )	(100,769 )
Other income (expense), net	283	(3 )	(101 )	116	1,730
Net profit (loss) before provision for income taxes	2,729	9,762	(20,038 )	(72,819 )	(99,039 )
Provision for income taxes	1,316	994	84		10
Net profit (loss)	1,413	8,768	(20,122 )	(72,819 )	(99,049 )
Dividend related to beneficial conversion feature of preferred stock					(11,191 )
Net profit (loss)	\$ 1,413	\$ 8,768	\$ (20,122 )	\$ (72,819 )	\$ (110,240 )
Net profit (loss) per share					
Basic	\$ 0.02	\$ 0.15	\$ (0.35 )	\$ (1.52 )	\$ (2.61 )
Diluted	\$ 0.02	\$ 0.14	\$ (0.35 )	\$ (1.52 )	\$ (2.61 )
Shares used in computing net profit (loss) per share:					
Basic	61,644	59,963	57,758	47,878	42,247
Diluted	63,152	64,089	57,758	47,878	42,247

	December 31,				
	2005	2004	2003	2002	2001
<b>Consolidated Balance Sheet Data:</b>					
Working capital	\$ 62,978	\$ 61,886	\$ 39,737	\$ 41,160	\$ 62,172
Total assets	142,110	130,712	102,202	92,856	118,218
Total long-term liabilities	64	25	1,849	3,837	980
Stockholders' equity	\$ 93,438	\$ 85,739	\$ 62,976	\$ 64,347	\$ 97,827

## ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read together with Selected Consolidated Financial Data and our consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K.

### Overview

Align Technology, founded in April 1997, designs, manufactures and markets Invisalign, a proprietary method for treating malocclusion, or the misalignment of teeth. Invisalign corrects malocclusion using a series of clear, nearly invisible, removable appliances that gently move teeth to a desired final position. Because it does not rely on the use of metal or ceramic brackets and wires, Invisalign significantly reduces the aesthetic and other limitations associated with braces. Invisalign is appropriate for treating adults and teens with mature dentition. We received FDA clearance to market Invisalign in 1998, and we began commercial operations in July 1999.

The Invisalign system is manufactured in phases. The initial step in our manufacturing process is the creation of electronic treatment plans using ClinCheck, an internally developed computer-modeling program. These treatment plans are developed at our operations facility in Costa Rica and are made available to the prescribing dental professional via our proprietary customer interfacing software, VIP. The prescribing orthodontist or general practitioner dentist (GP) then reviews the ClinCheck simulation. ClinCheck allows the orthodontist or GP to simulate treatment in three dimensions by modeling two-week stages of tooth movement. Upon the dental professional's approval of the ClinCheck simulation, we use the data underlying the simulation, in conjunction with stereolithography (SLA) technology, to manufacture Aligner molds. A third party shelter services provider located in Juarez, Mexico uses these molds to fabricate Aligners. Aligners are thin, clear plastic, removable dental appliances that are manufactured in a series to correspond to each two-week stage of the ClinCheck simulation. Aligners are customized to perform the treatment prescribed for an individual patient by a dental professional using ClinCheck. After the Aligners are produced, our third party shelter services provider ships the finished products to our customers.

We generate the vast majority of our revenues from the sales of the Invisalign system to orthodontists and GPs in the United States and Canada, our domestic market. For the year ended December 31, 2005, sales of Invisalign in our domestic GP channel and our domestic orthodontist channel represented approximately 43% and 41% of our total revenues, respectively.

A number of factors, the most important of which are set forth below, may affect our success during 2006 and beyond.

- **Increased Pricing Pressure.** In May 2005, OrthoClear, Inc. announced the commercial launch of the OrthoClear System, a product that is intended to compete directly with our Invisalign system. We believe that OrthoClear's product infringes on our intellectual property and we have filed several lawsuits alleging, among other things, OrthoClear's unlawful use of our intellectual property, including our trade secrets. *See Part I, Item 3 Legal Proceedings of this Report on Form 10-K for a more complete summary of the OrthoClear litigation.* In response to OrthoClear's launch and in an effort to simplify our pricing structure, in the fourth quarter of 2005 we announced that all Invisalign cases (other than Invisalign Express) in our domestic market will have a list price of \$1,495 per case. Previously, list prices ranged from \$1,195 to \$1,895 per case depending on the treatment option selected. In addition, in the fourth quarter of 2005, we expanded our volume based discount program to all doctors. We expect each of these programs, and other similar programs that we may launch in 2006, to adversely affect our revenue, gross margin and net profits.



- *Disruption in Sales Coverage and Customer Relationships.* In the first half of 2005, 17 orthodontic sales representatives, representing approximately 50% of our orthodontic sales force, left Align and joined OrthoClear. We have replaced the majority of these individuals with new sales representatives. Case submissions in our orthodontic channel were slightly lower in the last two quarters of 2005 compared to the previous two quarters due in part to the disruption in our sales force and the resulting disruption to many of our key customer relationships. We are committed to train and successfully deploy our new sales team and rebuild these disrupted customer relationships. *See Part I, Item 1A Risk Factors We rely on our direct sales force to sell our products, any failure to maintain our direct sales force could harm our business.*
  
- *Penetration into our Domestic Market.* Although we have historically generated a majority of our revenues from orthodontists, there exists a significantly greater number of GPs in North America than orthodontists. As the primary provider of dental care, GPs have access to a greater number of patients than orthodontists, and possess a unique opportunity to educate these patients on the benefits of oral care and introduce them to Invisalign. GPs also have the ability to refer appropriate cases to orthodontists and may choose to treat less complex cases themselves. Largely due to the fact that there are significantly more GPs than orthodontists, we expect that an increasingly larger percentage of our revenues will be generated by GPs. In fact, in fiscal 2005, our domestic GP channel generated 43% of our total revenue, while the orthodontist channel represented 41%. We believe that by focusing on increasing utilization rates among our existing GP customers, the overall market for Invisalign will increase, as patients who would not have otherwise sought orthodontic treatment are introduced to Invisalign by their GPs. In addition, by educating dental students and orthodontic residents on the benefits of the Invisalign technique, we believe they will be more likely to use this technology in their future practices and offer Invisalign as a treatment option. In 2005, four dental schools, Harvard University, Columbia University, Temple University and the University of Texas at San Antonio, announced the integration of the Invisalign technique into their curriculums. We expect additional dental schools to integrate the Invisalign technique into their curriculums in the future.
  
- *Continued Product Leadership.* We are committed to investing in delivering new products, enhancing the user experience and introducing new product features to our existing products. In the second half of 2005, we launched Invisalign Express, a lower-cost Aligner system to be used for less complex cases. Invisalign Express is intended to assist our customers to treat a broader range of patients by providing a lower cost option for less complex orthodontic cases thereby increasing the market for our products. In addition, we are currently in the early testing of a bracket positioning template which, if successfully launched, is intended to be used in conjunction with our digital treatment plan in order to guide doctors in proper bracket placement in traditional wires and bracket treatment. We are also planning to introduce a compliance indicator which will help doctors and patients understand if the patients have worn their Aligners for enough time to effectively move their teeth. By investing in developing these new products and continually enhancing our existing products, we expect to increase market share.
  
- *Expansion of International Markets.* We will focus our efforts towards increasing adoption of Invisalign by dental professionals in key international markets, including Europe and Japan. We will consider expanding into additional international markets on a case by case basis. In October 2005, we announced the launch of Invisalign in Japan. In fiscal 2005, our international channel represented approximately 12% of our total revenue.
  
- *Increasing reliance on International Manufacturing Operations.* Our manufacturing efficiency has been and will be an important factor in our future profitability. We use a third party based in Juarez, Mexico, International Manufacturing Solutions Operaciones, S.R.L. ( IMS ), for the fabrication and packaging of Aligners. We are currently in the process of relocating our SLA mold



fabrication operations from our Santa Clara, California facility to IMS. We expect this relocation to be complete by the second quarter of 2006. As a result of this relocation, our reliance on our international manufacturing operations will continue to increase. Our success will depend in part on the efforts and abilities of management to effectively manage this international operation, including our relationship with IMS. In addition, we currently are and will become increasingly dependant on IMS's ability to hire and retain employees generally, as well as hire and retain employees with the necessary skills to perform the more technical aspects of our operations. If our management and/or IMS fail in any of these respects, we could experience production delays and lost or delayed revenue. In addition, even if we have case submissions in the manufacturing backlog, if IMS is unable for any of these or other reasons to timely ship our product to our customers, our revenue will be delayed which will cause our operating results to fluctuate. *See Part I, Item 1A Risk Factors for risks related to our international operations.*

## Results of Operations

### Comparison of Years Ended December 31, 2005, 2004 and 2003:

#### Revenues:

Invisalign product revenues by channel and other revenue, which represented training and sales of ancillary products, for the years ended December 31, 2005, 2004 and 2003, are as follows:

Revenues	Years Ended December 31, 2005 (in millions)	Change	% Change	2004	Change	% Change	2003
Domestic:							
Orthodontic	\$ 85.4	\$ (0.7 )	-1 %	\$ 86.1	\$ 14.0	19 %	\$ 72.1
GP	89.1	27.1	44 %	62.0	30.5	97 %	31.5
International	23.2	6.8	41 %	16.4	4.7	40 %	11.7
Total Invisalign	197.7	33.2	20 %	164.5	49.2	43 %	115.3
Other revenue	9.4	1.1	13 %	8.3	0.9	12 %	7.4
Total Revenue	\$ 207.1	\$ 34.3	20 %	\$ 172.8	\$ 50.1	41 %	\$ 122.7

Revenue grew by 20% for the year ended December 31, 2005, compared to the year ended December 31, 2004. The growth in revenues resulted primarily from an increase in overall case shipment volume in the domestic GP channel driven by an increase in the number of participating clinicians and the launch of Invisalign Express in the third quarter of 2005. Additionally, international sales improved primarily as a result of increased number of participating clinicians and case utilization by our European practitioners.

For the year ended December 31, 2004, growth in revenues from our domestic orthodontic and general practitioner channels over fiscal 2003 resulted primarily from higher case volumes driven by an increase in the number of participating clinicians and utilization within the general practitioner practices. Higher product sales during fiscal 2004 as compared to fiscal 2003 also benefited from increased promotional advertising campaigns and sales initiatives in effect during fiscal 2004.

For the fiscal year 2006, although we expect our case shipment volume to increase, we anticipate that our revenues will remain consistent with fiscal year 2005. In 2006, we will begin to see the full impact of the lower average selling price resulting from both the pricing initiatives we introduced during the fourth quarter of 2005, and Invisalign Express, which we launched in the third quarter of 2005 and has a lower average selling price than our full Invisalign product.

*Cost of revenues:*

	Years Ended December 31,			Change		
	2005		2004		2003	
	(in millions)					
Cost of revenues	\$ 63.8	\$ 6.3	\$ 57.5	\$ 5.9	\$ 51.6	
% of Revenues	31	%	33	%	42	%
Gross Profits	\$ 143.3	\$ 28.0	\$ 115.3	\$ 44.1	\$ 71.2	
% of Revenues	69	%	67	%	58	%

Cost of revenues includes the salaries for staff involved in the production process, the cost of materials, packaging, shipping costs, depreciation on the capital equipment used in the production process, training costs and the cost of facilities.

Gross margin improved to 69% of revenues for the fiscal year ended December 31, 2005, compared to 67% of revenues for the year ended December 31, 2004. This improvement in gross margin is primarily the result of cost savings achieved from manufacturing process improvements and increased cost absorption due to higher production volumes partially offset by increased training costs as a result of dental professionals auditing training classes for no charge.

Gross margin for the year ended December 31, 2004 improved to 67% of revenues, compared to 58% of revenues for the year ended December 31, 2003. The higher gross margin for the year ended December 31, 2004 was primarily attributable to improved fixed cost absorption related to increasing volumes, manufacturing process improvements in both our treatment operations facility in Costa Rica and in the aligner fabrication process. Also included in cost of revenues are stock-based compensation expenses of \$0.9 million and \$2.6 million for the years ended December 31, 2004 and 2003, respectively.

For the fiscal year 2006, we anticipate that our gross margin, including stock based compensation, will decrease slightly, primarily as we begin to see the full impact of the lower average selling price discussed in revenues above.

*Sales and marketing:*

	Years Ended December 31,			Change		
	2005		2004		2003	
	(in millions)					
Sales and marketing	\$ 80.1	\$ 24.2	\$ 55.9	\$ 12.2	\$ 43.7	
% of Revenues	39	%	32	%	36	%

Sales and marketing expense includes sales force compensation (combined with travel related costs and expenses for professional marketing programs), expenses relating to conducting workshops and market surveys, advertising, and dental professional trade show attendance.

Sales and marketing expense increased by \$24.2 million for the year ended December 31, 2005, compared to the year ended December 31, 2004. This increase was primarily related to incremental head-count which resulted in higher payroll costs of \$10.3 million, \$6.7 million related to increased advertising, media and trade show costs, an additional \$4.8 million on outside services and other sales and marketing support costs, and \$2.4 million of expenses attributable to retention incentives and guarantees paid to our sales force in response to the solicitation of our sales force by OrthoClear during the first quarter of 2005.

The increase in sales and marketing expense during fiscal 2005 was consistent with our marketing and sales initiatives. We expect 2006 sales and marketing expense, including stock based compensation, to be comparable to 2005, as we continue to develop and expand our domestic and international markets, develop new media programs, enhance our web site and provide clinical education. Sales and marketing

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expense increased by \$12.2 million for the year ended December 31, 2004 as compared to the year ended December 31, 2003. This increase resulted primarily from an increase in spending of \$4.4 million related to incremental headcount in our North American sales and marketing work force, \$0.9 million related to North America sales force training, \$2.7 million related to our international workforce and outside services, and \$5.9 million related to increases in media, advertising costs, marketing promotions and other related expenses. The increase in spending was partially offset by the decrease of \$1.5 million in stock-based compensation expense. Sales and marketing expense includes stock-based compensation expenses of \$0.7 million and \$2.2 million for the years ended December 31, 2004 and 2003, respectively.

## General and administrative:

	Years Ended December 31, 2005      Change		2004	Change	2003
	(in millions)				
General and administrative					
		County of Kern California Water Agency Improvement District No. 4, Refunding RB, Series A (AGM):			
	\$ 42.2	\$			
4.00%, 5/01/35	1,460	1,492,835			
4.00%, 5/01/36	1,430	1,455,411			
County of Los Angeles Sanitation Districts Financing Authority, RB, Series A, 4.00%, 10/01/42	4,935	5,006,015			
County of Sacramento California Sanitation Districts Financing Authority, RB, (NPFGC), 5.00%, 12/01/36	1,010	1,012,868			
Dublin-San Ramon Services District Water Revenue, Refunding RB, 6.00%, 8/01/41	4,000	4,609,200			
East Bay California Municipal Utility District Wastewater System Revenue, Refunding RB, Sub-Series A (AMBAC), 5.00%, 6/01/17 (a)	17,015	17,257,464			
East Bay California Municipal Utility District Water System Revenue, Refunding RB (a):					
Series A (NPFGC), 5.00%, 6/01/17	6,670	6,765,781			
Sub-Series A (AGM), 5.00%, 6/01/17	10,000	10,143,600			
Eastern Municipal Water District, COP, Series H, 5.00%, 7/01/18 (a)	2,505	2,645,581			
El Dorado Irrigation District / El Dorado County Water Agency, Refunding RB, Series A (AGM), 5.25%, 3/01/39	10,000	11,337,200			
San Diego Public Facilities Financing Authority Sewer, Refunding RB, Senior Series A, 5.25%, 5/15/19 (a)	11,000	12,090,792			
San Diego Public Facilities Financing Authority Water, Refunding RB, Series B, 5.50%, 8/01/19 (a)	8,000	8,847,520			
San Juan Water District, Refunding RB, San Juan & Citrus Heights, 5.25%, 2/01/33	7,325	8,326,474			
Santa Clara Valley Water District, Refunding RB, Series A, 5.00%, 6/01/46	3,000	3,419,970			
		148,143,835			
<b>Total Municipal Bonds</b>	<b>106.3%</b>	665,044,649			

## Municipal Bonds Transferred to Tender Option Bond Trusts (d)

### California 60.2%

#### County/City/Special District/School District 30.3%

County of Alameda California Joint Powers Authority, Refunding LRB, (AGM), 5.00%, 12/01/17 (a)	13,180	13,637,346
County of Riverside California Public Financing Authority, RB, Capital Facilities Project, 5.25%, 11/01/45	10,000	11,405,667
County of San Luis California Obispo Community College District, GO, Refunding, Election of 2014, Series A,	6,585	6,713,470

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4.00%, 8/01/40		
County of San Mateo California Community College District, GO, Series A, 5.00%, 9/01/45	17,615	20,077,135
	<b>Par</b>	
<b>Municipal Bonds Transferred to Tender Option Bond Trusts (d)</b>	<b>(000)</b>	<b>Value</b>
<b>California (continued)</b>		
<b>County/City/Special District/School District (continued)</b>		
Foothill-De Anza Community College District, GO, Series C, 5.00%, 8/01/21 (a)	\$ 40,000	\$ 46,063,600
Los Angeles Community College District California, GO (a):		
Election of 2001, Series E-1, 5.00%, 8/01/18	11,770	12,479,142
Election of 2003, Series F-1, 5.00%, 8/01/18	10,000	10,602,500
Los Angeles Community College District California, GO, Refunding, Election of 2008, Series A, 6.00%, 8/01/19 (a)	9,596	10,730,218
Palomar California Community College District, GO, Election of 2006, Series C, 5.00%, 8/01/44	15,140	17,034,165
Sacramento Area Flood Control Agency, Refunding RB, Consolidated Capital Assessment District No.2, 5.00%, 10/01/43	9,990	11,323,465
Southwestern Community College District, GO, Election of 2008, Series D, 5.00%, 8/01/44	10,820	12,182,238
West Valley-Mission Community College District, GO, Election of 2012, Series B, 4.00%, 8/01/40	17,000	17,709,240
		189,958,186
<b>Education 5.9%</b>		
University of California, RB:		
Series AM, 5.25%, 5/15/44	10,210	11,812,051
Series O, 5.75%, 5/15/19 (a)	11,193	12,349,124
University of California, Refunding RB:		
Series A, 5.00%, 11/01/43	6,001	6,824,097
Series AF, 5.00%, 5/15/39	5,000	5,636,200
		36,621,472
<b>Health 11.9%</b>		
California Health Facilities Financing Authority, RB, Sutter Health, Series A, 5.00%, 8/15/52	14,520	15,641,815
California Health Facilities Financing Authority, Refunding RB:		
Lucile Salter Packard Children's Hospital, Series B, 5.00%, 8/15/55	4,500	4,962,330
Sutter Health, Series A, 5.00%, 8/15/43	19,425	21,393,694
California Statewide Communities Development Authority, RB, Kaiser Permanente, Series A, 5.00%, 4/01/42	19,070	20,729,853
Regents of the University of California Medical Center Pooled Revenue, Refunding RB, Series L, 5.00%, 5/15/41	10,375	11,713,682
		74,441,374
<b>Transportation 4.0%</b>		
City of Los Angeles California Department of Airports, RB, AMT:		
Los Angeles International Airport, Series B, 5.00%, 5/15/41	3,641	4,010,441
Senior Revenue, Series A, 5.00%, 5/15/40	5,500	6,113,965
City of Los Angeles California Department of Airports, Series D, 5.00%, 5/15/41	13,331	14,778,971
		24,903,377
<b>Utilities 8.1%</b>		
City of Los Angeles California Wastewater System, RB, Green Bonds, Series A, 5.00%, 6/01/44	13,790	15,570,978
County of San Diego California Water Authority Financing Corp., COP, Refunding, Series A (AGM), 5.00%, 5/01/18 (a)	16,740	17,587,379
East Bay California Municipal Utility District Water System Revenue, RB, Series C, 5.00%, 6/01/44	11,000	12,531,310

See Notes to Financial Statements.

## Schedule of Investments (continued)

BR MuniHoldings California Quality Fund, Inc. (MUC)

	Par	
	(000)	Value
<b>Municipal Bonds Transferred to</b>		
<b>Tender Option Bond Trusts (d)</b>		
<b>California (continued)</b>		
<b>Utilities (continued)</b>		
Rancho Water District Financing Authority, Refunding RB, Series A (AGM):		
5.00%, 8/01/18 (a)	\$ 2,013	\$ 2,125,695
5.00%, 8/01/34	2,995	3,162,761
		50,978,123
<b>Total Municipal Bonds Transferred to</b>		
<b>Tender Option Bond Trusts 60.2%</b>		376,902,532
<b>Total Investments (Cost \$999,209,169) 166.5%</b>		1,041,947,181
<b>Other Assets Less Liabilities 2.8%</b>		17,863,535
<b>Liability for TOB Trust Certificates, Including Interest</b>		
<b>Expense and Fees Payable (28.7)%</b>		(179,845,277)
<b>VMTP Shares at Liquidation Value (40.6)%</b>		(254,000,000)
<b>Net Assets Applicable to Common Shares 100.0%</b>		\$ 625,965,439

## Notes to Schedule of Investments

(a) U.S. Government securities, held in escrow, are used to pay interest on this security, as well as to retire the bond in full at the date indicated, typically at a premium to par.

(b) Zero-coupon bond.

(c) Variable rate security. Rate as of period end.

(d) Represent bonds transferred to a TOB Trust in exchange of cash and residual certificates received by the Fund. These bonds serve as collateral in a secured borrowing. See Note 4 of the Notes to Financial Statements for details.

During the six months ended January 31, 2017, investments in issuers considered to be an affiliate of the Fund for purposes of Section 2(a)(3) of the Investment Company Act of 1940, as amended, were as follows:

	Shares Held at July 31, 2016	Net Activity	Shares Held at January 31, 2017	Value at January 31, 2017	Income	Net Realized Gain <sup>1</sup>	Change in Unrealized Appreciation (Depreciation)
<b>Affiliate</b>							
BlackRock Liquidity Funds, MuniCash, Institutional Class					\$ 17,111	\$ 538	

<sup>1</sup> Includes net capital gain distributions.

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.

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## Derivative Financial Instruments Outstanding as of Period End

### Futures Contracts

Contracts	Short	Issue	Expiration	Notional Value	Unrealized Depreciation
(68)		5-Year U.S. Treasury Note	March 2017	\$ 8,014,969	\$ (21,193)
(245)		10-Year U.S. Treasury Note	March 2017	\$ 30,494,844	(104,165)
(163)		Long U.S. Treasury Bond	March 2017	\$ 24,587,531	(33,575)
(36)		Ultra U.S. Treasury Bond	March 2017	\$ 5,784,750	(23,365)
<b>Total</b>					<b>\$ (182,298)</b>

## Derivative Financial Instruments Categorized by Risk Exposure

As of period end, the fair values of derivative financial instruments located in the Statements of Assets and Liabilities were as follows:

Liabilities	Derivative Financial Instruments	Commodity Contracts	Credit Contracts	Equity Contracts	Foreign Currency Exchange Contracts	Interest Rate Contracts	Other Contracts	Total
Futures contracts	Net unrealized depreciation <sup>1</sup>					\$ 182,298		\$ 182,298

<sup>1</sup> Includes cumulative appreciation (depreciation) on futures contracts, if any, as reported in the Schedule of Investments. Only current day's variation margin is reported within the Statements of Assets and Liabilities.

See Notes to Financial Statements.



## Schedule of Investments (concluded)

BR MuniHoldings California Quality Fund, Inc. (MUC)

For the six months ended January 31, 2017, the effect of derivative financial instruments in the Statements of Operations was as follows:

	Commodity Contracts	Credit Contracts	Equity Contracts	Foreign Currency Exchange Contracts	Interest Rate Contracts	Other Contracts	Total
<b>Net Realized Gain (Loss) from:</b>							
Futures contracts					\$ 2,750,878		\$ 2,750,878
<b>Net Change in Unrealized Appreciation (Depreciation) on:</b>							
Futures contracts					\$ (58,172)		\$ (58,172)

## Average Quarterly Balances of Outstanding Derivative Financial Instruments

## Futures contracts:

Average notional value of contracts short \$ 50,430,086

For more information about the Fund's investment risks regarding derivative financial instruments, refer to the Notes to Financial Statements.

## Fair Value Hierarchy as of Period End

Various inputs are used in determining the fair value of investments and derivative financial instruments. For information about the Fund's policy regarding valuation of investments and derivative financial instruments, refer to the Notes to Financial Statements.

The following tables summarize the Fund's investments and derivative financial instruments categorized in the disclosure hierarchy:

	Level 1	Level 2	Level 3	Total
<b>Assets:</b>				
Investments:				
Long Term Investments <sup>1</sup>		\$ 1,041,947,181		\$ 1,041,947,181
Derivative Financial Instruments <sup>2</sup>				
<b>Liabilities:</b>				
Interest rate contracts	\$ (182,298)			\$ (182,298)

<sup>1</sup> See above Schedule of Investments for values in each sector.

<sup>2</sup> Derivative financial instruments are futures contracts. Futures contracts are valued at the unrealized appreciation (depreciation) on the instrument.

The Fund may hold assets and/or liabilities in which the fair value approximates the carrying amount for financial statement purposes. As of period end, such assets and/or liabilities are categorized within the disclosure hierarchy as follows:

	Level 1	Level 2	Level 3	Total
<b>Liabilities:</b>				
TOB Trust Certificates		\$ (179,415,265)		\$ (179,415,265)
VMTP Shares at Liquidation Value		(254,000,000)		(254,000,000)
<b>Total</b>		\$ (433,415,265)		\$ (433,415,265)

During the six months ended January 31, 2017, there were no transfers between levels.

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See Notes to Financial Statements.

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SEMI-ANNUAL REPORT

JANUARY 31, 2017

## Schedule of Investments January 31, 2017 (Unaudited)

## BlackRock MuniHoldings New Jersey Quality Fund, Inc. (MUJ)

(Percentages shown are based on Net Assets)

	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>New Jersey 139.8%</b>		
<b>Corporate 3.4%</b>		
New Jersey EDA, Refunding RB:		
Duke Farms Foundation Project, 4.00%, 7/01/46	\$ 2,770	\$ 2,787,977
New Jersey American Water Co., Inc. Project, AMT, Series A, 5.70%, 10/01/39	7,500	8,167,350
New Jersey American Water Co., Inc. Project, AMT, Series B, 5.60%, 11/01/34	3,150	3,430,571
United Water of New Jersey, Inc., Series B (AMBAC), 4.50%, 11/01/25	1,000	1,035,950
		15,421,848
<b>County/City/Special District/School District 19.5%</b>		
Borough of Edgewater New Jersey Board of Education, GO, Refunding, (AGM):		
4.25%, 3/01/34	1,535	1,599,363
4.25%, 3/01/35	1,600	1,665,632
4.30%, 3/01/36	1,670	1,739,756
Casino Reinvestment Development Authority, Refunding RB:		
5.25%, 11/01/39	11,130	11,055,985
5.25%, 11/01/44	3,755	3,690,038
City of Bayonne New Jersey, GO, Refunding, Qualified General Improvement (BAM),		
5.00%, 7/01/39	3,340	3,710,540
City of Perth Amboy New Jersey, GO, CAB, Refunding (AGM):		
5.00%, 7/01/32	2,210	2,229,094
5.00%, 7/01/33 (a)	670	675,729
5.00%, 7/01/35	595	599,820
5.00%, 7/01/37	705	710,358
County of Essex New Jersey, GO, Vocational School, Series B, 3.00%, 9/01/46	3,450	2,865,190
County of Essex New Jersey Improvement Authority, Refunding RB, Project Consolidation (NPFGC):		
5.50%, 10/01/27	250	311,928
5.50%, 10/01/28	4,840	6,073,716
County of Hudson New Jersey Improvement Authority, RB:		
CAB, Series A-1 (NPFGC), 0.00%, 12/15/32 (b)	1,000	557,090
Harrison Parking Facility Project, Series C (AGC), 5.25%, 1/01/39	3,000	3,191,160
Harrison Parking Facility Project, Series C (AGC), 5.38%, 1/01/44	5,000	5,302,050
County of Middlesex New Jersey Improvement Authority, RB, Senior Citizens Housing Project, AMT (AMBAC), 5.50%, 9/01/30	500	501,435
County of Monmouth New Jersey Improvement Authority, Refunding RB, Governmental Loan (AMBAC):		
5.00%, 12/01/17	5	5,014
5.35%, 12/01/17	5	5,016
5.00%, 12/01/18	5	5,013
5.38%, 12/01/18	5	5,016
5.00%, 12/01/19	5	5,012
County of Union New Jersey, GO, Refunding:		
4.00%, 3/01/21 (c)	80	87,649
4.00%, 3/01/21 (c)	75	82,171
4.00%, 3/01/21 (c)	70	76,693
4.00%, 3/01/29	3,575	3,749,496
4.00%, 3/01/30	3,580	3,734,763
4.00%, 3/01/31	4,045	4,205,586
<b>Par</b>		
<b>Municipal Bonds</b>	<b>(000)</b>	<b>Value</b>
<b>New Jersey (continued)</b>		
<b>County/City/Special District/School District (continued)</b>		
County of Union New Jersey Utilities Authority, Refunding RB, Series A:		
Resources Recovery Facility, Covanta Union, Inc., AMT, 5.25%, 12/01/31	\$ 650	\$ 697,755
Solid Waste System, County Deficiency Agreement, 5.00%, 6/15/41	7,570	8,201,944
Morristown New Jersey Parking Authority, RB, (NPFGC):		

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5.00%, 8/01/30	1,830	1,862,226
5.00%, 8/01/33	3,000	3,052,560
New Jersey Sports & Exposition Authority, Refunding RB, (NPFGC) (d):		
5.50%, 3/01/21	7,430	8,585,811
5.50%, 3/01/22	4,200	4,969,650
Newark New Jersey Housing Authority, Refunding RB, Newark Redevelopment Project (NPFGC), 4.38%, 1/01/37	1,720	1,720,327
Township of Irvington New Jersey, GO, Refunding Series A (AGM), 5.00%, 7/15/33	1,175	1,306,048
		88,836,634
<b>Education 31.7%</b>		
County of Gloucester New Jersey Improvement Authority, RB, Rowan University General Capital Improvement Projects:		
5.00%, 7/01/44	1,985	2,147,730
Series A, 5.00%, 7/01/31	1,950	2,169,102
Series A, 5.00%, 7/01/32	1,775	1,966,239
Series A, 5.00%, 7/01/33	2,250	2,482,065
Series A, 5.00%, 7/01/34	1,200	1,319,196
New Jersey EDA, LRB, Rutgers The State University of New Jersey, College Avenue Redevelopment Project, 5.00%, 6/15/33	3,065	3,467,404
New Jersey EDA, RB, Provident Group Rowan Properties LLC, Series A:		
5.00%, 1/01/35	2,000	2,068,600
5.00%, 1/01/48	2,000	2,043,180
New Jersey Educational Facilities Authority, RB, Higher Educational Capital Improvement Fund, Series A, 5.00%, 9/01/33	6,370	6,389,683
New Jersey Educational Facilities Authority, Refunding RB:		
City of New Jersey University Issue, Series D, 4.00%, 7/01/34	320	321,866
City of New Jersey University Issue, Series D, 4.00%, 7/01/35	745	746,721
College of New Jersey, Series D (AGM), 5.00%, 7/01/18 (c)	3,000	3,167,910
College of New Jersey, Series D (AGM), 5.00%, 7/01/18 (c)	10,260	10,834,252
College of New Jersey, Series F, 4.00%, 7/01/34	1,000	1,010,150
College of New Jersey, Series F, 4.00%, 7/01/35	1,280	1,287,962
Montclair State University, Series A, 5.00%, 7/01/39	15,555	17,195,430
Montclair State University, Series A, 5.00%, 7/01/44	3,540	3,901,115
Montclair State University, Series B, 5.00%, 7/01/34	1,075	1,208,891
New Jersey Institute of Technology, Series H, 5.00%, 7/01/31	4,000	4,342,560
Ramapo College, Series I (AMBAC), 4.25%, 7/01/31	2,500	2,509,650

See Notes to Financial Statements.

## Schedule of Investments (continued)

BlackRock MuniHoldings New Jersey Quality Fund, Inc.  
(MUJ)

	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>New Jersey (continued)</b>		
<b>Education (continued)</b>		
New Jersey Educational Facilities Authority, Refunding RB (continued):		
Rowan University, Series B (AGC), 5.00%, 7/01/18 (c)	\$ 2,575	\$ 2,717,269
Seton Hall University, Series D, 5.00%, 7/01/38	500	548,780
Seton Hall University, Series D, 5.00%, 7/01/43	600	655,992
Stevens Institute of Technology, Series A, 5.00%, 7/01/27	2,800	2,835,280
Stevens Institute of Technology, Series A, 5.00%, 7/01/34	2,400	2,429,568
Stockton University, Series A, 5.00%, 7/01/41	2,370	2,523,718
William Paterson University (AGC), 4.75%, 7/01/18 (c)	4,735	4,983,445
William Paterson University (AGC), 5.00%, 7/01/18 (c)	230	242,873
William Paterson University (AGC), 5.00%, 7/01/28	20	20,931
William Paterson University (AGC), 4.75%, 7/01/34	380	395,363
New Jersey Higher Education Student Assistance Authority, RB, Senior Student Loan, Series 1A, AMT:		
4.00%, 12/01/28	1,325	1,348,068
4.50%, 12/01/28	3,120	3,277,154
4.00%, 12/01/29	5,715	5,784,666
4.00%, 12/01/29	880	891,581
4.50%, 12/01/29	3,910	4,100,652
4.63%, 12/01/30	3,815	4,001,859
4.00%, 12/01/31	1,435	1,437,899
4.25%, 12/01/32	2,050	2,076,609
4.13%, 12/01/35	880	873,690
4.50%, 12/01/36	1,805	1,840,017
New Jersey Higher Education Student Assistance Authority, Refunding RB, Series 1, AMT:		
5.38%, 12/01/24	1,080	1,180,732
5.50%, 12/01/26	1,295	1,406,331
New Jersey Institute of Technology, RB, Series A:		
5.00%, 7/01/42	6,945	7,630,819
5.00%, 7/01/45	7,500	8,165,475
Rutgers The State University of New Jersey, Refunding RB, Series L:		
5.00%, 5/01/30	1,565	1,780,313
5.00%, 5/01/43	10,000	11,119,600
		144,848,390
<b>Health 18.9%</b>		
County of Camden New Jersey Improvement Authority, Refunding RB, Cooper Healthcare System, Series A, 5.00%, 2/15/33	2,000	2,097,840
New Jersey Health Care Facilities Financing Authority, RB:		
Meridian Health System Obligated Group, Series I (AGC), 5.00%, 7/01/38	1,390	1,441,402
Meridian Health System Obligated Group, Series II (AGC), 5.00%, 7/01/38	6,865	7,136,442
Meridian Health System Obligated Group, Series V (AGC), 5.00%, 7/01/38	4,625	4,807,873
Robert Wood Johnson University Hospital, Series A, 5.50%, 7/01/43	7,105	7,949,784
Virtua Health, Series A (AGC), 5.50%, 7/01/38	4,035	4,356,549
<b>Par</b>		
<b>Municipal Bonds</b>		
<b>New Jersey (continued)</b>		
<b>Health (continued)</b>		
New Jersey Health Care Facilities Financing Authority, Refunding RB:		
AHS Hospital Corp., 5.50%, 7/01/21 (c)	\$ 4,055	\$ 4,724,845
AHS Hospital Corp., 6.00%, 7/01/21 (c)	4,180	4,959,236
Catholic Health East Issue, 5.00%, 11/15/33	1,925	2,104,429
Hackensack University Medical Center (AGC), 5.13%, 1/01/27	1,500	1,542,615
Hackensack University Medical Center (AGM), 4.63%, 1/01/30	7,795	8,149,361
Meridian Health System Obligated Group, 5.00%, 7/01/25	1,000	1,128,340
Meridian Health System Obligated Group, 5.00%, 7/01/26	3,720	4,166,363
Princeton Healthcare System, 5.00%, 7/01/34	1,330	1,463,053

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Princeton Healthcare System, 5.00%, 7/01/39	1,825	1,968,463
RWJ Barnabas Health Obligated Group, Series A, 4.00%, 7/01/43	1,865	1,849,912
RWJ Barnabas Health Obligated Group, Series A, 5.00%, 7/01/43	3,080	3,344,788
St. Barnabas Health Care System, Series A, 5.00%, 7/01/21 (c)	3,640	4,163,978
St. Barnabas Health Care System, Series A, 5.63%, 7/01/21 (c)	4,450	5,208,681
St. Barnabas Health Care System, Series A, 5.63%, 7/01/21 (c)	4,860	5,688,581
St. Joseph's Healthcare System Obligated Group, 4.00%, 7/01/34	570	537,140
St. Joseph's Healthcare System Obligated Group, 5.00%, 7/01/41	1,520	1,589,631
St. Joseph's Healthcare System Obligated Group, 4.00%, 7/01/48	2,020	1,816,485
Virtua Health, 5.00%, 7/01/28	3,000	3,374,190
Virtua Health, 5.00%, 7/01/29	715	797,797
		86,367,778
<b>Housing 7.0%</b>		
County of Atlantic New Jersey Improvement Authority, RB, Stockton University Atlantic City, Series A (AGM), 4.00%, 7/01/46	1,500	1,487,130
New Jersey Housing & Mortgage Finance Agency, RB: Capital Fund Program, Series A (AGM), 5.00%, 5/01/27	6,450	6,597,512
M/F Housing, Series A, 4.55%, 11/01/43	4,710	4,816,682
M/F Housing, Series A, AMT (NPFGC), 4.85%, 11/01/39	1,335	1,335,627
S/F Housing, Series AA, 6.50%, 10/01/38	190	195,571
S/F Housing, Series B, 4.50%, 10/01/30	9,455	9,902,032
New Jersey Housing & Mortgage Finance Agency, Refunding RB, AMT: M/F Housing, Series 2, 4.60%, 11/01/38	3,120	3,198,998
M/F Housing, Series 2, 4.75%, 11/01/46	3,795	3,886,763
S/F Housing, Series T, 4.70%, 10/01/37	600	600,522
		32,020,837
<b>State 26.1%</b>		
Garden State Preservation Trust, RB, CAB, Series B (AGM) (b): 0.00%, 11/01/23	15,725	12,677,652
0.00%, 11/01/25	10,000	7,384,700

See Notes to Financial Statements.

## Schedule of Investments (continued)

BlackRock MuniHoldings New Jersey Quality Fund, Inc.  
(MUJ)

	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>New Jersey (continued)</b>		
<b>State (continued)</b>		
Garden State Preservation Trust, Refunding RB, Series C (AGM):		
5.25%, 11/01/20	\$ 5,000	\$ 5,609,050
5.25%, 11/01/21	7,705	8,782,621
New Jersey EDA, RB:		
CAB, Motor Vehicle Surcharge, Series A (NPFGC), 0.00%, 7/01/21 (b)	2,325	2,073,389
Motor Vehicle Surcharge, Series A (NPFGC), 5.25%, 7/01/24	1,785	2,009,178
Motor Vehicle Surcharge, Series A (NPFGC), 5.25%, 7/01/25	5,000	5,606,000
Motor Vehicle Surcharge, Series A (NPFGC), 5.25%, 7/01/26	7,500	8,442,450
Motor Vehicle Surcharge, Series A (NPFGC), 5.25%, 7/01/33	18,105	18,574,825
School Facilities Construction (AGC), 6.00%, 12/15/18 (c)	3,960	4,319,766
School Facilities Construction (AGC), 6.00%, 12/15/18 (c)	40	43,603
School Facilities Construction, Series KK, 5.00%, 3/01/38	325	323,729
School Facilities Construction, Series U, 5.00%, 9/01/17 (c)	2,810	2,876,962
School Facilities Construction, Series U (AMBAC), 5.00%, 9/01/17 (c)	1,070	1,095,498
School Facilities Construction, Series Y, 5.00%, 9/01/18 (c)	1,000	1,061,960
Series WW, 5.25%, 6/15/33	380	387,714
Series WW, 5.00%, 6/15/34	5,500	5,493,345
Series WW, 5.00%, 6/15/36	3,115	3,110,982
Series WW, 5.25%, 6/15/40	8,375	8,482,032
New Jersey EDA, Refunding RB:		
Cigarette Tax, 5.00%, 6/15/24	5,000	5,362,800
Cigarette Tax, 5.00%, 6/15/26	1,250	1,325,788
Cigarette Tax, 5.00%, 6/15/28	2,430	2,564,792
Cigarette Tax, 5.00%, 6/15/29	3,195	3,359,415
School Facilities Construction, Series N-1 (NPFGC), 5.50%, 9/01/27	1,000	1,154,830
School Facilities Construction, Series NN, 5.00%, 3/01/29	5,000	5,089,050
State of New Jersey, COP, Equipment Lease Purchase, Series A, 5.25%, 6/15/19 (c)	1,580	1,726,782
		118,938,913
<b>Transportation 28.0%</b>		
Delaware River Port Authority, RB:		
5.00%, 1/01/29	2,000	2,254,780
5.00%, 1/01/37	8,830	9,682,625
Series D, 5.05%, 1/01/35	1,430	1,552,694
Series D (AGM), 5.00%, 1/01/40	5,200	5,641,324
New Brunswick New Jersey Parking Authority, Refunding RB, City Guaranteed, Series A (BAM), 5.00%, 9/01/39	1,520	1,709,498
New Brunswick Parking Authority, Refunding RB, City Guaranteed, Series B (AGM):		
3.00%, 9/01/39	2,500	2,104,650
4.00%, 9/01/40	2,000	2,015,820
New Jersey EDA, RB, Private Activity Bond, Goethals Bridge Replacement Project, AMT:		
5.13%, 1/01/34	2,290	2,412,126
5.38%, 1/01/43	7,730	8,170,223
New Jersey State Turnpike Authority, RB, Series E, 5.00%, 1/01/45	8,000	8,817,440
	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>New Jersey (continued)</b>		
<b>Transportation (continued)</b>		
New Jersey State Turnpike Authority, Refunding RB:		
Series A (AGM), 5.25%, 1/01/29	\$ 4,000	\$ 4,909,560
Series A (BHAC), 5.25%, 1/01/29	500	614,825
Series A (AGM), 5.25%, 1/01/30	4,000	4,919,160
New Jersey Transportation Trust Fund Authority, RB:		
CAB, Transportation System, Series A, 0.00%, 12/15/35 (b)	6,000	2,147,100
CAB, Transportation System, Series C (AGM), 0.00%, 12/15/32 (b)	8,800	4,177,184
CAB, Transportation System, Series C (AMBAC), 0.00%, 12/15/35 (b)	4,160	1,641,078

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CAB, Transportation System, Series C (AMBAC), 0.00%, 12/15/36 (b)	7,210	2,686,518
Federal Highway Reimbursement Revenue Notes, Series A, 5.00%, 6/15/30	2,250	2,366,955
Federal Highway Reimbursement Revenue Notes, Series A-2, 5.00%, 6/15/30	10,520	10,773,322
Transportation Program, Series AA, 5.00%, 6/15/33	3,000	3,016,650
Transportation Program, Series AA, 5.25%, 6/15/33	5,690	5,803,800
Transportation Program, Series AA, 5.25%, 6/15/34	1,305	1,333,279
Transportation Program, Series AA, 5.00%, 6/15/38	2,340	2,327,692
Transportation System, Series A, 6.00%, 6/15/35	6,365	6,889,476
Transportation System, Series A (AGC), 5.63%, 12/15/28	2,780	2,997,035
Transportation System, Series A (NPFGC), 5.75%, 6/15/24	1,205	1,394,956
Transportation System, Series B, 5.25%, 6/15/36	2,500	2,539,800
Transportation System, Series D, 5.00%, 6/15/32	3,300	3,336,201
Port Authority of New York & New Jersey, ARB:		
Consolidated, 93rd Series, 6.13%, 6/01/94	1,000	1,184,060
Special Project, JFK International Air Terminal LLC Project, Series 6, AMT (NPFGC), 5.75%, 12/01/25	3,000	3,044,640
Special Project, JFK International Air Terminal LLC Project, Series 8, 6.00%, 12/01/42	4,000	4,500,000
Port Authority of New York & New Jersey, Refunding ARB, AMT:		
178th Series, 5.00%, 12/01/33	4,005	4,436,379
Consolidated, 152nd Series, 5.75%, 11/01/30	6,000	6,324,720
		127,725,570
<b>Utilities 5.2%</b>		
County of Essex New Jersey Utilities Authority, Refunding RB, (AGC), 4.13%, 4/01/22	2,000	2,094,320
North Hudson New Jersey Sewerage Authority, Refunding RB, Series A (NPFGC), 5.13%, 8/01/20 (d)	6,045	6,800,081
Rahway Valley Sewerage Authority, RB, CAB, Series A (NPFGC) (b):		
0.00%, 9/01/26	4,100	2,993,287
0.00%, 9/01/28	6,600	4,423,980
0.00%, 9/01/29	9,650	6,200,125
0.00%, 9/01/33	2,350	1,289,915
		23,801,708
<b>Total Municipal Bonds in New Jersey</b>		637,961,678

See Notes to Financial Statements.



# Schedule of Investments (continued)

BlackRock MuniHoldings New Jersey Quality Fund, Inc.  
(MUJ)

	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Puerto Rico 1.3%</b>		
<b>Health 1.3%</b>		
Puerto Rico Industrial Tourist Educational Medical & Environmental Control Facilities Financing Authority, RB, Hospital De La Concepcion, Series A:		
6.50%, 11/15/20	\$ 1,445	\$ 1,470,605
6.13%, 11/15/30	4,220	4,346,769
<b>Total Municipal Bonds in Puerto Rico</b>		5,817,374
<b>Total Municipal Bonds 141.1%</b>		643,779,052

## Municipal Bonds Transferred to Tender Option Bond Trusts (e)

<b>New Jersey 21.5%</b>		
<b>County/City/Special District/School District 4.0%</b>		
County of Union New Jersey Utilities Authority, Refunding LRB, Resource Recovery Facility, Covanta Union, Inc., Series A, AMT, 5.25%, 12/01/31	17,300	18,571,031
<b>Education 1.2%</b>		
Rutgers The State University of New Jersey, RB, Series F, 5.00%, 5/01/19 (c)	4,998	5,417,925
<b>State 4.8%</b>		
Garden State Preservation Trust, RB, Election of 2005, Series A (AGM), 5.75%, 11/01/28	12,460	15,122,079
New Jersey EDA, Refunding RB, Series NN, School Facilities Construction, 5.00%, 3/01/29 (f)	6,698	6,817,454
		21,939,533
<b>Transportation 11.5%</b>		
County of Hudson New Jersey Improvement Authority, RB, Hudson County Vocational-Technical Schools Project, 5.25%, 5/01/51	3,120	3,548,095
New Jersey State Turnpike Authority, RB, Series A, 5.00%, 1/01/38 (f)	9,300	10,287,288

## Municipal Bonds Transferred to Tender Option Bond Trusts (e)

<b>New Jersey (continued)</b>		
<b>Transportation (continued)</b>		
New Jersey Transportation Trust Fund Authority, RB, Transportation System, Series B, 5.25%, 6/15/36 (f)	\$ 2,661	\$ 2,702,968
Port Authority of New York & New Jersey, ARB, Consolidated, 163rd Series, AMT, 5.00%, 7/15/39	15,545	17,056,686
Port Authority of New York & New Jersey, RB, Consolidated, 169th Series, AMT, 5.00%, 10/15/41	10,000	10,689,800
Port Authority of New York & New Jersey, Refunding RB, Consolidated, 152nd Series, AMT, 5.25%, 11/01/35	7,827	8,152,427
		52,437,264
<b>Total Municipal Bonds Transferred to Tender Option Bond Trusts 21.5%</b>		98,365,753
<b>Total Long-Term Investments</b>		
<b>(Cost \$708,033,208) 162.6%</b>		742,144,805

## Short-Term Securities

	Shares	
BlackRock Liquidity Funds, MuniCash, Institutional Class, 0.50% (g)(h)	1,642,362	1,642,526
<b>Total Short-Term Securities</b>		
<b>(Cost \$1,642,463) 0.4%</b>		1,642,526
<b>Total Investments (Cost \$709,675,671) 163.0%</b>		743,787,331

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Other Assets Less Liabilities	1.1%	4,347,334
Liability for TOB Trust Certificates, Including Interest Expense and Fees Payable	(12.1)%	(55,170,558)
VRDP Shares at Liquidation Value, Net of Deferred Offering Costs	(52.0)%	(236,599,378)
Net Assets Applicable to Common Shares	100.0%	\$ 456,364,729

## Notes to Schedule of Investments

- (a) Step-up bond that pays an initial coupon rate for the first period and then a higher coupon rate for the following periods. Rate as of period end.
- (b) Zero-coupon bond.
- (c) U.S. Government securities, held in escrow, are used to pay interest on this security, as well as to retire the bond in full at the date indicated, typically at a premium to par.
- (d) Security is collateralized by municipal bonds or U.S. Treasury obligations.
- (e) Represent bonds transferred to a TOB Trust in exchange of cash and residual certificates received by the Fund. These bonds serve as collateral in a secured borrowing. See Note 4 of the Notes to Financial Statements for details.
- (f) All or a portion of security is subject to a recourse agreement. The aggregate maximum potential amount the Fund could ultimately be required to pay under the agreements, which expire between June 15, 2019 to September 1, 2020, is \$13,907,845. See Note 4 of the Notes to Financial Statements for details.
- (g) During the six months ended January 31, 2017, investments in issuers considered to be an affiliate of the Fund for purposes of Section 2(a)(3) of the Investment Company Act of 1940, as amended, were as follows:

Affiliate	Shares Held at July 31, 2016	Net Activity	Shares Held at January 31, 2017	Value at January 31, 2017	Income	Net Realized Gain <sup>1</sup>	Change in Unrealized Appreciation
BlackRock Liquidity Funds, MuniCash, Institutional Class	15,571,111	(13,928,749)	1,642,362	\$ 1,642,526	\$ 12,499	\$ 5,224	\$ 63

<sup>1</sup> Includes net capital gain distributions.

- (h) Current yield as of period end.

See Notes to Financial Statements.

## Schedule of Investments (continued)

BlackRock MuniHoldings New Jersey Quality Fund, Inc.  
(MUJ)

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.

## Derivative Financial Instruments Outstanding as of Period End

Futures Contracts  
Contracts

Short	Issue	Expiration	Notional Value	Unrealized Depreciation
(66)	5-Year U.S. Treasury Note	March 2017	\$ 7,779,234	\$ (17,980)
(310)	10-Year U.S. Treasury Note	March 2017	\$ 38,585,313	(103,946)
(153)	Long U.S. Treasury Bond	March 2017	\$ 23,079,094	(27,959)
(12)	Ultra U.S. Treasury Bond	March 2017	\$ 1,928,250	(8,935)
<b>Total</b>				<b>\$ (158,820)</b>

## Derivative Financial Instruments Categorized by Risk Exposure

As of period end, the fair values of derivative financial instruments located in the Statements of Assets and Liabilities were as follows:

Liabilities	Derivative Financial Instruments	Commodity Contracts	Credit Contracts	Equity Contracts	Foreign Currency Exchange Contracts	Interest Rate Contracts	Other Contracts	Total
Futures contracts	Net unrealized depreciation <sup>1</sup>					\$ 158,820		\$ 158,820

<sup>1</sup> Includes cumulative appreciation (depreciation) on futures contracts, if any, as reported in the Schedule of Investments. Only current day's variation margin is reported within the Statements of Assets and Liabilities.

For the six months ended January 31, 2017, the effect of derivative financial instruments in the Statements of Operations was as follows:

	Commodity Contracts	Credit Contracts	Equity Contracts	Foreign Currency Exchange Contracts	Interest Rate Contracts	Other Contracts	Total
<b>Net Realized Gain (Loss) from:</b>							
Futures contracts					\$ 2,261,009		\$ 2,261,009
<b>Net Change in Unrealized Appreciation (Depreciation) on:</b>							
Futures contracts					\$ 261,656		\$ 261,656

## Average Quarterly Balances of Outstanding Derivative Financial Instruments

Futures contracts:	
Average notional value of contracts long	\$ 362,820 <sup>1</sup>
Average notional value of contracts short	\$ 48,761,117

<sup>1</sup> Actual amounts for the period are shown due to limited outstanding derivative financial instruments as of each quarter.

For more information about the Fund's investment risks regarding derivative financial instruments, refer to the Notes to Financial Statements.

**Fair Value Hierarchy as of Period End**

Various inputs are used in determining the fair value of investments and derivative financial instruments. For information about the Fund's policy regarding valuation of investments and derivative financial instruments, refer to the Notes to Financial Statements.

See Notes to Financial Statements.

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## Schedule of Investments (concluded)

BlackRock MuniHoldings New Jersey Quality Fund, Inc.  
(MUJ)

The following tables summarize the Fund's investments and derivative financial instruments categorized in the disclosure hierarchy:

	Level 1	Level 2	Level 3	Total
<b>Assets:</b>				
Investments:				
Long Term Investments <sup>1</sup>		\$ 742,144,805		\$ 742,144,805
Short Term Securities	\$ 1,642,526			1,642,526
<b>Total</b>	\$ 1,642,526	\$ 742,144,805		\$ 743,787,331

Derivative Financial Instruments <sup>2</sup>

<b>Liabilities:</b>				
Interest rate contracts	\$ (158,820)			\$ (158,820)

<sup>1</sup> See above Schedule of Investments for values in each sector.

<sup>2</sup> Derivative financial instruments are futures contracts. Futures contracts are valued at the unrealized appreciation (depreciation) on the instrument.

The Fund may hold assets and/or liabilities in which the fair value approximates the carrying amount for financial statement purposes. As of period end, such assets and/or liabilities are categorized within the disclosure hierarchy as follows:

	Level 1	Level 2	Level 3	Total
<b>Liabilities:</b>				
TOB Trust Certificates		\$ (55,088,706)		\$ (55,088,706)
VRDP Shares at Liquidation Value		(237,100,000)		(237,100,000)
<b>Total</b>		\$ (292,188,706)		\$ (292,188,706)

During the six months ended January 31, 2017, there were no transfers between levels.

See Notes to Financial Statements.

## Schedule of Investments January 31, 2017 (Unaudited)

## BlackRock MuniYield Investment Quality Fund (MFT)

(Percentages shown are based on Net Assets)

	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Alabama 4.4%</b>		
City of Birmingham Alabama Special Care Facilities Financing Authority, RB, Children's Hospital (AGC) (a):		
6.00%, 6/01/19	\$ 2,985	\$ 3,309,618
6.13%, 6/01/19	1,500	1,667,430
City of Selma Alabama IDB, RB, Gulf Opportunity Zone, International Paper Co. Project, Series A, 5.38%, 12/01/35	350	388,507
		5,365,555
<b>California 20.3%</b>		
California Educational Facilities Authority, RB, University of Southern California, Series A, 5.25%, 10/01/18 (a)	1,960	2,099,336
California Health Facilities Financing Authority, RB, Sutter Health, Series B, 6.00%, 8/15/42	1,150	1,309,781
City & County of San Francisco California Airports Commission, Refunding ARB, AMT, Series A:		
2nd, 5.50%, 5/01/28	720	831,917
2nd, 5.25%, 5/01/33	560	621,522
5.00%, 5/01/44	745	806,053
City of San Jose California, Refunding ARB, Series A-1, AMT:		
5.50%, 3/01/30	1,600	1,790,176
6.25%, 3/01/34	1,250	1,435,325
County of Sacramento California, ARB, Senior Series A (AGC), 5.50%, 7/01/18 (a)	1,400	1,488,802
Kern Community College District, GO, Safety, Repair & Improvement, Series C, 5.50%, 11/01/33	970	1,145,056
Redondo Beach Unified School District, GO, Election of 2008, Series E, 5.50%, 8/01/21 (a)	1,000	1,173,260
Riverside County Public Financing Authority, RB, Capital Facilities Project, 5.25%, 11/01/40	2,000	2,286,040
San Diego Public Facilities Financing Authority Water, Refunding RB, Series B (AGC), 5.38%, 8/01/19 (a)	1,020	1,124,927
State of California, GO, Various Purposes (AGC), 5.50%, 11/01/39	3,450	3,792,827
State of California Public Works Board, LRB, Various Capital Projects, Series I, 5.50%, 11/01/31	1,000	1,180,540
State of California Public Works Board, RB, Department of Corrections & Rehabilitation, Series F, 5.25%, 9/01/33	490	573,589
Township of Washington California Health Care District, GO, Election of 2004, Series B, 5.50%, 8/01/40	370	423,165
University of California, Refunding RB, The Regents of Medical Center, Series J, 5.25%, 5/15/38	2,235	2,568,104
		24,650,420
<b>Colorado 2.6%</b>		
City & County of Denver Colorado Airport System, ARB, Series A, AMT:		
5.50%, 11/15/28	500	567,935
5.50%, 11/15/30	225	253,618
5.50%, 11/15/31	270	303,580
Colorado Health Facilities Authority, RB, Hospital, NCMC, Inc. Project, Series B (AGM), 6.00%, 5/15/19 (a)	1,300	1,439,607
Denver Convention Center Hotel Authority, Refunding RB, 5.00%, 12/01/40	500	539,870
		3,104,610
<b>Florida 13.3%</b>		
City of Jacksonville Florida, Refunding RB, Series A, 5.25%, 10/01/33	270	309,434
	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Florida (continued)</b>		
County of Broward Florida Airport System Revenue, ARB, Series A, AMT, 5.00%, 10/01/45	\$ 575	\$ 620,667
	1,170	1,321,737

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County of Hillsborough Florida Aviation Authority, Refunding ARB, Tampa International Airport, Series A, AMT, 5.50%, 10/01/29		
County of Lee Florida, Refunding ARB, Series A, AMT, 5.38%, 10/01/32	1,000	1,106,960
County of Lee Florida HFA, RB, S/F Housing, Multi-County Program, Series A-2, AMT (Ginnie Mae), 6.00%, 9/01/40	90	90,877
County of Manatee Florida HFA, RB, S/F Housing, Series A, AMT (Ginnie Mae, Fannie Mae & Freddie Mac), 5.90%, 9/01/40	85	86,186
County of Miami-Dade Florida, RB, Seaport Department:		
Series A, 6.00%, 10/01/38	1,840	2,147,004
Series A, 5.50%, 10/01/42	2,125	2,395,831
Series B, AMT, 6.00%, 10/01/26	590	695,911
Series B, AMT, 6.00%, 10/01/27	775	913,345
Series B, AMT, 6.25%, 10/01/38	310	367,161
Series B, AMT, 6.00%, 10/01/42	410	472,295
County of Miami-Dade Florida, Refunding RB:		
Seaport Department, Series D, AMT, 6.00%, 10/01/26	735	866,940
Water & Sewer System, Series B, 5.25%, 10/01/29	500	577,130
County of Miami-Dade Florida Aviation, Refunding ARB, Series A, AMT, 5.00%, 10/01/31	2,165	2,360,716
Orange County Health Facilities Authority, Refunding RB, Presbyterian Retirement Communities Project, 5.00%, 8/01/41	1,000	1,051,730
Reedy Creek Florida Improvement District, GO, Series A, 5.25%, 6/01/32	710	816,954
		16,200,878
<b>Hawaii 1.9%</b>		
State of Hawaii, Department of Transportation, COP, AMT:		
5.25%, 8/01/25	250	281,608
5.25%, 8/01/26	810	904,616
State of Hawaii, Department of Transportation, RB, Series A, AMT, 5.00%, 7/01/45	1,000	1,073,790
		2,260,014
<b>Illinois 18.8%</b>		
City of Chicago Illinois Midway International Airport, Refunding GARB, 2nd Lien, Series A, 5.00%, 1/01/41	1,010	1,068,590
City of Chicago Illinois O'Hare International Airport, GARB, 3rd Lien:		
Series A, 5.75%, 1/01/39	770	864,025
Series C, 6.50%, 1/01/21 (a)	3,680	4,377,323
City of Chicago Illinois Transit Authority, RB:		
Federal Transit Administration, Section 5309, Series A (AGC), 6.00%, 12/01/18 (a)	1,400	1,523,648
Sales Tax Receipts, 5.25%, 12/01/36	1,000	1,068,430
City of Chicago Illinois Transit Authority, Refunding RB, Federal Transit Administration, Section 5309 (AGM), 5.00%, 6/01/28	3,000	3,145,020
City of Chicago Illinois Wastewater Transmission, RB, 2nd Lien, 5.00%, 1/01/42	1,375	1,444,547
County of Cook Illinois Community College District No. 508, GO, City College of Chicago:		
5.50%, 12/01/38	1,000	1,072,780
5.25%, 12/01/43	1,160	1,223,881

See Notes to Financial Statements.

## Schedule of Investments (continued)

## BlackRock MuniYield Investment Quality Fund (MFT)

	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Illinois (continued)</b>		
Illinois Finance Authority, RB, Carle Foundation, Series A, 6.00%, 8/15/41	\$ 1,555	\$ 1,764,972
Illinois State Toll Highway Authority, RB, Series C, 5.00%, 1/01/38	1,000	1,094,940
Railsplitter Tobacco Settlement Authority, RB:		
5.50%, 6/01/23	940	1,059,464
6.00%, 6/01/28	270	306,966
State of Illinois, GO:		
5.25%, 2/01/32	1,000	1,019,340
5.50%, 7/01/33	1,500	1,563,210
5.50%, 7/01/38	280	289,453
		22,886,589
<b>Indiana 4.1%</b>		
Indiana Finance Authority, RB, Private Activity Bond, Ohio River Bridges, Series A, AMT, 5.00%, 7/01/40	375	380,490
Indianapolis Local Public Improvement Bond Bank, Refunding RB, Waterworks Project, Series A (AGC):		
5.50%, 1/01/19 (a)	840	908,897
5.50%, 1/01/38	3,470	3,739,445
		5,028,832
<b>Iowa 1.3%</b>		
Iowa Higher Education Loan Authority, RB, Private College Facility, Grinnell College Project, 5.00%, 12/01/41 (b)	1,330	1,535,099
<b>Kentucky 0.9%</b>		
Kentucky State Property & Building Commission, Refunding RB, Project No. 93, (AGC):		
5.25%, 2/01/19 (a)	885	955,703
5.25%, 2/01/27	115	122,998
		1,078,701
<b>Louisiana 2.1%</b>		
City of New Orleans Louisiana Aviation Board, Refunding GARB, Restructuring (AGC):		
Series A-1, 6.00%, 1/01/23	375	405,349
Series A-2, 6.00%, 1/01/23	160	172,634
Lake Charles Harbor & Terminal District, RB, Series B, AMT (AGM), 5.50%, 1/01/29	1,000	1,148,350
Tobacco Settlement Financing Corp., Refunding RB, Asset-Backed, Series A, 5.50%, 5/15/29	805	850,627
		2,576,960
<b>Massachusetts 2.3%</b>		
Massachusetts Development Finance Agency, RB, Emerson College Issue, Series A, 5.00%, 1/01/47	645	685,403
Massachusetts Development Finance Agency, Refunding RB, Emerson College, 5.00%, 1/01/41	525	550,499
Massachusetts HFA, Refunding RB, Series C, AMT, 5.35%, 12/01/42	1,480	1,569,096
		2,804,998
<b>Michigan 3.4%</b>		
City of Detroit Michigan Water Supply System Revenue, RB, 2nd Lien, Series B (AGM):		
6.25%, 7/01/36	5	5,406
6.25%, 7/01/19 (a)	1,795	2,007,061
Michigan Finance Authority, Refunding RB, Henry Ford Health System, 4.00%, 11/15/46	775	741,133
Royal Oak Michigan Hospital Finance Authority, Refunding RB, William Beaumont Hospital, Series V, 8.25%, 9/01/18 (a)	1,265	1,405,706
		4,159,306
	<b>Par</b>	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Minnesota 2.7%</b>		



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City of Minneapolis Minnesota, Refunding RB, Fairview Health Services, Series B (AGC):

6.50%, 11/15/18 (a)	\$ 460	\$ 503,612
6.50%, 11/15/38	2,540	2,742,997

3,246,609

### Mississippi 1.5%

Mississippi Development Bank, RB, Jackson Water & Sewer System Project (AGM), 6.88%, 12/01/40	1,190	1,506,480
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Mississippi State University Educational Building Corp., Refunding RB, Mississippi State University Improvement Project, 5.25%, 8/01/38	260	296,291
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1,802,771

### Nebraska 0.7%

County of Sarpy Nebraska Hospital Authority No. 1, Refunding RB, Nebraska Medicine, 4.00%, 5/15/51	920	896,466
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### Nevada 4.3%

County of Clark Nevada, ARB, Las Vegas-McCarran International Airport, Series A (AGM), 5.25%, 7/01/39	2,375	2,570,106
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County of Clark Nevada, GO, Limited Tax, 5.00%, 6/01/38	1,000	1,042,320
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County of Clark Nevada Water Reclamation District, GO, Series A, 5.25%, 7/01/19 (a)	1,500	1,644,255
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5,256,681

### New Jersey 4.9%

New Jersey EDA, RB:

Private Activity Bond, Goethals Bridge Replacement Project, AMT, 5.38%, 1/01/43	1,000	1,056,950
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Private Activity Bond, Goethals Bridge Replacement Project, AMT (AGM), 5.00%, 1/01/31	530	579,810
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School Facilities Construction (AGC), 6.00%, 12/15/18 (a)	980	1,069,033
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School Facilities Construction (AGC), 6.00%, 12/15/18 (a)	20	21,801
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New Jersey Health Care Facilities Financing Authority, RB, Virtua Health, Series A (AGC), 5.50%, 7/01/38	1,400	1,511,566
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New Jersey Transportation Trust Fund Authority, RB, Transportation System, Series AA, 5.50%, 6/15/39	1,600	1,662,544
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5,901,704

### New York 6.0%

City of New York New York Municipal Water Finance Authority, Refunding RB, Water & Sewer System, Series FF-2, 5.50%, 6/15/40	1,545	1,687,264
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City of New York New York Transitional Finance Authority, BARB, Fiscal 2009, Series S-4 (AGC), 5.50%, 1/15/29	2,000	2,151,020
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New York Transportation Development Corp., RB, LaGuardia Airport Terminal B Redevelopment Project, Series A, AMT, 5.25%, 1/01/50	600	632,964
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Port Authority of New York & New Jersey, Refunding ARB, Consolidated, 166th Series, 5.25%, 7/15/36	2,500	2,787,975
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7,259,223

### Ohio 1.4%

State of Ohio Turnpike Commission, RB, Junior Lien, Infrastructure Projects, Series A-1, 5.25%, 2/15/31	1,500	1,710,915
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See Notes to Financial Statements.

## Schedule of Investments (continued)

## BlackRock MuniYield Investment Quality Fund (MFT)

	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>South Carolina 8.3%</b>		
County of Charleston South Carolina, RB, Special Source, 5.25%, 12/01/38	\$ 1,470	\$ 1,684,649
County of Charleston South Carolina Airport District, ARB, Series A, AMT:		
5.50%, 7/01/26	1,810	2,068,902
6.00%, 7/01/38	1,155	1,311,110
5.50%, 7/01/41	1,000	1,106,150
South Carolina Ports Authority, RB, AMT, 5.25%, 7/01/50	750	811,958
State of South Carolina Public Service Authority, Refunding RB:		
Series C, 5.00%, 12/01/46	2,535	2,791,618
Series E, 5.25%, 12/01/55	350	383,359
		10,157,746
<b>Texas 19.6%</b>		
Austin Community College District Public Facility Corp., RB, Educational Facilities Project, Round Rock Campus, 5.25%, 8/01/18 (a)	2,250	2,391,255
City of Beaumont Texas, GO, Certificates of Obligation, 5.25%, 3/01/37	930	1,053,272
City of Frisco Texas ISD, GO, School Building (AGC), 5.50%, 8/15/41	1,210	1,319,299
City of Houston Texas Combined Utility System Revenue, Refunding RB, Combined 1st Lien, Series A (AGC):		
5.38%, 5/15/19 (a)	950	1,039,120
6.00%, 5/15/19 (a)	2,560	2,836,147
6.00%, 5/15/19 (a)	1,945	2,154,807
6.00%, 11/15/35	140	154,666
6.00%, 11/15/36	110	121,524
5.38%, 11/15/38	50	53,888
County of Tarrant Texas Cultural Education Facilities Finance Corp., Refunding RB, Christus Health, Series A (AGC):		
6.50%, 1/01/19 (a)	265	291,264
6.50%, 7/01/37	835	899,228
Dallas-Fort Worth International Airport, ARB, Joint Improvement, Series H, AMT, 5.00%, 11/01/37	980	1,053,980
Dallas-Fort Worth International Airport, Refunding ARB, Joint Revenue, Series E, AMT, 5.50%, 11/01/27	2,500	2,888,000
Lower Colorado River Authority, Refunding RB, 5.50%, 5/15/33	730	837,456
North Texas Tollway Authority, RB, Special Projects, Series A, 5.50%, 9/01/41	2,750	3,128,097
North Texas Tollway Authority, Refunding RB, 1st Tier: (AGM), 6.00%, 1/01/43	1,000	1,137,800
Series K-1 (AGC), 5.75%, 1/01/19 (a)	1,400	1,520,890
Red River Texas Education Financing Corp., RB, Texas Christian University Project, 5.25%, 3/15/38	420	472,731
Texas Private Activity Bond Surface Transportation Corp., RB, Senior Lien, Blueridge Transportation Group, AMT, 5.00%, 12/31/55	525	544,672
		23,898,096
<b>Virginia 1.2%</b>		
City of Lexington Virginia IDA, RB, Washington & Lee University, 5.00%, 1/01/43	380	419,429
Virginia Public School Authority, RB, Fluvanna County School Financing, 6.50%, 12/01/18 (a)	1,000	1,098,520
		1,517,949
	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Washington 1.6%</b>		
City of Seattle Washington Municipal Light & Power, Refunding RB, Series A, 5.25%, 2/01/36	\$ 1,000	\$ 1,114,240
State of Washington, GO, Various Purposes, Series B, 5.25%, 2/01/36	725	812,247
		1,926,487
<b>Wisconsin 0.7%</b>		
	800	800,600

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Wisconsin Health & Educational Facilities Authority, Refunding RB, Medical College of

Wisconsin, Inc., 4.00%, 12/01/46

<b>Total Municipal Bonds</b>	<b>128.3%</b>	156,027,209
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## Municipal Bonds Transferred to Tender Option Bond Trusts (c)

### Alabama 0.8%

Auburn University, Refunding RB, Series A, 4.00%, 6/01/41	920	940,120
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### California 4.2%

City of Los Angeles Department of Airports, RB, Los Angeles International Airport, AMT, Series B, 5.00%, 5/15/46	2,050	2,249,322
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Sacramento Area Flood Control Agency, Refunding RB, Consolidated Capital Assessment District No.2, 5.00%, 10/01/43	2,565	2,907,376
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5,156,698

### Connecticut 1.1%

Connecticut State Health & Educational Facility Authority, Refunding RB, Trinity Health Credit Group, 5.00%, 12/01/45	1,216	1,329,156
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### District of Columbia 0.7%

District of Columbia Water & Sewer Authority, Refunding RB, Senior Lien, Series A, 6.00%, 10/01/18 (a)(d)	759	821,405
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### Florida 2.2%

County of Hillsborough Florida Aviation Authority, ARB, Tampa International Airport, Series A, AMT (AGC), 5.50%, 10/01/38	2,499	2,637,540
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### Nevada 7.4%

County of Clark Nevada Water Reclamation District, GO (a): Limited Tax, 6.00%, 7/01/18	2,010	2,150,700
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Series B, 5.50%, 7/01/19	1,994	2,198,013
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Las Vegas Valley Water District, GO, Refunding, Series C, 5.00%, 6/01/28	4,200	4,700,388
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9,049,101

### New Jersey 2.2%

New Jersey Housing & Mortgage Finance Agency, RB, S/F Housing, Series CC, 5.25%, 10/01/29	1,610	1,666,779
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New Jersey Transportation Trust Fund Authority, RB, Transportation System, Series B, 5.25%, 6/15/36 (d)	1,000	1,016,153
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2,682,932

### New York 15.1%

City of New York New York Municipal Water Finance Authority, Refunding RB, Water & Sewer System, 2nd General Resolution:

Series BB, 5.25%, 6/15/44	2,999	3,391,540
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Series FF-2, 5.50%, 6/15/40	1,095	1,195,828
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See Notes to Financial Statements.

## Schedule of Investments (continued)

## BlackRock MuniYield Investment Quality Fund (MFT)

	Par	
	(000)	Value
<b>Municipal Bonds Transferred to Tender Option Bond Trusts (c)</b>		
<b>New York (continued)</b>		
City of New York New York Transitional Finance Authority, BARB, Fiscal 2009, Series S-3, 5.25%, 1/15/39	\$ 1,000	\$ 1,067,827
Hudson Yards Infrastructure Corp., RB, Fiscal 2012, Series A, 5.75%, 2/15/47 (d)	1,000	1,131,767
Metropolitan Transportation Authority, Refunding RB, Series C-1, 5.25%, 11/15/56	2,360	2,672,016
New York Liberty Development Corp., RB, 1 World Trade Center Port Authority Consolidated Bonds, 5.25%, 12/15/43	3,000	3,349,916
New York Liberty Development Corp., Refunding RB, 4 World Trade Center Project, 5.75%, 11/15/51 (d)	1,770	2,014,595
New York State Dormitory Authority, ERB, Personal Income Tax, Series B, 5.25%, 3/15/38	3,250	3,497,488
		18,320,977
<b>Pennsylvania 1.5%</b>		
Pennsylvania Turnpike Commission, RB, Sub Series A, 13.56%, 12/01/42	1,664	1,897,148
<b>Texas 2.3%</b>		
City of San Antonio Texas Public Service Board, Refunding RB, Series A, 5.25%, 2/01/19 (a)(d)	2,609	2,816,240
	<b>Par</b>	
<b>Municipal Bonds Transferred to Tender Option Bond Trusts (c)</b>	<b>(000)</b>	<b>Value</b>
<b>Utah 0.9%</b>		
City of Riverton Utah, RB, IHC Health Services, Inc., 5.00%, 8/15/41	\$ 1,005	\$ 1,065,376
<b>Total Municipal Bonds Transferred to Tender Option Bond Trusts 38.4%</b>		46,716,693
<b>Total Long-Term Investments</b>		
<b>(Cost \$188,980,309) 166.7%</b>		202,743,902
<b>Short-Term Securities</b>	<b>Shares</b>	
BlackRock Liquidity Funds, MuniCash, Institutional Class, 0.50% (e)(f)	1,295,564	1,295,693
<b>Total Short-Term Securities</b>		1,295,693
<b>(Cost \$1,295,693) 1.0%</b>		204,039,595
<b>Total Investments (Cost \$190,276,002) 167.7%</b>		(41,182)
<b>Liabilities in Excess of Other Assets (0.0)%</b>		(25,859,871)
<b>Liability for TOB Trust Certificates, Including Interest Expense and Fees Payable (21.3)%</b>		(56,500,000)
<b>VMTP Shares at Liquidation Value (46.4)%</b>		
<b>Net Assets Applicable to Common Shares 100.0%</b>		\$ 121,638,542

## Notes to Schedule of Investments

(a) U.S. Government securities, held in escrow, are used to pay interest on this security, as well as to retire the bond in full at the date indicated, typically at a premium to par.

(b) When-issued security.

(c) Represent bonds transferred to a TOB Trust in exchange of cash and residual certificates received by the Fund. These bonds serve as collateral in a secured borrowing. See Note 4 of the Notes to Financial Statements for details.

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- (d) All or a portion of security is subject to a recourse agreement. The aggregate maximum potential amount the Fund could ultimately be required to pay under the agreements, which expire between February 1, 2017 to November 15, 2019, is 4,627,650. See Note 4 of the Notes to Financial Statements for details.
- (e) During the six months ended January 31, 2017, investments in issuers considered to be an affiliate of the Fund for purposes of Section 2(a)(3) of the Investment Company Act of 1940, as amended, were as follows:

Affiliate	Shares Held at July 31, 2016	Net Activity	Shares Held at January 31, 2017	Value at January 31, 2017	Income	Net Realized Gain <sup>1</sup>	Change in Unrealized Appreciation (Depreciation)
BlackRock Liquidity Funds, MuniCash, Institutional Class	204,010	1,091,554	1,295,564	\$ 1,295,693	\$ 1,385	\$ 1,844	

<sup>1</sup> Includes net capital gain distributions.

- (f) Current yield as of period end.

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.

### Derivative Financial Instruments Outstanding as of Period End

Futures Contracts					Unrealized
Contracts	Issue	Expiration	Notional Value		Depreciation
Short					
(21)	5-Year U.S. Treasury Note	March 2017	\$ 2,475,211	\$	(4,683)
(55)	10-Year U.S. Treasury Note	March 2017	\$ 6,845,781		(21,317)
(24)	Long U.S. Treasury Bond	March 2017	\$ 3,620,250		(6,169)
(5)	Ultra U.S. Treasury Bond	March 2017	\$ 803,438		(3,772)
<b>Total</b>				\$	<b>(35,941)</b>

See Notes to Financial Statements.

## Schedule of Investments (concluded)

## BlackRock MuniYield Investment Quality Fund (MFT)

## Derivative Financial Instruments Categorized by Risk Exposure

As of period end, the fair values of derivative financial instruments located in the Statements of Assets and Liabilities were as follows:

Liabilities	Derivative Financial Instruments	Commodity Contracts	Credit Contracts	Equity Contracts	Foreign Currency Exchange Contracts	Interest Rate Contracts	Other Contracts	Total
Futures contracts	Net unrealized depreciation <sup>1</sup>					\$ 35,941		\$ 35,941

<sup>1</sup> Includes cumulative appreciation (depreciation) on futures contracts, if any, as reported in the Schedule of Investments. Only current day's variation margin is reported within the Statements of Assets and Liabilities.

For the six months ended January 31, 2017, the effect of derivative financial instruments in the Statements of Operations was as follows:

	Commodity Contracts	Credit Contracts	Equity Contracts	Foreign Currency Exchange Contracts	Interest Rate Contracts	Other Contracts	Total
<b>Net Realized Gain (Loss) from:</b>							
Futures contracts					\$ 523,596		\$ 523,596
<b>Net Change in Unrealized Appreciation (Depreciation) on:</b>							
Futures contracts					\$ (15,095)		\$ (15,095)

## Average Quarterly Balances of Outstanding Derivative Financial Instruments

Futures contracts:

Average notional value of contracts short \$ 9,849,254

For more information about the Fund's investment risks regarding derivative financial instruments, refer to the Notes to Financial Statements.

## Fair Value Hierarchy as of Period End

Various inputs are used in determining the fair value of investments and derivative financial instruments. For information about the Fund's policy regarding valuation of investments and derivative financial instruments, refer to the Notes to Financial Statements.

The following tables summarize the Fund's investments and derivative financial instruments categorized in the disclosure hierarchy:

	Level 1	Level 2	Level 3	Total
<b>Assets:</b>				
Investments:				
Long-Term Investments <sup>1</sup>		\$ 202,743,902		\$ 202,743,902
Short-Term Securities	\$ 1,295,693			1,295,693
<b>Total</b>	\$ 1,295,693	\$ 202,743,902		\$ 204,039,595

Derivative Financial Instruments<sup>2</sup>

**Liabilities:**

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Interest rate contracts	\$ (35,941)	\$ (35,941)
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<sup>1</sup> See above Schedule of Investments for values in each state or political subdivision.

<sup>2</sup> Derivative financial instruments are futures contracts. Futures contracts are valued at the unrealized appreciation (depreciation) on the instrument.

The Fund may hold assets and/or liabilities in which the fair value approximates the carrying amount for financial statement purposes. As of period end, such assets and/or liabilities are categorized within the disclosure hierarchy as follows:

	Level 1	Level 2	Level 3	Total
<b>Liabilities:</b>				
TOB Trust Certificates		\$ (25,820,715)		\$ (25,820,715)
VMTP Shares at Liquidation Value		(56,500,000)		(56,500,000)
<b>Total</b>		\$ (82,320,715)		\$ (82,320,715)

During the six months ended January 31, 2017, there were no transfers between levels.

See Notes to Financial Statements.

SEMI-ANNUAL REPORT

JANUARY 31, 2017

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## Schedule of Investments January 31, 2017 (Unaudited)

## BlackRock MuniYield Michigan Quality Fund, Inc. (MIY)

(Percentages shown are based on Net Assets)

	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Michigan 137.2%</b>		
<b>Corporate 4.0%</b>		
County of Monroe Michigan EDC, Refunding RB, Detroit Edison Co. Project, Series AA (NPFGC), 6.95%, 9/01/22	\$ 14,500	\$ 18,033,505
<b>County/City/Special District/School District 22.6%</b>		
Anchor Bay School District, GO, Refunding, (Q-SBLF):		
4.38%, 5/01/27	1,600	1,720,144
4.50%, 5/01/29	1,505	1,600,778
Battle Creek School District Michigan, GO, Refunding, (Q-SBLF):		
5.00%, 5/01/35	1,100	1,220,186
5.00%, 5/01/36	1,500	1,660,155
5.00%, 5/01/37	1,170	1,292,019
Berkley School District, GO, School Building & Site (Q-SBLF), 5.00%, 5/01/35	2,965	3,290,112
Charter Township of Canton Michigan, GO, Capital Improvement (AGM) (a):		
5.00%, 4/01/17	3,250	3,272,978
5.00%, 4/01/17	1,000	1,007,070
Columbia Michigan School District, GO, Unlimited Tax, School Building & Site (Q-SBLF), 5.00%, 5/01/38	5,185	5,714,233
Comstock Park Michigan Public Schools, GO, School Building & Site, Series B (Q-SBLF):		
5.50%, 5/01/36	1,200	1,342,212
5.50%, 5/01/41	2,185	2,443,944
County of Genesee Michigan, GO, Refunding, Series A (NPFGC), 5.00%, 5/01/19	1,000	1,009,840
Dearborn Brownfield Redevelopment Authority, GO, Limited Tax, Redevelopment, Series A (AGC), 5.50%, 5/01/39	5,300	5,684,197
Dearborn School District, GO, School Building & Site, Series A (Q-SBLF):		
5.00%, 5/01/32	1,500	1,679,100
5.00%, 5/01/33	1,600	1,782,768
5.00%, 5/01/34	1,200	1,331,676
Dowagiac Union School District, GO, (Q-SBLF), 5.00%, 5/01/41	1,140	1,267,406
Farmington Public School District, GO, Refunding, School Building & Site (AGM):		
5.00%, 5/01/33	1,500	1,685,085
5.00%, 5/01/34	1,500	1,678,185
5.00%, 5/01/35	1,000	1,115,740
Flint EDC, RB, Michigan Department of Human Services Office Building Project, 5.25%, 10/01/41	4,950	5,284,571
Goodrich Area School District Michigan, GO, School Building & Site (Q-SBLF):		
5.50%, 5/01/32	1,000	1,118,510
5.50%, 5/01/36	2,000	2,237,020
5.50%, 5/01/41	2,575	2,880,163
Grandville Public Schools, GO, School Building & Site, Series II (AGM), 5.00%, 5/01/40	3,250	3,569,670
Hudsonville Michigan Public Schools, GO, School Building & Site (Q-SBLF), 5.25%, 5/01/41	6,750	7,491,015
Kentwood Public Schools, GO, School Building & Site:		
5.00%, 5/01/41	1,120	1,247,030
5.00%, 5/01/44	1,815	2,016,338
Livonia Public Schools School District Michigan, GO, Series I (AGM), 5.00%, 5/01/43	5,000	5,438,000
Mattawan Consolidated School District, GO, Series I (Q-SBLF), 5.00%, 5/01/39	3,375	3,722,153
	<b>Par</b>	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Michigan (continued)</b>		
<b>County/City/Special District/School District (continued)</b>		
Portage Public Schools, GO, Refunding School Building & Site:		
5.00%, 11/01/34	\$ 1,000	\$ 1,123,490
5.00%, 11/01/36	1,000	1,117,610
5.00%, 11/01/37	1,250	1,392,825
5.00%, 11/01/35	1,340	1,502,086
	2,250	2,501,460



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Romeo Community School District, GO, Refunding School Building & Site, Series 1 (Q-SBLF), 5.00%, 5/01/41

Thornapple Kellogg School District Michigan, GO, Refunding, School Building & Site (NPFGC) (Q-SBLF), 5.00%, 5/01/17 (a)	3,000	3,031,830
Township of Montrose Michigan Community Schools, GO, (NPFGC) (Q-SBLF), 6.20%, 5/01/17	210	212,209
Troy School District, GO, School Building & Site (Q-SBLF), 5.00%, 5/01/28	2,000	2,275,440
Walled Lake Consolidated School District, GO, School Building & Site (Q-SBLF):		
5.00%, 5/01/37	2,850	3,140,900
5.00%, 5/01/40	2,630	2,893,421
5.00%, 5/01/43	1,530	1,678,410
Zeeland Public Schools, GO, School Building & Site, Series A (AGM):		
5.00%, 5/01/33	1,000	1,106,630
5.00%, 5/01/34	1,000	1,102,110
5.00%, 5/01/35	1,000	1,098,360

100,979,079

### Education 25.3%

City of Grand Rapids Michigan, EDC, RB, Ferris State University Project, Series A, 5.50%, 10/01/35	760	835,111
Ferris State University, Refunding RB:		
5.00%, 10/01/41	2,250	2,493,495
General (AGM), 4.50%, 10/01/24	1,595	1,671,145
General (AGM), 4.50%, 10/01/25	1,405	1,472,075
Grand Valley State University, RB, (NPFGC), 5.50%, 2/01/18	390	396,139
Michigan Finance Authority, Refunding RB:		
College for Creative Studies, 4.00%, 12/01/33	1,720	1,664,564
College for Creative Studies, 5.00%, 12/01/36	1,550	1,618,231
College for Creative Studies, 5.00%, 12/01/40	2,900	3,013,709
College for Creative Studies, 5.00%, 12/01/45	4,400	4,559,324
Series 25 A, AMT, Student Loan Revenue, 4.00%, 11/01/28	8,750	8,874,600
Series 25 A, AMT, Student Loan Revenue, 4.00%, 11/01/29	5,900	5,957,112
Series 25 A, AMT, Student Loan Revenue, 4.00%, 11/01/30	2,850	2,862,227
Series 25 A, AMT, Student Loan Revenue, 4.00%, 11/01/31	3,150	3,154,662
Michigan State University, Refunding RB, General, Series C:		
5.00%, 2/15/40	8,470	9,146,922
5.00%, 2/15/44	1,000	1,079,920
Michigan Technological University, RB, General, Series A, 5.00%, 10/01/45	1,800	1,972,062
Oakland University, RB, General:		
5.00%, 3/01/32	400	441,416
5.00%, 3/01/47	2,500	2,758,625

See Notes to Financial Statements.

## Schedule of Investments (continued)

## BlackRock MuniYield Michigan Quality Fund, Inc. (MIY)

	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Michigan (continued)</b>		
<b>Education (continued)</b>		
Oakland University, RB, General (continued):		
Series A, 5.00%, 3/01/38	\$ 5,490	\$ 6,041,745
Series A, 5.00%, 3/01/43	16,845	18,489,072
University of Michigan, RB, Series A, 5.00%, 4/01/39	3,425	3,847,200
University of Michigan, Refunding RB, 5.00%, 4/01/46	10,000	11,377,200
Wayne State University, RB, General, Series A, 5.00%, 11/15/40	3,000	3,288,660
Western Michigan University, Refunding RB, General, University and College Improvements:		
5.25%, 11/15/40	3,500	3,910,165
5.25%, 11/15/43	8,475	9,434,200
(AGM), 5.25%, 11/15/33	1,000	1,127,410
(AGM), 5.00%, 11/15/39	1,750	1,919,505
		113,406,496
<b>Health 35.5%</b>		
Grand Traverse County Hospital Finance Authority, RB, Series A:		
5.00%, 7/01/44	4,230	4,535,491
5.00%, 7/01/47	2,200	2,355,958
Kalamazoo Hospital Finance Authority, RB (AGM), Bronson Methodist Hospital:		
5.25%, 5/15/20 (a)	4,140	4,649,179
5.25%, 5/15/36	3,360	3,594,931
Kent Hospital Finance Authority Michigan, Refunding RB, Spectrum Health, Series A, 5.00%, 11/15/29	7,500	8,247,675
Michigan Finance Authority, RB:		
Beaumont Health Credit Group, 4.00%, 11/01/46	2,070	2,020,589
Sparrow Obligated Group, 5.00%, 11/15/36	2,500	2,718,050
Sparrow Obligated Group, 5.00%, 11/15/45	3,750	4,045,050
Michigan Finance Authority, Refunding RB:		
Henry Ford Health System, 5.00%, 11/15/41	3,000	3,233,280
Henry Ford Health System, 3.25%, 11/15/42	1,145	935,431
Henry Ford Health System, 4.00%, 11/15/46	6,000	5,737,800
Hospital, McLaren Health Care, 5.00%, 5/15/32	1,000	1,110,100
Hospital, McLaren Health Care, 5.00%, 5/15/33	2,000	2,211,100
Hospital, McLaren Health Care, 5.00%, 5/15/34	5,000	5,501,300
Hospital, McLaren Health Care, 5.00%, 5/15/34	1,500	1,650,390
Hospital, McLaren Health Care, 5.00%, 5/15/35	4,945	5,422,242
MidMichigan Health, 5.00%, 6/01/39	1,500	1,620,165
Trinity Health Credit Group, 5.00%, 12/01/21 (a)	20	23,103
Trinity Health Credit Group, 5.00%, 12/01/31	5,000	5,640,900
Trinity Health Credit Group, 5.00%, 12/01/35	6,500	7,291,960
Trinity Health Credit Group, 5.00%, 12/01/39	4,980	5,577,052
Michigan State Hospital Finance Authority, RB, Ascension Health Senior Credit Group, 5.00%, 11/15/25	6,000	6,491,460
	<b>Par</b>	
<b>Municipal Bonds</b>	<b>(000)</b>	<b>Value</b>
<b>Michigan (continued)</b>		
<b>Health (continued)</b>		
Michigan State Hospital Finance Authority, Refunding RB:		
Henry Ford Health System, 5.75%, 11/15/19 (a)	\$ 3,165	\$ 3,540,907
Hospital, Oakwood Obligated Group, 5.00%, 11/01/32	4,000	4,318,480
Hospital, Oakwood Obligated Group, Series A, 5.00%, 7/15/17 (a)	1,000	1,019,010
Hospital, Oakwood Obligated Group, Series A, 5.00%, 7/15/17 (a)	5,730	5,838,927
Hospital, Oakwood Obligated Group, Series A, 5.00%, 7/15/17 (a)	3,970	4,045,470
Hospital, Sparrow Obligated Group, 5.00%, 11/15/17 (a)	3,330	3,437,126
Hospital, Sparrow Obligated Group, 5.00%, 11/15/31	1,365	1,392,955
McLaren Health Care, Series A, 5.75%, 5/15/18 (a)	6,000	6,357,060
McLaren Health Care, Series A, 5.00%, 6/01/35	2,250	2,423,002

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Trinity Health, 6.50%, 12/01/18 (a)	425	465,834
Trinity Health, 6.50%, 12/01/33	80	86,706
Trinity Health Credit Group, 6.50%, 12/01/18 (a)	1,895	2,077,072
Trinity Health Credit Group, Series A, 6.13%, 12/01/18 (a)	940	1,023,942
Trinity Health Credit Group, Series A, 6.25%, 12/01/18 (a)	1,500	1,637,340
Trinity Health Credit Group, Series C, 4.00%, 12/01/32	5,300	5,404,410
Royal Oak Hospital Finance Authority Michigan, Refunding RB, William Beaumont Hospital:		
Series D, 5.00%, 9/01/39	25,505	27,258,469
Series W, 6.00%, 8/01/19 (a)	1,500	1,670,820
Royal Oak Michigan Hospital Finance Authority, Refunding RB, William Beaumont Hospital, Series V, 8.25%, 9/01/18 (a)	2,000	2,222,460
		158,833,196
<b>Housing 6.6%</b>		
Michigan State HDA, RB:		
M/F Housing, Rental Housing Revenue, Series A, 4.45%, 10/01/34	1,000	1,035,390
M/F Housing, Rental Housing Revenue, Series A, 4.63%, 10/01/39	3,490	3,583,009
M/F Housing, Rental Housing Revenue, Series A, 4.75%, 10/01/44	5,000	5,131,350
M/F Housing, Series A, 4.30%, 10/01/40	3,320	3,347,921
S/F Housing, Series A, 4.75%, 12/01/25	6,840	7,198,553
Williams Pavilion, AMT (Ginnie Mae), 4.75%, 4/20/37	3,390	3,393,254
Michigan State HDA, Refunding RB, M/F Housing, Series A, 6.05%, 10/01/41	5,460	5,790,057
		29,479,534
<b>State 16.4%</b>		
Michigan Finance Authority, Refunding RB, Detroit Regional Convention Facility Authority Local Project Bonds, 5.00%, 10/01/39	5,400	5,853,384
Michigan State Finance Authority, RB, Local Government Loan Program, Series F, 5.00%, 4/01/31	1,000	1,074,720
Michigan Strategic Fund, RB, Michigan Senate Offices Project, Series A, 5.25%, 10/15/40	3,000	3,329,070

See Notes to Financial Statements.

## Schedule of Investments (continued)

## BlackRock MuniYield Michigan Quality Fund, Inc. (MIY)

	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Michigan (continued)</b>		
<b>State (continued)</b>		
Michigan Strategic Fund, Refunding RB, Cadillac Place Office Building Project, 5.25%, 10/15/31	\$ 7,000	\$ 7,842,380
State of Michigan, COP, (AMBAC), 0.00%, 6/01/22 (b)(c)	3,000	2,687,970
State of Michigan Building Authority, RB, Local Government Loan Program, Series F, 5.25%, 10/01/41	8,595	9,256,213
State of Michigan Building Authority, Refunding RB:		
Facilities Program, Series I, 6.25%, 10/15/18 (a)	3,780	4,103,757
Facilities Program, Series I, 6.25%, 10/15/18 (a)	2,260	2,453,569
Facilities Program, Series I, 6.25%, 10/15/38	210	226,292
Facilities Program, Series I (AGC), 5.25%, 10/15/24	6,000	6,549,240
Facilities Program, Series I (AGC), 5.25%, 10/15/25	3,500	3,816,505
Facilities Program, Series I (AGC), 5.25%, 10/15/26	1,000	1,089,330
Facilities Program, Series I-A, 5.50%, 10/15/45	2,000	2,233,540
Facilities Program, Series II (AGM), 5.00%, 10/15/26	7,500	8,118,600
Series I, 5.00%, 4/15/41	4,750	5,273,973
State of Michigan Trunk Line Fund, RB:		
5.00%, 11/15/33	3,000	3,356,730
5.00%, 11/15/36	5,345	5,954,918
		73,220,191
<b>Transportation 11.4%</b>		
State of Michigan, RB, Garvee, GAB (AGM), 5.25%, 9/15/17 (a)	8,500	8,732,900
Wayne County Airport Authority, RB:		
Detroit Metropolitan Wayne County Airport, AMT (NPFGC), 5.00%, 12/01/39	1,475	1,578,397
Series D, 5.00%, 12/01/35	3,850	4,214,903
Series D, 5.00%, 12/01/45	5,000	5,422,950
Wayne County Airport Authority, Refunding RB, AMT:		
(AGC), 5.75%, 12/01/25	4,000	4,284,200
(AGC), 5.75%, 12/01/26	4,060	4,348,463
(AGC), 5.38%, 12/01/32	13,000	13,694,590
Series F, 5.00%, 12/01/34	8,000	8,708,000
		50,984,403
<b>Utilities 15.4%</b>		
City of Detroit Michigan Sewage Disposal System, Refunding RB, Senior Lien, Series A, 5.25%, 7/01/39	2,655	2,861,984
City of Detroit Michigan Water Supply System, RB, Senior Lien, Series A, 5.25%, 7/01/41	4,325	4,606,601
City of Detroit Michigan Water Supply System Revenue, RB, Series A (NPFGC), 5.00%, 7/01/34	10	10,023
City of Grand Rapids Michigan Sanitary Sewer System, Refunding RB, Series A (NPFGC), 5.50%, 1/01/22	1,280	1,432,179
City of Holland Michigan Electric Utility System, RB, Series A, 5.00%, 7/01/39	10,000	11,138,800
City of Lansing Michigan, RB, Board of Water & Light Utilities System, Series A:		
5.00%, 7/01/27	3,180	3,567,038
5.00%, 7/01/31	6,830	7,535,197
	<b>Par</b>	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Michigan (continued)</b>		
<b>Utilities (continued)</b>		
City of Lansing Michigan, RB, Board of Water & Light Utilities System, Series A (continued):		
5.00%, 7/01/37	\$ 3,335	\$ 3,679,339
5.50%, 7/01/41	5,000	5,655,900
City of Port Huron Michigan, RB, Water Supply System:		
5.25%, 10/01/31	500	535,345
5.63%, 10/01/40	1,500	1,642,830

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Great Lakes Water Authority Water Supply System Revenue, RB, Second Lien, Series B, 5.00%, 7/01/46	10,000	10,721,100
Michigan Finance Authority, Refunding RB:		
Government Loan Program, 5.00%, 7/01/34	2,000	2,195,600
Government Loan Program, 5.00%, 7/01/35	750	820,508
Senior Lien, Detroit Water and Sewer, Series C-3 (AGM), 5.00%, 7/01/31	1,000	1,111,000
Senior Lien, Detroit Water and Sewer, Series C-3 (AGM), 5.00%, 7/01/32	5,250	5,810,910
Senior Lien, Detroit Water and Sewer, Series C-3 (AGM), 5.00%, 7/01/33	3,000	3,308,100
Michigan Municipal Bond Authority, RB, State Clean Water Revolving Fund, Pooled Project, 5.00%, 10/01/20 (a)	2,000	2,252,200
		68,884,654
<b>Total Municipal Bonds 137.2%</b>		613,821,058

### Municipal Bonds Transferred to Tender Option Bond Trusts (d)

<b>Michigan 24.8%</b>		
<b>County/City/Special District/School District 4.2%</b>		
Lakewood Public Schools Michigan, GO, School Building & Site (AGM) (Q-SBLF), 5.00%, 5/01/17 (a)	10,440	11,040,874
Portage Public Schools Michigan, GO, School Building & Site (AGM), 5.00%, 5/01/18 (a)	7,500	7,873,275
		18,914,149
<b>Education 12.0%</b>		
Michigan State University, Refunding RB, General, Series A, 5.00%, 8/15/38	10,000	11,274,300
Saginaw Valley State University, Refunding RB, General (AGM), 5.00%, 7/01/18 (a)	10,000	10,555,400
Wayne State University, RB, General, Series A, 5.00%, 11/15/40	10,000	10,962,200
Wayne State University, Refunding RB, General (AGM):		
5.00%, 11/15/18 (a)	8,880	9,364,746
5.00%, 11/15/35	11,120	11,727,024
		53,883,670
<b>Health 8.6%</b>		
Michigan Finance Authority, RB, Beaumont Health Credit Group, 5.00%, 11/01/44	10,002	10,810,510
Michigan Finance Authority, Refunding RB:		
Hospital, Trinity Health Credit Group, 5.00%, 12/01/39	190	212,779
Trinity Health Corp., Series 2016, 5.00%, 12/01/45	19,735	21,596,346

See Notes to Financial Statements.

# Schedule of Investments (continued)

BlackRock MuniYield Michigan Quality Fund, Inc. (MIY)

	Par	
	(000)	Value
<b>Municipal Bonds Transferred to Tender Option Bond Trusts (d)</b>		
Michigan (continued)		
Health (continued)		
Michigan State Building Authority, Refunding RB, Facilities Program, Series I, 5.00%, 10/15/45	\$ 5,150	\$ 5,664,279
		38,283,914
<b>Total Municipal Bonds Transferred to Tender Option Bond Trusts 24.8%</b>		111,081,733
<b>Total Long-Term Investments</b>		724,902,791
(Cost \$693,696,916) 162.0%		
<b>Short-Term Securities</b>	<b>Shares</b>	<b>Value</b>
BlackRock Liquidity Funds, MuniCash, Institutional Class, 0.50% (e)(f)	4,724,982	\$ 4,725,454
<b>Total Short-Term Securities</b>		4,725,454
(Cost \$4,725,361) 1.1%		
<b>Total Investments (Cost \$698,422,277) 163.1%</b>		729,628,245
<b>Other Assets Less Liabilities 1.6%</b>		7,094,870
<b>Liability for TOB Trust Certificates, Including Interest Expense and Fees Payable (12.9)%</b>		(57,166,919)
<b>Loan for TOB Trust Certificates</b>		(659,835)
<b>VRDP Shares at Liquidation Value, Net of Deferred Offering Costs (51.8)%</b>		(231,461,378)
<b>Net Assets Applicable to Common Shares 100.0%</b>		\$ 447,434,983

## Notes to Schedule of Investments

- (a) U.S. Government securities, held in escrow, are used to pay interest on this security, as well as to retire the bond in full at the date indicated, typically at a premium to par.
- (b) Security is collateralized by municipal bonds or U.S. Treasury obligations.
- (c) Zero-coupon bond.
- (d) Represent bonds transferred to a TOB Trust in exchange of cash and residual certificates received by the Fund. These bonds serve as collateral in a secured borrowing. See Note 4 of the Notes to Financial Statements for details.
- (e) During the six months ended January 31, 2017, investments in issuers considered to be an affiliate of the Fund for purposes of Section 2(a)(3) of the Investment Company Act of 1940, as amended, were as follows:

	Shares Held at July 31, 2016	Net Activity	Shares Held at January 31, 2017	Value at January 31, 2017	Income	Net Realized Gain <sup>1</sup>	Change in Unrealized Appreciation
<b>Affiliate</b>							
BlackRock Liquidity Funds, MuniCash, Institutional Class	4,096,066	628,916	4,724,982	\$ 4,725,454	\$ 9,319	\$ 330	\$ 93

<sup>1</sup> Includes net capital gain distributions.

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(f) Current yield as of period end.

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.

## Derivative Financial Instruments Outstanding as of Period End

### Futures Contracts

Contracts					Unrealized Appreciation (Depreciation)
Short	Issue	Expiration	Notional Value		
(67)	5-Year U.S. Treasury Note	March 2017	\$ 7,897,102	\$	(7,737)
(272)	10-Year U.S. Treasury Note	March 2017	\$ 33,855,500		(39,097)
(158)	Long U.S. Treasury Bond	March 2017	\$ 23,833,312		55,351
(24)	Ultra U.S. Treasury Bond	March 2017	\$ 3,856,500		396
<b>Total</b>				\$	8,913

See Notes to Financial Statements.

## Schedule of Investments (continued)

BlackRock MuniYield Michigan Quality Fund, Inc. (MIY)

## Derivative Financial Instruments Categorized by Risk Exposure

As of period end, the fair values of derivative financial instruments located in the Statements of Assets and Liabilities were as follows:

		Commodity	Credit	Equity	Foreign Currency Exchange	Interest Rate	Other	Total
Assets	Derivative Financial Instruments	Contracts	Contracts	Contracts	Contracts	Contracts	Contracts	
Futures contracts	Net unrealized appreciation <sup>1</sup>					\$ 55,747		\$ 55,747
Liabilities	Derivative Financial Instruments							
Futures contracts	Net unrealized depreciation <sup>1</sup>					\$ 46,834		\$ 46,834

<sup>1</sup> Includes cumulative appreciation (depreciation) on futures contracts, if any, as reported in the Schedule of Investments. Only current day's variation margin is reported within the Statements of Assets and Liabilities.

For the six months ended January 31, 2017, the effect of derivative financial instruments in the Statements of Operations was as follows:

	Commodity	Credit	Equity	Foreign Currency Exchange	Interest Rate	Other	Total
Net Realized Gain (Loss) from:	Contracts	Contracts	Contracts	Contracts	Contracts	Contracts	
Futures contracts					\$ 2,485,299		\$ 2,485,299
Net Change in Unrealized Appreciation (Depreciation) on:							
Futures contracts					\$ 255,703		\$ 255,703

## Average Quarterly Balances of Outstanding Derivative Financial Instruments

Futures contracts:

Average notional value of contracts	long	\$ 483,760 <sup>1</sup>
Average notional value of contracts	short	\$ 50,393,176

<sup>1</sup> Actual amounts for the period are shown due to limited outstanding derivative financial instruments as of each quarter.

For more information about the Fund's investment risks regarding derivative financial instruments, refer to the Notes to Financial Statements.

## Fair Value Hierarchy as of Period End

Various inputs are used in determining the fair value of investments and derivative financial instruments. For information about the Fund's policy regarding valuation of investments and derivative financial instruments, refer to the Notes to Financial Statements.

The following tables summarize the Fund's investments and derivative financial instruments categorized in the disclosure hierarchy:

	Level 1	Level 2	Level 3	Total
Assets:				
Investments:				
Long-Term Investments <sup>1</sup>		\$ 724,902,791		\$ 724,902,791
Short-Term Securities	\$ 4,725,454			4,725,454
<b>Total</b>	<b>\$ 4,725,454</b>	<b>\$ 724,902,791</b>		<b>\$ 729,628,245</b>



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## Derivative Financial Instruments<sup>2</sup>

### Assets:

Interest rate contracts	\$ 55,747	\$ 55,747
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### Liabilities:

Interest rate contracts	(46,834)	(46,834)
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<b>Total</b>	\$ 8,913	\$ 8,913
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<sup>1</sup> See above Schedule of Investments for values in each sector.

<sup>2</sup> Derivative financial instruments are futures contracts. Futures contracts are valued at the unrealized appreciation (depreciation) on the instrument.

See Notes to Financial Statements.

## Schedule of Investments (concluded)

BlackRock MuniYield Michigan Quality Fund, Inc. (MIY)

The Fund may hold assets and/or liabilities in which the fair value approximates the carrying amount for financial statement purposes. As of period end, such assets and/or liabilities are categorized within the disclosure hierarchy as follows:

	Level 1	Level 2	Level 3	Total
TOB Trust Certificates		\$ (57,062,222)		\$ (57,062,222)
Loan for TOB Trust Certificates		(659,835)		(659,835)
VRDP Shares at Liquidation Value		(231,900,000)		(231,900,000)
<b>Total</b>		\$ (289,622,057)		\$ (289,622,057)

During the six months ended January 31, 2017, there were no transfers between levels.

See Notes to Financial Statements.

## Schedule of Investments January 31, 2017 (Unaudited)

## BlackRock MuniYield Pennsylvania Quality Fund (MPA)

(Percentages shown are based on Net Assets)

	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Pennsylvania 117.8%</b>		
<b>Corporate 3.0%</b>		
County of Beaver Pennsylvania IDA, Refunding RB, First Energy Nuclear Energy Project, Series B, 3.50%, 12/01/35 (a)	\$ 3,745	\$ 1,546,797
Pennsylvania Economic Development Financing Authority, RB:		
American Water Co. Project, 6.20%, 4/01/39	1,510	1,646,655
Aqua Pennsylvania, Inc. Project, Series B, 4.50%, 12/01/42	2,630	2,712,030
Pennsylvania Economic Development Financing Authority, Refunding RB, AMT:		
Aqua Pennsylvania, Inc. Project, Series A, 5.00%, 12/01/34	180	191,392
National Gypsum Co., 5.50%, 11/01/44	135	142,386
		6,239,260
<b>County/City/Special District/School District 31.5%</b>		
Allentown Neighborhood Improvement Zone Development Authority, Refunding RB, Series A:		
5.00%, 5/01/35	190	197,900
5.00%, 5/01/42	450	466,133
Bethlehem Area School District, GO, (BAM), Series A:		
5.00%, 8/01/34	1,610	1,784,991
5.00%, 8/01/35	1,210	1,336,832
Borough of West Chester Pennsylvania, GO, Refunding, 3.50%, 11/15/35	1,095	1,061,154
Boyertown Area School District, GO:		
5.00%, 10/01/36	610	674,446
5.00%, 10/01/38	920	1,014,732
City of Philadelphia Pennsylvania, GO, Refunding, Series A:		
(AGM), 5.25%, 12/15/18 (b)	5,000	5,384,950
(AGC), 5.00%, 8/01/24	2,370	2,561,946
City of Pittsburgh Pennsylvania, GO, Series B, 5.00%, 9/01/26	1,095	1,237,821
County of Bucks Pennsylvania Water & Sewer Authority, RB, Series A (AGM):		
5.00%, 12/01/37	780	867,422
5.00%, 12/01/40	1,000	1,111,360
County of Dauphin General Authority, Refunding RB, Pinnacle Health System Project, 6.00%, 6/01/29	260	283,868
County of Lycoming Pennsylvania Water & Sewer Authority, RB, (AGM), 5.00%, 11/15/19 (b)	500	550,465
County of Montgomery Pennsylvania IDA, RB, Acts Retirement Life Communities, Inc., 5.00%, 11/15/36	1,955	2,084,206
County of Northampton Pennsylvania IDA, Route 33 Project, Tax Allocation Bonds, 7.00%, 7/01/32	180	202,568
County of York Pennsylvania, GO, Refunding, 5.00%, 3/01/36	500	548,275
East Stroudsburg Area School District, GO, Refunding, Series A (AGM), 5.00%, 9/01/25	3,000	3,066,030
Lower Merion School District, GO, Refunding, Series A, 3.25%, 11/15/27	2,035	2,092,041
Marple Newtown School District, GO, (AGM), 5.00%, 6/01/19 (b)	4,100	4,455,880
Northeastern School District York County, GO, Series B (NPFGC), 5.00%, 4/01/17 (b)	1,585	1,596,206
Owen J. Roberts School District, GO, 4.75%, 11/15/25	700	728,924
Philadelphia School District, GO, Series E (b):		
2015, 6.00%, 9/01/18	5	5,383
2015-2, 6.00%, 9/01/18	5	5,383
2016, 6.00%, 9/01/18	3,340	3,595,577
<b>Par</b>		
<b>Municipal Bonds</b>	<b>(000)</b>	<b>Value</b>
<b>Pennsylvania (continued)</b>		
<b>County/City/Special District/School District (continued)</b>		
Shaler Area School District Pennsylvania, GO, CAB (Syncora), 0.00%, 9/01/30 (c)	\$ 6,145	\$ 3,749,556
State Public School Building Authority, RB (AGM):		
Community College, Allegheny County Project, 5.00%, 7/15/34	2,190	2,407,029
Corry Area School District, CAB, 0.00%, 12/15/22 (c)	1,640	1,403,791
Corry Area School District, CAB, 0.00%, 12/15/23 (c)	1,980	1,626,194
Corry Area School District, CAB, 0.00%, 12/15/24 (c)	1,980	1,566,576

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Corry Area School District, CAB, 0.00%, 12/15/25 (c)	1,770	1,342,793
State Public School Building Authority, Refunding RB, Harrisburg School District Project, Series A (AGC) (b):		
5.00%, 5/15/19	215	233,355
5.00%, 5/15/19	215	233,251
5.00%, 5/15/19	855	927,581
Township of Bristol Pennsylvania School District, GO:		
5.00%, 6/01/40	775	830,025
(BAM), 5.00%, 6/01/42	1,685	1,863,981
5.25%, 6/01/43	6,925	7,640,837
Township of Falls Pennsylvania, Refunding RB, Water & Sewer Authority, 5.00%, 12/01/37	1,270	1,375,702
Township of Lower Paxton Pennsylvania, GO:		
5.00%, 4/01/42	435	483,007
5.00%, 4/01/46	1,435	1,589,506
Township of Upper Moreland Pennsylvania School District, GO, 5.00%, 10/01/34	130	144,717
		64,332,394
<b>Education 18.0%</b>		
County of Adams Pennsylvania IDA, Refunding RB, Gettysburg College:		
5.00%, 8/15/24	100	109,162
5.00%, 8/15/25	100	108,877
5.00%, 8/15/26	100	108,877
County of Cumberland Pennsylvania Municipal Authority, RB, AICUP Financing Program, Dickinson College Project, 5.00%, 11/01/39	200	212,324
County of Cumberland Pennsylvania Municipal Authority, Refunding RB, Diakon Lutheran:		
6.38%, 1/01/19 (b)	900	988,335
6.38%, 1/01/39	100	108,678
County of Delaware Pennsylvania Authority, RB, Villanova University:		
5.00%, 8/01/40	1,205	1,335,971
5.00%, 8/01/45	3,610	3,988,400
County of Delaware Pennsylvania Authority, Refunding RB:		
Haverford College, 5.00%, 11/15/35	415	451,238
Villanova University, 5.25%, 12/01/19 (b)	100	110,985
County of Northampton Pennsylvania General Purpose Authority, Refunding RB, Moravian College:		
5.00%, 10/01/36	610	657,964
3.88%, 10/01/45	1,330	1,240,837
Lancaster Higher Education Authority, RB, Harrisburg Area Community College Project, 3.00%, 4/01/36	1,090	961,108

See Notes to Financial Statements.

## Schedule of Investments (continued)

## BlackRock MuniYield Pennsylvania Quality Fund (MPA)

	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Pennsylvania (continued)</b>		
<b>Education (continued)</b>		
Pennsylvania Higher Educational Facilities Authority, RB:		
Drexel University, Series A (NPFGC), 5.00%, 11/01/17 (b)	\$ 1,650	\$ 1,700,457
Shippensburg University Student Services, Student Housing, 5.00%, 10/01/44	1,460	1,502,690
Thomas Jefferson University, 5.00%, 3/01/20 (b)	1,000	1,068,920
Pennsylvania Higher Educational Facilities Authority, Refunding RB:		
Drexel University, Series A, 5.25%, 5/01/41	3,930	4,356,405
La Salle University, 5.00%, 5/01/37	1,325	1,388,918
La Salle University, 5.00%, 5/01/42	1,855	1,941,573
State System of Higher Education, Series AL, 5.00%, 6/15/35	280	305,150
Thomas Jefferson University, 4.00%, 3/01/37	385	388,831
Thomas Jefferson University, 5.00%, 9/01/45	2,000	2,191,860
University of the Sciences Philadelphia, 5.00%, 11/01/30	940	1,048,683
University of the Sciences Philadelphia, 5.00%, 11/01/31	775	860,692
University Properties, Inc. Student Housing Project, Series A, 5.00%, 7/01/35	300	314,925
Widener University, Series A, 5.25%, 7/15/33	1,580	1,732,770
Widener University, Series A, 5.50%, 7/15/38	385	423,073
Pennsylvania State University, RB, 5.00%, 3/01/40	1,000	1,088,380
Philadelphia Authority for Industrial Development, Refunding RB, 1st Series, 5.00%, 4/01/45	2,170	2,386,436
Swarthmore Borough Authority, Refunding RB, Swarthmore College Project, 5.00%, 9/15/38	830	943,951
Township of East Hempfield Pennsylvania IDA, RB, Student Services, Inc., Student Housing Project at Millersville University of Pennsylvania:		
5.00%, 7/01/35	485	503,294
5.00%, 7/01/35	435	452,865
5.00%, 7/01/45	300	308,268
5.00%, 7/01/47	820	842,648
University of Pittsburgh, RB, Commonwealth System of Higher Education Capital Project, Series B, 5.00%, 3/15/19 (b)	610	658,873
		36,792,418
<b>Health 19.7%</b>		
City of Pottsville Pennsylvania Hospital Authority, Refunding RB, Lehigh Valley Health, Series B, 5.00%, 7/01/41	3,000	3,240,960
County of Allegheny Pennsylvania Hospital Development Authority, RB, University of Pittsburgh Medical Center Health, Series B (NPFGC), 6.00%, 7/01/26	2,000	2,522,740
County of Allegheny Pennsylvania Hospital Development Authority, Refunding RB, University of Pittsburgh Medical Center Health, Series A-1, 1.41%, 2/01/37 (a)	2,500	2,279,550
County of Berks Pennsylvania Municipal Authority, Refunding RB, Reading Hospital & Medical Center Project:		
Series A, 5.00%, 11/01/40	765	820,692
Series A3, 5.50%, 11/01/31	500	547,355
	<b>Par</b>	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Pennsylvania (continued)</b>		
<b>Health (continued)</b>		
County of Centre Pennsylvania Hospital Authority, RB, Mount Nittany Medical Center Project, 7.00%, 11/15/21 (b)	\$ 2,410	\$ 2,994,979
County of Cumberland Pennsylvania Municipal Authority, Refunding RB:		
Asbury Pennsylvania Obligated Group, 5.25%, 1/01/41	210	211,573
Diakon Lutheran Social Ministries, 5.00%, 1/01/38	2,600	2,736,968
County of Dauphin General Authority, Refunding RB, Pinnacle Health System Project, 6.00%, 6/01/19 (b)	240	266,218
County of Franklin Pennsylvania IDA, Refunding RB, Chambersburg Hospital Project, 5.38%, 7/01/42	415	449,437
County of Lancaster Pennsylvania Hospital Authority, Refunding RB:		
Masonic Villages of The Grand Lodge of Pennsylvania Project, 5.00%, 11/01/28	575	655,753
Masonic Villages of The Grand Lodge of Pennsylvania Project, 5.00%, 11/01/35	425	465,532
University of Pennsylvania Health System, 5.00%, 8/15/42	1,600	1,772,656

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County of Lehigh Pennsylvania, RB, Lehigh Valley Health Network, Series A (AGM), 5.00%, 7/01/18 (b)	7,995	8,430,887
County of Montgomery Pennsylvania Higher Education & Health Authority, Refunding RB, Abington Memorial Hospital Obligated Group, Series A, 5.13%, 6/01/19 (b)	490	514,407
County of Montgomery Pennsylvania IDA, RB, Acts Retirement-Life Communities, Series A-1, 6.25%, 11/15/19 (b)	235	266,598
County of Montgomery Pennsylvania IDA, Refunding RB:		
Acts Retirement-Life Communities, 5.00%, 11/15/27	865	943,187
Acts Retirement-Life Communities, 5.00%, 11/15/28	555	602,874
Whitemarsh Continuing Care Retirement Community, 5.25%, 1/01/40	220	205,810
County of Union Pennsylvania Hospital Authority, Refunding RB, Evangelical Community Hospital Project, 7.00%, 8/01/41	460	522,804
Geisinger Authority Pennsylvania, RB, Health System, Series A, 5.25%, 6/01/39	1,000	1,063,560
Lancaster IDA, Refunding RB, Garden Spot Village Project:		
5.38%, 5/01/28	520	562,448
5.75%, 5/01/35	865	935,497
Pennsylvania Higher Educational Facilities Authority, Refunding RB, University of Pittsburgh Medical Center, Series E, 5.00%, 5/15/31	1,000	1,076,130
Philadelphia Hospitals & Higher Education Facilities Authority, RB, The Children's Hospital of Philadelphia Project, Series C, 5.00%, 7/01/41	940	1,026,555
Philadelphia Hospitals & Higher Education Facilities Authority, Refunding RB, Presbyterian Medical Center, 6.65%, 12/01/19 (d)	1,310	1,430,468
South Fork Municipal Authority, Refunding RB, Conemaugh Valley Memorial Hospital, Series B (AGC), 5.38%, 7/01/20 (b)	2,055	2,322,171

See Notes to Financial Statements.

## Schedule of Investments (continued)

## BlackRock MuniYield Pennsylvania Quality Fund (MPA)

	Par	
	(000)	Value
<b>Municipal Bonds</b>		
<b>Pennsylvania (continued)</b>		
<b>Health (continued)</b>		
Southcentral Pennsylvania General Authority, Refunding RB, Wellspan Health Obligation Group, Series A:		
6.00%, 12/01/18 (b)	\$ 595	\$ 646,789
6.00%, 6/01/29	655	699,907
		40,214,505
<b>Housing 10.5%</b>		
Pennsylvania HFA, RB:		
Brinton Manor Apartments & Brinton Towers, M/F Housing, Series A, 4.25%, 10/01/35	400	407,540
Brinton Manor Apartments & Brinton Towers, M/F Housing, Series A, 4.50%, 10/01/40	400	408,912
S/F Housing Mortgage, Series 114-C, 3.65%, 10/01/37	2,305	2,275,242
S/F Housing Mortgage, Series 118-B, 4.05%, 10/01/40	1,000	1,005,490
S/F Housing Mortgage, Series 2015-117-B, 4.05%, 10/01/40	1,600	1,599,920
Pennsylvania HFA, Refunding RB, S/F Housing Mortgage:		
Series 096-A, AMT, 4.70%, 10/01/37	735	735,294
Series 097-A, AMT, 4.65%, 10/01/31	1,300	1,301,183
Series 099-A, AMT, 5.15%, 4/01/38	1,065	1,113,276
Series 115-A, AMT, 4.20%, 10/01/33	750	775,808
Series 119, 3.50%, 10/01/36	1,515	1,434,251
Series 121, 3.10%, 10/01/36	3,000	2,676,240
Philadelphia Housing Authority, RB, Capital Fund Program, M/F Housing, Series A (AGM), 5.50%, 12/01/18	3,000	3,026,280
Philadelphia IDA, RB, Series A:		
3.00%, 12/01/29	750	694,545
3.50%, 12/01/36	790	705,225
4.00%, 12/01/46	2,970	2,655,625
4.00%, 12/01/51	790	691,961
		21,506,792
<b>State 10.5%</b>		
Commonwealth of Pennsylvania, GO, 1st Series:		
5.00%, 4/01/26	1,385	1,579,371
5.00%, 6/01/28	4,460	4,997,965
5.00%, 3/15/33	1,775	1,960,434
Pennsylvania Economic Development Financing Authority, RB, Pennsylvania Bridge Finco LP, AMT, 5.00%, 6/30/42	7,500	7,914,675
Pennsylvania Turnpike Commission, RB, Oil Franchise Tax, Remarketing, Series C (NPFGC), 5.00%, 12/01/18 (b)	4,600	4,921,448
		21,373,893
<b>Transportation 17.8%</b>		
City of Philadelphia Pennsylvania, ARB, Series A:		
5.00%, 6/15/40	3,825	4,147,792
AMT (AGM), 5.00%, 6/15/37	5,900	5,971,213
Delaware River Port Authority, RB:		
5.00%, 1/01/29	475	535,510
5.00%, 1/01/37	2,285	2,505,640
Series D, 5.00%, 1/01/40	750	812,542
Series D (AGM), 5.00%, 1/01/40	1,560	1,692,397
Pennsylvania Economic Development Financing Authority, Refunding RB, Amtrak Project, Series A, AMT, 5.00%, 11/01/41	6,025	6,347,217
Pennsylvania Turnpike Commission, RB:		
CAB, Sub-Series A-3, 0.00%, 12/01/42 (c)	4,760	1,546,381
	<b>Par</b>	
<b>Municipal Bonds</b>	<b>(000)</b>	<b>Value</b>
<b>Pennsylvania (continued)</b>		

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## Transportation (continued)

Pennsylvania Turnpike Commission, RB (continued):		
CAB, Sub-Series A-3 (AGM), 0.00%, 12/01/40 (c)	\$ 1,275	\$ 490,340
Series A, 5.13%, 12/01/20 (b)	75	85,184
Series A, 5.13%, 12/01/26	25	27,564
Pennsylvania Turnpike Commission, Refunding RB:		
Sub-Series A-1, 5.25%, 12/01/45	3,270	3,651,380
Sub-Series B (AGM), 5.25%, 6/01/19 (b)	1,695	1,848,974
Sub-Series B (AGM), 5.25%, 6/01/39	1,805	1,933,552
Southeastern Pennsylvania Transportation Authority, RB, Capital Grant Receipts:		
5.00%, 6/01/28	1,860	2,057,197
5.00%, 6/01/29	2,465	2,723,135
		36,376,018

## Utilities 6.8%

City of Philadelphia Pennsylvania Gas Works, RB, 9th Series:		
5.25%, 8/01/20 (b)	660	745,246
5.25%, 8/01/40	1,040	1,137,687
City of Philadelphia Pennsylvania Gas Works, Refunding RB:		
5.00%, 8/01/30	800	888,712
5.00%, 8/01/31	600	663,354
5.00%, 8/01/32	800	880,776
5.00%, 8/01/33	400	438,852
5.00%, 8/01/34	700	764,785
City of Philadelphia Pennsylvania Water & Wastewater, RB:		
Series A, 5.25%, 1/01/19 (b)	800	862,312
Series C (AGM), 5.00%, 8/01/40	3,350	3,648,485
County of Allegheny Pennsylvania Sanitary Authority, RB, Sewer Improvement (BAM), 5.25%, 12/01/41	1,410	1,577,832
County of Bucks Pennsylvania Water & Sewer Authority, RB, Water System (AGM), 5.00%, 12/01/41	30	32,416
County of Delaware Pennsylvania Regional Water Quality Control Authority, RB, Sewer Improvements, 5.00%, 5/01/33	420	465,255
Pennsylvania Economic Development Financing Authority, RB, Philadelphia Biosolids Facility, 6.25%, 1/01/32	1,605	1,709,116
		13,814,828
<b>Total Municipal Bonds 117.8%</b>		<b>240,650,108</b>

## Municipal Bonds Transferred to Tender Option Bond Trusts (e)

### Pennsylvania 45.0%

#### Education 13.6%

Pennsylvania Higher Educational Facilities Authority, RB, University of Pennsylvania Health System, Series A:		
5.75%, 8/15/21 (b)	5,120	6,051,635
4.00%, 8/15/39	7,815	7,892,278
Pennsylvania Higher Educational Facilities Authority, Series AR, 4.00%, 6/15/38	11,335	11,374,638
University of Pittsburgh, RB, The Commonwealth System of Higher Education, Capital Project, Series B, 5.00%, 3/15/19 (b)	2,202	2,378,081
		27,696,632

See Notes to Financial Statements.



## Schedule of Investments (continued)

## BlackRock MuniYield Pennsylvania Quality Fund (MPA)

	Par	
	(000)	Value
<b>Municipal Bonds Transferred to Tender Option Bond Trusts (e)</b>		
<b>Health 13.5%</b>		
Geisinger Authority Pennsylvania, RB, Health System:		
Series A, 5.13%, 6/01/34	\$ 3,000	\$ 3,180,120
Series A, 5.25%, 6/01/39	3,128	3,327,118
Series A-1, 5.13%, 6/01/41	7,430	8,013,462
Pennsylvania Economic Development Financing Authority, RB, University of Pittsburgh Medical Center, Series B, 4.00%, 3/15/40	8,000	7,963,840
Philadelphia Hospitals & Higher Education Facilities Authority, RB, The Children's Hospital of Philadelphia Project, Series C, 5.00%, 7/01/41	4,680	5,110,935
		27,595,475
<b>Housing 3.0%</b>		
Pennsylvania HFA, Refunding RB, S/F Mortgage:		
Series 114A, 3.70%, 10/01/42	2,922	3,020,304
Series 115A, AMT, 4.20%, 10/01/33	3,000	3,103,230
		6,123,534
<b>State 12.1%</b>		
Commonwealth of Pennsylvania, GO, 1st Series, 5.00%, 3/15/19 (b)	6,028	6,504,537
General Authority of Southcentral Pennsylvania, Refunding RB, Wellspan Health Obligated Group, Series A, 5.00%, 6/01/44	7,000	7,626,360
Pennsylvania Turnpike Commission, RB, Oil Franchise Tax, Remarketing, Series C (NPFGC), 5.00%, 12/01/18 (b)	10,000	10,698,800
		24,829,697
<b>Municipal Bonds Transferred to Tender Option Bond Trusts (e)</b>		
<b>Transportation 0.9%</b>		
Pennsylvania Turnpike Commission, RB, Sub-Series A, 5.50%, 12/01/42	\$ 1,680	\$ 1,915,385
<b>Utilities 1.9%</b>		
County of Westmoreland Pennsylvania Municipal Authority, RB, Westmoreland County, Pennsylvania (BAM), 5.00%, 8/15/42	3,493	3,844,227
<b>Total Municipal Bonds Transferred to Tender Option Bond Trusts 45.0%</b>		92,004,950
<b>Total Long-Term Investments</b>		
(Cost \$320,801,423) 162.8%		332,655,058
<b>Short-Term Securities 1.2%</b>	<b>Shares</b>	
BlackRock Liquidity Funds, MuniCash, Institutional Class, 0.50% (f)(g)	2,391,354	2,391,593
<b>Total Short-Term Securities</b>		
(Cost \$2,391,360) 1.2%		2,391,593
<b>Total Investments (Cost \$323,192,783) 164.0%</b>		335,046,651
<b>Other Assets Less Liabilities 1.8%</b>		3,751,299
<b>Liability for TOB Trust Certificates, Including Interest</b>		
<b>Expense and Fees Payable (25.5)%</b>		(52,174,523)
<b>VRDP Shares at Liquidation Value, Net of Deferred Offering Costs (40.3)%</b>		(82,325,227)
<b>Net Assets Applicable to Common Shares 100.0%</b>		\$ 204,298,200

Notes to Schedule of Investments

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- (a) Variable rate security. Rate as of period end.
- (b) U.S. Government securities, held in escrow, are used to pay interest on this security, as well as to retire the bond in full at the date indicated, typically at a premium to par.
- (c) Zero-coupon bond.
- (d) Security is collateralized by municipal bonds or U.S. Treasury obligations.
- (e) Represent bonds transferred to a TOB Trust in exchange of cash and residual certificates received by the Fund. These bonds serve as collateral in a secured borrowing. See Note 4 of the Notes to Financial Statements for details.
- (f) During the six months ended January 31, 2017, investments in issuers considered to be an affiliate of the Fund for purposes of Section 2(a)(3) of the Investment Company Act of 1940, as amended, were as follows:

Affiliate	Shares Held at July 31, 2016	Net Activity	Shares Held at January 31, 2017	Value at January 31, 2017	Income	Net	
						Realized Gain <sup>1</sup>	Change in Unrealized Appreciation
BlackRock Liquidity Funds, MuniCash, Institutional Class	455,980	1,935,374	2,391,354	\$ 2,391,593	\$ 9,339	\$ 241	\$ 233

<sup>1</sup> Includes net capital gain distributions.

- (g) Current yield as of period end.

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.

### Derivative Financial Instruments Outstanding as of Period End

#### Futures Contracts

Contracts	Issue	Expiration	Notional Value	Unrealized Depreciation
Short				
(15)	5-Year U.S. Treasury Note	March 2017	\$ 1,768,008	\$ (4,744)
(90)	10-Year U.S. Treasury Note	March 2017	\$ 11,202,187	(37,376)
(65)	Long U.S. Treasury Bond	March 2017	\$ 9,804,844	(12,895)
(12)	Ultra U.S. Treasury Bond	March 2017	\$ 1,928,250	(8,371)
<b>Total</b>				\$ (63,386)

See Notes to Financial Statements.

## Schedule of Investments (concluded)

## BlackRock MuniYield Pennsylvania Quality Fund (MPA)

## Derivative Financial Instruments Categorized by Risk Exposure

As of period end, the fair values of derivative financial instruments located in the Statements of Assets and Liabilities were as follows:

Liabilities	Derivative Financial Instruments	Commodity Contracts	Credit Contracts	Equity Contracts	Foreign Currency Exchange Contracts	Interest Rate Contracts	Other Contracts	Total
Futures contracts	Net unrealized depreciation <sup>1</sup>					\$ 63,386		\$ 63,386

<sup>1</sup> Includes cumulative appreciation (depreciation) on futures contracts, if any, as reported in the Schedules of Investments. Only current day's variation margin is reported within the Statements of Assets and Liabilities.

For the six months ended January 31, 2017, the effect of derivative financial instruments in the Statements of Operations was as follows:

Net Realized Gain (Loss) from:	Commodity Contracts	Credit Contracts	Equity Contracts	Foreign Currency Exchange Contracts	Interest Rate Contracts	Other Contracts	Total
Futures contracts					\$ 1,072,338		\$ 1,072,338
Net Change in Unrealized Appreciation (Depreciation) on:							
Futures contracts					\$ (33,510)		\$ (33,510)

## Average Quarterly Balances of Outstanding Derivative Financial Instruments

Futures contracts:

Average notional value of contracts	long	\$ 241,880 <sup>1</sup>
Average notional value of contracts	short	\$ 18,098,613

<sup>1</sup> Actual amounts for the period are shown due to limited outstanding derivative financial instruments as of each quarter.

For more information about the Fund's investment risks regarding derivative financial instruments, refer to the Notes to Financial Statements.

## Fair Value Hierarchy as of Period End

Various inputs are used in determining the fair value of investments and derivative financial instruments. For information about the Fund's policy regarding valuation of investments and derivative financial instruments, refer to the Notes to Financial Statements.

The following tables summarize the Fund's investments and derivative financial instruments categorized in the disclosure hierarchy:

	Level 1	Level 2	Level 3	Total
<b>Assets:</b>				
Investments:				
Long-Term Investments <sup>1</sup>		\$ 332,655,058		\$ 332,655,058
Short-Term Securities	\$ 2,391,593			2,391,593
<b>Total</b>	<b>\$ 2,391,593</b>	<b>\$ 332,655,058</b>		<b>\$ 335,046,651</b>

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## Derivative Financial Instruments<sup>2</sup>

### Liabilities:

Interest rate contracts	\$ (63,386)	\$ (63,386)
-------------------------	-------------	-------------

<sup>1</sup> See above Schedule of Investments for values in each sector.

<sup>2</sup> Derivative financial instruments are futures contracts. Futures contracts are valued at the unrealized appreciation (depreciation) on the instrument.

The Fund may hold assets and/or liabilities in which the fair value approximates the carrying amount for financial statement purposes. As of period end, such assets and/or liabilities are categorized within the disclosure hierarchy as follows:

	Level 1	Level 2	Level 3	Total
<b>Liabilities:</b>				
TOB Trust Certificates		\$ (52,082,674)		\$ (52,082,674)
VRDP Shares at Liquidation Value		(82,600,000)		(82,600,000)
<b>Total</b>		\$ (134,682,674)		\$ (134,682,674)

During the six months ended January 31, 2017, there were no transfers between levels.

See Notes to Financial Statements.

## Statements of Assets and Liabilities

	BlackRock MuniHoldings California Quality Fund, Inc. (MUC)	BlackRock MuniHoldings New Jersey Quality Fund, Inc. (MUJ)	BlackRock MuniYield Investment Quality Fund (MFT)	BlackRock MuniYield Michigan Quality Fund, Inc. (MIY)	BlackRock MuniYield Pennsylvania Quality Fund (MPA)
<b>January 31, 2017 (Unaudited)</b>					
<b>Assets</b>					
Investments at value unaffiliated	\$ 1,041,947,181	\$ 742,144,805	\$ 202,743,902	\$ 724,902,791	\$ 332,655,058
Investments at value affiliated		1,642,526	1,295,693	4,725,454	2,391,593
Cash pledged for futures contracts	1,333,500	1,248,000	231,550	1,281,950	496,800
Receivables:					
Interest unaffiliated	15,156,466	5,606,028	2,143,477	8,281,394	3,400,289
TOB Trust	6,661,004		1,105,000		1,125,000
Investments sold	4,212,687	515,283	13,664	375,000	149
Dividends affiliated	2,362	1,128	307	527	1,449
Prepaid expenses	23,103	17,528	6,666	17,041	9,397
Total assets	1,069,336,303	751,175,298	207,540,259	739,584,157	340,079,735
<b>Liabilities</b>					
Bank overdraft	5,820,967	283,202	77,924	289,526	94,069
Payables:					
Income dividends Common Shares	2,521,653	2,035,386	601,664	1,893,009	831,852
Investment advisory fees	450,173	318,498	86,173	307,353	139,877
Interest expense and fees	430,011	81,851	39,156	104,697	91,849
Officers and Directors fees	300,814	1,193	725	1,397	8,595
Other accrued expenses	235,606	216,152	101,605	197,274	134,415
Variation margin on futures contracts	196,375	186,203	34,680	172,483	72,977
Investments purchased			2,639,075		
Total accrued liabilities	9,955,599	3,122,485	3,581,002	2,965,739	1,373,634
<b>Other Liabilities</b>					
TOB Trust Certificates	179,415,265	55,088,706	25,820,715	57,062,222	52,082,674
Loan for TOB Trust Certificates				659,835	
VRDP Shares at liquidation value of \$100,000 per share, net of deferred offering costs <sup>3,4</sup>		236,599,378		231,461,378	82,325,227
VMTP Shares at liquidation value of \$100,000 per share <sup>3,4</sup>	254,000,000		56,500,000		
Total other liabilities	433,415,265	291,688,084	82,320,715	289,183,435	134,407,901
Total liabilities	443,370,864	294,810,569	85,901,717	292,149,174	135,781,535
<b>Net Assets Applicable to Common Shareholders</b>	<b>\$ 625,965,439</b>	<b>\$ 456,364,729</b>	<b>\$ 121,638,542</b>	<b>\$ 447,434,983</b>	<b>\$ 204,298,200</b>
<b>Net Assets Applicable to Common Shareholders Consist of</b>					
Paid-in capital <sup>5,6</sup>	\$ 585,933,933	\$ 424,127,549	\$ 118,008,160	\$ 421,036,239	\$ 197,272,827
Undistributed net investment income	4,108,265	4,262,978	1,415,550	1,478,550	695,952
Accumulated net realized loss	(6,632,473)	(5,978,638)	(11,512,820)	(6,294,687)	(5,461,061)
Net unrealized appreciation (depreciation)	42,555,714	33,952,840	13,727,652	31,214,881	11,790,482
<b>Net Assets Applicable to Common Shareholders</b>	<b>\$ 625,965,439</b>	<b>\$ 456,364,729</b>	<b>\$ 121,638,542</b>	<b>\$ 447,434,983</b>	<b>\$ 204,298,200</b>
Net asset value per Common Share	\$ 15.27	\$ 15.13	\$ 14.35	\$ 15.13	\$ 15.30
<sup>1</sup> Investments at cost unaffiliated	\$ 999,209,169	\$ 708,033,208	\$ 188,980,309	\$ 693,696,916	\$ 320,801,423

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<sup>2</sup> Investments at cost - affiliated		\$ 1,642,463	\$ 1,295,693	\$ 4,725,361	\$ 2,391,360
<sup>3</sup> Preferred Shares Outstanding:					
Par value \$0.05 per share			565		826
Par value \$0.10 per share	2,540	2,371		2,319	
<sup>4</sup> Preferred Shares authorized	18,140	9,847	1,000,000	8,046	1,000,000
<sup>5</sup> Common Shares outstanding, par value \$0.10 per share	41,002,483	30,153,865	8,474,134	29,578,269	13,352,365
<sup>6</sup> Common Shares authorized	199,981,860	199,990,153	unlimited	199,991,954	unlimited

See Notes to Financial Statements.

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## Statements of Operations

	BlackRock MuniHoldings California Quality Fund, Inc. (MUC)	BlackRock MuniHoldings New Jersey Quality Fund, Inc. (MUJ)	BlackRock MuniYield Investment Quality Fund (MFT)	BlackRock MuniYield Michigan Quality Fund, Inc. (MIY)	BlackRock MuniYield Pennsylvania Quality Fund (MPA)
<b>Six Months Ended January 31, 2017 (Unaudited)</b>					
<b>Investment Income</b>					
Interest unaffiliated	\$ 20,411,985	\$ 16,178,719	\$ 4,611,524	\$ 15,399,661	\$ 7,058,196
Dividends affiliated	17,111	12,499	1,385	9,319	9,339
Total investment income	20,429,096	16,191,218	4,612,909	15,408,980	7,067,535
<b>Expenses</b>					
Investment advisory	2,991,622	1,940,491	521,770	1,851,190	855,195
Professional	64,574	55,417	29,563	49,657	38,459
Accounting services	57,997	49,650	16,384	47,468	24,130
Officer and Directors	47,446	21,187	5,703	20,595	10,118
Custodian	22,103	17,707	6,829	18,021	9,910
Transfer agent	19,708	17,681	10,476	18,368	14,322
Registration	8,691	6,411	5,188	6,287	5,157
Printing	7,723	6,464	4,452	9,410	4,965
Liquidity fees		12,173			
Remarketing fees on Preferred Shares		11,953			
Rating agency	19,366	19,352	19,194	19,347	19,216
Miscellaneous	31,392	32,262	22,190	33,075	27,362
Total expenses excluding interest expense, fees and amortization of offering costs	3,270,622	2,190,748	641,749	2,073,418	1,008,834
Interest expense, fees and amortization of offering costs <sup>1</sup>	3,156,697	2,205,088	630,816	2,185,428	975,137
Total expenses	6,427,319	4,395,836	1,272,565	4,258,846	1,983,971
Less fees waived by the Manager	(228,624)	(2,573)	(257)	(1,750)	(1,685)
Total expenses after fees waived	6,198,695	4,393,263	1,272,308	4,257,096	1,982,286
Net investment income	14,230,401	11,797,955	3,340,601	11,151,884	5,085,249
<b>Realized and Unrealized Gain (Loss)</b>					
Net realized gain (loss) from:					
Investments unaffiliated	(1,009,084)	302,942	(247,548)	152,510	33,434
Investments affiliated	532	705	160	(11)	161
Capital gain distributions from investment companies affiliated	6	4,519	1,684	341	80
Futures contracts	2,750,878	2,261,009	523,596	2,485,299	1,072,338
	1,742,332	2,569,175	277,892	2,638,139	1,106,013
Net change in unrealized appreciation (depreciation) on:					
Investments unaffiliated	(51,946,935)	(45,056,907)	(10,109,008)	(39,180,510)	(20,606,656)
Investments affiliated		63		93	233
Futures contracts	(58,172)	261,656	(15,095)	255,703	(33,510)
	(52,005,107)	(44,795,188)	(10,124,103)	(38,924,714)	(20,639,933)
Net realized and unrealized loss	(50,262,775)	(42,226,013)	(9,846,211)	(36,286,575)	(19,533,920)
	\$ (36,032,374)	\$ (30,428,058)	\$ (6,505,610)	\$ (25,134,691)	\$ (14,448,671)

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### **Net Decrease in Net Assets Applicable to Common Shareholders Resulting from Operations**

<sup>1</sup> Related to TOB Trusts, VMTP Shares and/or VRDP Shares.

See Notes to Financial Statements.

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## Statements of Changes in Net Assets

	BR MuniHoldings California Quality Fund, Inc. (MUC)		BlackRock MuniHoldings New Jersey Quality Fund, Inc. (MUJ)	
	Six Months Ended January 31, 2017 (Unaudited)	Year Ended July 31, 2016	Six Months Ended January 31, 2017 (Unaudited)	Year Ended July 31, 2016
<b>Increase (Decrease) in Net Assets Applicable to Common Shareholders:</b>				
<b>Operations</b>				
Net investment income	\$ 14,230,401	\$ 31,611,962	\$ 11,797,955	\$ 25,372,694
Net realized gain (loss)	1,742,332	1,171,517	2,569,175	(584,863)
Net change in unrealized appreciation (depreciation)	(52,005,107)	30,181,072	(44,795,188)	29,655,061
Net increase (decrease) in net assets applicable to Common Shareholders resulting from operations	(36,032,374)	62,964,551	(30,428,058)	54,442,892
<b>Distributions to Common Shareholders<sup>1</sup></b>				
From net investment income	(15,129,916)	(32,734,127)	(12,265,507)	(26,330,988)
<b>Net Assets Applicable to Common Shareholders</b>				
Total increase (decrease) in net assets applicable to Common Shareholders	(51,162,290)	30,230,424	(42,693,565)	28,111,904
Beginning of period	677,127,729	646,897,305	499,058,294	470,946,390
End of period	\$ 625,965,439	\$ 677,127,729	\$ 456,364,729	\$ 499,058,294
Undistributed net investment income, end of period	\$ 4,108,265	\$ 5,007,780	\$ 4,262,978	\$ 4,730,530

<sup>1</sup> Distributions for annual periods determined in accordance with federal income tax regulations.

See Notes to Financial Statements.

# Statements of Changes in Net Assets

	BlackRock MuniYield Investment Quality Fund (MFT)		BlackRock MuniYield Michigan Quality Fund, Inc. (MIY)	
	Six Months Ended January 31, 2017 (Unaudited)	Year Ended July 31, 2016	Six Months Ended January 31, 2017 (Unaudited)	Year Ended July 31, 2016
<b>Increase (Decrease) in Net Assets Applicable to Common Shareholders:</b>				
<b>Operations</b>				
Net investment income	\$ 3,340,601	\$ 7,023,158	\$ 11,151,884	\$ 22,416,196
Net realized gain (loss)	277,892	(38,686)	2,638,139	2,417,391
Net change in unrealized appreciation (depreciation)	(10,124,103)	5,278,415	(38,924,714)	25,732,406
Net increase (decrease) in net assets applicable to Common Shareholders resulting from operations	(6,505,610)	12,262,887	(25,134,691)	50,565,993
<b>Distributions to Common Shareholders<sup>1</sup></b>				
From net investment income	(3,609,988)	(7,219,153)	(11,398,784)	(22,410,047)
<b>Capital Share Transactions</b>				
Reinvestment of common distributions	14,770			
Net proceeds from the issuance of common shares due to reorganization				173,278,358
<b>Net Assets Applicable to Common Shareholders</b>				
Total increase (decrease) in net assets applicable to Common Shareholders	(10,100,828)	5,043,734	(36,533,475)	201,434,304
Beginning of period	131,739,370	126,695,636	483,968,458	282,534,154
End of period	\$ 121,638,542	\$ 131,739,370	\$ 447,434,983	\$ 483,968,458
Undistributed net investment income, end of period	\$ 1,415,550	\$ 1,684,937	\$ 1,478,550	\$ 1,725,450

	BlackRock MuniYield Pennsylvania Quality Fund (MPA)	
	Six Months Ended January 31, 2017 (Unaudited)	Year Ended July 31, 2016
<b>Increase (Decrease) in Net Assets Applicable to Common Shareholders:</b>		
<b>Operations</b>		
Net investment income	\$ 5,085,249	\$ 10,740,639
Net realized gain	1,106,013	60,829
Net change in unrealized appreciation (depreciation)	(20,639,933)	13,470,414
Net increase (decrease) in net assets applicable to Common Shareholders resulting from operations	(14,448,671)	24,271,882
<b>Distributions to Common Shareholders<sup>1</sup></b>		
From net investment income	(4,991,114)	(11,082,463)
<b>Net Assets Applicable to Common Shareholders</b>		
Total increase (decrease) in net assets applicable to Common Shareholders	(19,439,785)	13,189,419
Beginning of period	223,737,985	210,548,566
End of period	\$ 204,298,200	\$ 223,737,985

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Undistributed net investment income, end of period	\$	695,952	\$	601,817
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<sup>1</sup> Distributions for annual periods determined in accordance with federal income tax regulations.

See Notes to Financial Statements.

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## Statements of Cash Flows

	BlackRock MuniHoldings California Quality Fund, Inc. (MUC)	BlackRock MuniHoldings New Jersey Quality Fund, Inc. (MUJ)	BlackRock MuniYield Investment Quality Fund (MFT)	BlackRock MuniYield Michigan Quality Fund, Inc. (MIY)	BlackRock MuniYield Pennsylvania Quality Fund (MPA)
<b>Six Months Ended January 31, 2017 (Unaudited)</b>					
<b>Cash Provided by (Used for) Operating Activities</b>					
Net decrease in net assets resulting from operations	\$ (36,032,374)	\$ (30,428,058)	\$ (6,505,610)	\$ (25,134,691)	\$ (14,448,671)
Adjustments to reconcile net decrease in net assets resulting from operations to net cash provided by (used for) operating activities:					
Proceeds from sales of long-term investments	53,702,872	24,839,037	45,139,057	45,217,131	25,714,067
Purchases of long-term investments	(66,414,812)	(40,537,551)	(47,524,164)	(54,631,284)	(27,355,022)
Net proceeds from sales (purchases) of short-term securities		13,928,749	(1,091,554)	(628,916)	(1,935,374)
Amortization of premium and accretion of discount on investments and other fees	3,762,852	140,346	425,253	1,557,260	306,258
Net realized gain (loss) on investments	1,008,552	(303,647)	247,388	(152,499)	(33,595)
Net unrealized loss on investments	51,946,935	45,056,844	10,109,008	39,180,417	20,606,423
<b>(Increase) Decrease in Assets:</b>					
Cash pledged for futures contracts	(910,000)	(737,000)	(145,000)	(952,000)	(334,000)
Receivables:					
Interest unaffiliated	41,131	(94,663)	30,950	(90,670)	(20,447)
Dividends affiliated	797	3,083	99	535	163
Prepaid expenses	15,261	16,492	21,895	16,647	20,173
<b>Increase (Decrease) in Liabilities:</b>					
Payables:					
Investment advisory fees	(36,751)	(16,120)	(2,233)	(11,576)	(6,437)
Interest expense and fees	199,270	30,271	19,059	56,886	50,645
Officers and Directors fees	10,288	(5,035)	(1,274)	(4,614)	(1,578)
Variation margin on futures contracts	58,578	18,436	6,602	64,998	20,414
Other accrued expenses	46,700	59,759	24,815	120,793	19,748
Net cash provided by (used for) operating activities	7,399,299	11,970,943	754,291	4,608,417	2,602,767
<b>Cash Provided by (Used for) Financing Activities</b>					
Proceeds from TOB Trust Certificates	25,048,123		4,975,304	23,786,827	4,947,945
Repayments of TOB Trust Certificates	(21,992,591)		(2,212,873)	(17,951,663)	(2,700,053)
Proceeds from Loan for TOB Trust Certificates	5,405,131			17,951,663	
Repayments of Loan for TOB Trust Certificates	(5,405,131)			(17,291,828)	
Cash dividends paid to Common Shareholders	(15,129,916)	(12,265,507)	(3,595,150)	(11,398,784)	(4,991,115)
Increase in bank overdraft	4,675,085	283,202	77,924	289,526	94,069
Amortization of deferred offering costs		9,596		4,831	5,611
Net cash used for financing activities	(7,399,299)	(11,972,709)	(754,795)	(4,609,428)	(2,643,543)
<b>Cash</b>					
Net increase (decrease) in cash		(1,766)	(504)	(1,011)	(40,776)
Cash at beginning of period		1,766	504	1,011	40,776
Cash at end of period					
<b>Supplemental Disclosure of Cash Flow Information</b>					
Cash paid during the period for interest expense	\$ 2,957,427	\$ 2,174,817	\$ 611,757	\$ 2,128,542	\$ 924,492
<b>Non-Cash Financing Activities</b>					
Capital shares issued in reinvestment of distributions paid to Common Shareholders			14,770		

See Notes to Financial Statements.

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## Financial Highlights

BlackRock MuniHoldings California Quality Fund, Inc.  
(MUC)

	Six Months Ended January 31, 2017 (Unaudited)	2016	2015	2014	2013	2012
<b>Per Share Operating Performance</b>						
Net asset value, beginning of period	\$ 16.51	\$ 15.78	\$ 15.82	\$ 14.52	\$ 16.41	\$ 14.27
Net investment income <sup>1</sup>	0.35	0.77	0.78	0.82	0.86	0.95
Net realized and unrealized gain (loss)	(1.22)	0.76	(0.00) <sup>2</sup>	1.34	(1.82)	2.13
Distributions to AMPS Shareholders from net investment income						(0.01)
Net increase (decrease) from investment operations	(0.87)	1.53	0.78	2.16	(0.96)	3.07
Distributions to Common Shareholders from net investment income <sup>3</sup>	(0.37)	(0.80)	(0.82)	(0.86)	(0.93)	(0.93)
Net asset value, end of period	\$ 15.27	\$ 16.51	\$ 15.78	\$ 15.82	\$ 14.52	\$ 16.41
Market price, end of period	\$ 14.40	\$ 16.28	\$ 14.28	\$ 14.04	\$ 13.31	\$ 16.36
<b>Total Return Applicable to Common Shareholders<sup>4</sup></b>						
Based on net asset value	(5.20)% <sup>5</sup>	10.20%	5.52%	15.94%	(6.16)%	22.26%
Based on market price	(9.34)% <sup>5</sup>	20.08%	7.60%	12.25%	(13.71)%	32.27%
<b>Ratios to Average Net Assets Applicable to Common Shareholders</b>						
Total expenses	1.97% <sup>7</sup>	1.60%	1.47%	1.57%	1.64%	1.48% <sup>6</sup>
Total expenses after fees waived and/or paid indirectly	1.90% <sup>7</sup>	1.55%	1.45%	1.51%	1.56%	1.39% <sup>6</sup>
Total expenses after fees waived and/or paid indirectly and excluding interest expense, fees and amortization of offering costs <sup>8</sup>	0.93% <sup>7</sup>	0.93%	0.93%	0.93%	0.92%	1.01% <sup>6,9</sup>
Net investment income	4.35% <sup>7</sup>	4.79%	4.88%	5.44%	5.27%	6.14% <sup>6</sup>
Distributions to AMPS Shareholders						0.06%
Net investment income to Common Shareholders	4.35% <sup>7</sup>	4.79%	4.88%	5.44%	5.27%	6.08%
<b>Supplemental Data</b>						
Net assets applicable to Common Shareholders, end of period (000)	\$ 625,965	\$ 677,128	\$ 646,897	\$ 648,837	\$ 595,269	\$ 671,077
VMTP Shares outstanding at \$100,000 liquidation value, end of period (000)	\$ 254,000	\$ 254,000	\$ 254,000	\$ 254,000	\$ 254,000	\$ 254,000
Asset coverage per VMTP Shares at \$100,000 liquidation value, end of period	\$ 346,443	\$ 366,586	\$ 354,684	\$ 355,448	\$ 334,358	\$ 364,204
Borrowings outstanding, end of period (000)	\$ 179,415	\$ 169,699	\$ 161,571	\$ 88,271	\$ 172,316	\$ 185,775
Portfolio turnover rate	5%	21%	25%	25%	34%	46%

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- <sup>1</sup> Based on average Common Shares outstanding.
- <sup>2</sup> Amount is greater than \$(0.005) per share.
- <sup>3</sup> Distributions for annual periods determined in accordance with federal income tax regulations.
- <sup>4</sup> Total returns based on market price, which can be significantly greater or less than the net asset value, may result in substantially different returns. Where applicable, excludes the effects of any sales charges and assumes the reinvestment of distributions.
- <sup>5</sup> Aggregate total return.
- <sup>6</sup> Does not reflect the effect of distributions to AMPS Shareholders.
- <sup>7</sup> Annualized.
- <sup>8</sup> Interest expense, fees and amortization of offering costs related to TOBs and/or VMTP Shares. See Note 4 and Note 10 of the Notes to Financial Statements for details.
- <sup>9</sup> For the year ended July 31, 2012, the total expense ratio after fees waived and paid indirectly and excluding interest expense, fees, amortization of offering costs, liquidity and remarketing fees was 0.97%.

See Notes to Financial Statements.

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## Financial Highlights

BlackRock MuniHoldings New Jersey Quality Fund, Inc.  
(MUJ)

	Six Months Ended January 31, 2017 (Unaudited)	2016	2015	2014	2013	2012
<b>Per Share Operating Performance</b>						
Net asset value, beginning of period	\$ 16.55	\$ 15.62	\$ 15.74	\$ 14.51	\$ 16.54	\$ 14.73
Net investment income <sup>1</sup>	0.39	0.84	0.84	0.86	0.86	0.83
Net realized and unrealized gain (loss)	(1.40)	0.96	(0.07)	1.27	(2.00)	1.87
Net increase (decrease) from investment operations	(1.01)	1.80	0.77	2.13	(1.14)	2.70
Distributions to Common Shareholders: <sup>2</sup>						
From net investment income	(0.41)	(0.87)	(0.89)	(0.89)	(0.89)	(0.89)
From net realized gain				(0.01)		
Total distributions	(0.41)	(0.87)	(0.89)	(0.90)	(0.89)	(0.89)
Net asset value, end of period	\$ 15.13	\$ 16.55	\$ 15.62	\$ 15.74	\$ 14.51	\$ 16.54
Market price, end of period	\$ 14.20	\$ 16.12	\$ 13.55	\$ 14.11	\$ 13.30	\$ 16.05
<b>Total Return Applicable to Common Shareholders<sup>3</sup></b>						
Based on net asset value	(6.03)% <sup>4</sup>	12.39%	5.59%	15.79%	(7.19)%	18.96%
Based on market price	(9.46)% <sup>4</sup>	26.20%	2.18%	13.24%	(12.33)%	23.76%
<b>Ratios to Average Net Assets Applicable to Common Shareholders</b>						
Total expenses	1.83% <sup>5</sup>	1.52%	1.62% <sup>6</sup>	1.64%	1.61%	1.81%
Total expenses after fees waived and/or reimbursed and/or paid indirectly	1.82% <sup>5</sup>	1.52%	1.57% <sup>6</sup>	1.57%	1.58%	1.78%
Total expenses after fees waived and/or reimbursed and/or paid indirectly and excluding interest expense, fees and amortization of offering costs <sup>7</sup>	0.91% <sup>5,8</sup>	0.90% <sup>8</sup>	1.02% <sup>6,8</sup>	1.25% <sup>8</sup>	1.33% <sup>8</sup>	1.43% <sup>8</sup>
Net investment income to Common Shareholders	4.90% <sup>5</sup>	5.27%	5.27%	5.78%	5.28%	5.28%
<b>Supplemental Data</b>						
Net assets applicable to Common Shareholders, end of period (000)	\$ 456,365	\$ 499,058	\$ 470,946	\$ 335,425	\$ 309,165	\$ 351,837
VRDP Shares outstanding at \$100,000 liquidation value, end of period (000)	\$ 237,100	\$ 237,100	\$ 237,100	\$ 172,700	\$ 172,700	\$ 172,700
Asset coverage per VRDP Shares at \$100,000 liquidation value, end of period	\$ 292,478	\$ 310,484	\$ 298,628	\$ 294,224	\$ 279,019	\$ 303,727
Borrowings outstanding, end of period (000)	\$ 55,089	\$ 55,089	\$ 52,744	\$ 34,699	\$ 38,231	\$ 29,719
Portfolio turnover rate	3%	9%	10%	16%	10%	17%



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- <sup>1</sup> Based on average Common Shares outstanding.
- <sup>2</sup> Distributions for annual periods determined in accordance with federal income tax regulations.
- <sup>3</sup> Total returns based on market price, which can be significantly greater or less than the net asset value, may result in substantially different returns. Where applicable, excludes the effects of any sales charges and assumes the reinvestment of distributions.
- <sup>4</sup> Aggregate total return.
- <sup>5</sup> Annualized.
- <sup>6</sup> Includes reorganization costs associated with the Fund's reorganization. Without these costs, total expenses, total expenses after fees waived and/or reimbursed and/or paid indirectly and total expenses after fees waived and/or reimbursed and/or paid indirectly and excluding interest expense, fees and amortization of offering costs would have been 1.52%, 1.50% and 0.95%, respectively.
- <sup>7</sup> Interest expense, fees and amortization of offering costs related to TOB Trusts and/or VRDP Shares. See Note 4 and Note 10 of the Notes to Financial Statements for details.
- <sup>8</sup> For the six months ended January 31, 2017 and the years ended July 31, 2016, July 31, 2015, July 31, 2014, July 31, 2013 and July 31, 2012, the total expense ratio after fees waived and/or paid indirectly and excluding interest expense, fees, amortization of offering costs, liquidity and remarketing fees was 0.90%, 0.89%, 1.01%, 0.95%, 0.93% and 1.01%, respectively.

See Notes to Financial Statements.

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## Financial Highlights

## BlackRock MuniYield Investment Quality Fund (MFT)

	Six Months Ended January 31, 2017 (Unaudited)		2016	2015	Year Ended July 31,		
					2014	2013	2012
<b>Per Share Operating Performance</b>							
Net asset value, beginning of period	\$	15.55	\$ 14.95	\$ 14.83	\$ 13.61	\$ 15.73	\$ 13.40
Net investment income <sup>1</sup>		0.39	0.83	0.84	0.85	0.84	0.87
Net realized and unrealized gain (loss)		(1.16)	0.62	0.13	1.22	(2.11)	2.32
Distributions to AMPS Shareholders from net investment income							(0.01)
Net increase (decrease) from investment operations		(0.77)	1.45	0.97	2.07	(1.27)	3.18
Distributions to Common Shareholders from net investment income <sup>2</sup>		(0.43)	(0.85)	(0.85)	(0.85)	(0.85)	(0.85)
Net asset value, end of period	\$	14.35	\$ 15.55	\$ 14.95	\$ 14.83	\$ 13.61	\$ 15.73
Market price, end of period	\$	14.41	\$ 16.09	\$ 13.37	\$ 13.26	\$ 12.20	\$ 15.47
<b>Total Return Applicable to Common Shareholders<sup>3</sup></b>							
Based on net asset value		(4.97)% <sup>4</sup>	10.31%	7.25%	16.40%	(8.41)%	24.51%
Based on market price		(7.78)% <sup>4</sup>	27.63%	7.27%	16.10%	(16.52)%	32.43%
<b>Ratios to Average Net Assets Applicable to Common Shareholders</b>							
Total expenses		2.00% <sup>6</sup>	1.61%	1.56%	1.67%	1.72%	1.58% <sup>5</sup>
Total expenses after fees waived and/or paid indirectly		2.00% <sup>6</sup>	1.61%	1.56%	1.67%	1.72%	1.58% <sup>5</sup>
Total expenses after fees waived and/or paid indirectly and excluding interest expense, fees and amortization of offering costs <sup>7</sup>		1.00% <sup>6</sup>	0.96%	0.98%	1.00%	1.00%	1.08% <sup>5,8</sup>
Net investment income		5.25% <sup>6</sup>	5.45%	5.52%	6.04%	5.36%	5.94% <sup>5</sup>
Distributions to AMPS Shareholders							0.08%
Net investment income to Common Shareholders		5.25% <sup>6</sup>	5.45%	5.52%	6.04%	5.36%	5.86%
<b>Supplemental Data</b>							
Net assets applicable to Common Shareholders, end of period (000)	\$	121,639	\$ 131,739	\$ 126,696	\$ 125,647	\$ 115,287	\$ 133,160
VMTP Shares outstanding at \$100,000 liquidation value, end of period (000)	\$	56,500	\$ 56,500	\$ 56,500	\$ 56,500	\$ 56,500	\$ 56,500
Asset coverage per VMTP Shares at \$100,000 liquidation value, end of period	\$	315,289	\$ 333,167	\$ 324,240	\$ 322,384	\$ 304,049	\$ 335,681
Borrowings outstanding, end of period (000)	\$	25,821	\$ 21,953	\$ 19,488	\$ 20,284	\$ 28,192	\$ 34,106
Portfolio turnover rate		20%	21%	13%	32%	51%	43%

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- <sup>1</sup> Based on average Common Shares outstanding.
- <sup>2</sup> Distributions for annual periods determined in accordance with federal income tax regulations.
- <sup>3</sup> Total returns based on market price, which can be significantly greater or less than the net asset value, may result in substantially different returns. Where applicable, excludes the effects of any sales charges and assumes the reinvestment of distributions.
- <sup>4</sup> Aggregate total return.
- <sup>5</sup> Does not reflect the effect of distributions to AMPS Shareholders.
- <sup>6</sup> Annualized.
- <sup>7</sup> Interest expense, fees and amortization of offering costs related to TOBs and/or VMTP Shares. See Note 4 and Note 10 of the Notes to Financial Statements for details.
- <sup>8</sup> For the year ended July 31, 2012, the total expense ratio after fees waived and/or paid indirectly and excluding interest expense, fees, amortization of offering costs, liquidity and remarketing fees was 1.05%.

See Notes to Financial Statements.

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## Financial Highlights

BlackRock MuniYield Michigan Quality Fund, Inc.  
(MIY)

	Six Months Ended January 31, 2017 (Unaudited)	2016	2015	2014	2013	2012
<b>Per Share Operating Performance</b>						
Net asset value, beginning of period	\$ 16.36	\$ 15.48	\$ 15.24	\$ 14.16	\$ 16.18	\$ 14.63
Net investment income <sup>1</sup>	0.38	0.79	0.83	0.86	0.90	0.87
Net realized and unrealized gain (loss)	(1.22)	0.92	0.27	1.12	(2.00)	1.61
Net increase (decrease) from investment operations	(0.84)	1.71	1.10	1.98	(1.10)	2.48
Distributions to Common Shareholders from net investment income <sup>2</sup>	(0.39)	(0.83)	(0.86)	(0.90)	(0.92)	(0.93)
Net asset value, end of period	\$ 15.13	\$ 16.36	\$ 15.48	\$ 15.24	\$ 14.16	\$ 16.18
Market price, end of period	\$ 13.70	\$ 15.38	\$ 13.22	\$ 13.47	\$ 12.57	\$ 16.05
<b>Total Return Applicable to Common Shareholders<sup>3</sup></b>						
Based on net asset value	(4.98)% <sup>4</sup>	11.99%	8.08%	15.24%	(7.09)%	17.60%
Based on market price	(8.48)% <sup>4</sup>	23.28%	4.43%	14.74%	(16.86)%	27.46%
<b>Ratios to Average Net Assets Applicable to Common Shareholders</b>						
Total expenses	1.82% <sup>5</sup>	1.54% <sup>6</sup>	1.52% <sup>7</sup>	1.54%	1.50%	1.72%
Total expenses after fees waived and/or reimbursed and/or paid indirectly	1.82% <sup>5</sup>	1.54% <sup>6</sup>	1.48% <sup>7</sup>	1.54%	1.50%	1.72%
Total expenses after fees waived and/or reimbursed and/or paid indirectly and excluding interest expense, fees and amortization of offering costs <sup>8</sup>	0.89% <sup>5</sup>	0.93% <sup>6</sup>	0.93% <sup>7</sup>	0.93%	0.89%	1.38% <sup>9</sup>
Net investment income to Common Shareholders	4.77% <sup>5</sup>	5.02%	5.30%	5.94%	5.62%	5.65%
<b>Supplemental Data</b>						
Net assets applicable to Common Shareholders, end of period (000)	\$ 447,435	\$ 483,968	\$ 282,534	\$ 278,143	\$ 258,341	\$ 294,804
VRDP Shares outstanding at \$100,000 liquidation value, end of period (000)	\$ 231,900	\$ 231,900	\$ 144,600	\$ 144,600	\$ 144,600	\$ 144,600
Asset coverage per VRDP Shares at \$100,000 liquidation value, end of period	\$ 292,943	\$ 308,697	\$ 295,390	\$ 292,354	\$ 278,659	\$ 303,876
Borrowings outstanding, end of period (000)	\$ 57,722	\$ 51,227	\$ 23,487	\$ 23,487	\$ 34,876	\$ 29,568
Portfolio turnover rate	6%	19%	19%	16%	17%	19%

<sup>1</sup> Based on average Common Shares outstanding.

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- <sup>2</sup> Distributions for annual periods determined in accordance with federal income tax regulations.
- <sup>3</sup> Total returns based on market price, which can be significantly greater or less than the net asset value, may result in substantially different returns. Where applicable, excludes the effects of any sales charges and assumes the reinvestment of distributions.
- <sup>4</sup> Aggregate total return.
- <sup>5</sup> Annualized.
- <sup>6</sup> Includes reorganization costs associated with the Fund's reorganization. Without these costs total expenses, total expenses after fees waived and/or reimbursed and/or paid indirectly and total expenses after fees waived and/or reimbursed and/or paid indirectly and excluding interest expense, fees and amortization of offering costs would have been 1.49%, 1.49% and 0.88%, respectively.
- <sup>7</sup> Includes reorganization costs associated with the Fund's reorganization. Without these costs total expenses, total expenses after fees waived and/or reimbursed and/or paid indirectly and total expenses after fees waived and/or reimbursed and/or paid indirectly and excluding interest expense, fees and amortization of offering costs would have been 1.48%, 1.48% and 0.92%, respectively.
- <sup>8</sup> Interest expense, fees and amortization of offering costs related to TOBs and/or VRDP Shares. See Note 4 and Note 10 of the Notes to Financial Statements for details.
- <sup>9</sup> For the year ended July 31, 2012, the total expense ratio after fees waived and paid indirectly and excluding interest expense, fees, amortization of offering costs, liquidity and remarketing fees was 0.98%.

See Notes to Financial Statements.

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# Financial Highlights

## BlackRock MuniYield Pennsylvania Quality Fund (MPA)

	Six Months Ended January 31, 2017 (Unaudited)	2016	2015	2014	2013	2012
<b>Per Share Operating Performance</b>						
Net asset value, beginning of period	\$ 16.76	\$ 15.77	\$ 15.77	\$ 14.59	\$ 16.57	\$ 14.97
Net investment income <sup>1</sup>	0.38	0.80	0.81	0.87	0.90	0.85
Net realized and unrealized gain (loss)	(1.47)	1.02	0.07	1.20	(1.99)	1.66
Net increase (decrease) from investment operations	(1.09)	1.82	0.88	2.07	(1.09)	2.51
Distributions to Common Shareholders from net investment income <sup>2</sup>	(0.37)	(0.83)	(0.88)	(0.89)	(0.89)	(0.91)
Net asset value, end of period	\$ 15.30	\$ 16.76	\$ 15.77	\$ 15.77	\$ 14.59	\$ 16.57
Market price, end of period	\$ 14.45	\$ 16.07	\$ 13.50	\$ 13.89	\$ 13.07	\$ 15.98
<b>Total Return Applicable to Common Shareholders<sup>3</sup></b>						
Based on net asset value	(6.41)% <sup>4</sup>	12.38%	6.33%	15.39%	(6.78)%	17.34%
Based on market price	(7.82)% <sup>4</sup>	25.87%	3.34%	13.45%	(13.42)%	21.53%
<b>Ratios to Average Net Assets Applicable to Common Shareholders</b>						
Total expenses	1.85% <sup>5</sup>	1.46%	1.54% <sup>6</sup>	1.48%	1.53%	1.65%
Total expenses after fees waived and/or reimbursed and/or paid indirectly	1.84% <sup>5</sup>	1.46%	1.45% <sup>6</sup>	1.48%	1.53%	1.65%
Total expenses after fees waived and/or reimbursed and/or paid indirectly and excluding interest expense, fees and amortization of offering costs <sup>7</sup>	0.94% <sup>5</sup>	0.89%	0.96% <sup>6</sup>	0.95%	0.94%	1.28% <sup>8</sup>
Net investment income to Common Shareholders	4.73% <sup>5</sup>	4.98%	5.05%	5.79%	5.46%	5.38%
<b>Supplemental Data</b>						
Net assets applicable to Common Shareholders, end of period (000)	\$ 204,298	\$ 223,738	\$ 210,549	\$ 181,459	\$ 167,857	\$ 190,562
VRDP Shares outstanding at \$100,000 liquidation value, end of period (000)	\$ 82,600	\$ 82,600	\$ 82,600	\$ 66,300	\$ 66,300	\$ 66,300
Asset coverage per VRDP Shares at \$100,000 liquidation value, end of period	\$ 347,334	\$ 370,869	\$ 354,901	\$ 373,693	\$ 353,178	\$ 387,425
Borrowings outstanding, end of period (000)	\$ 52,083	\$ 48,710	\$ 28,468	\$ 37,066	\$ 53,010	\$ 50,860
Portfolio turnover rate	4%	17%	21%	16%	8%	23%

<sup>1</sup> Based on average Common Shares outstanding.

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- <sup>2</sup> Distributions for annual periods determined in accordance with federal income tax regulations.
- <sup>3</sup> Total returns based on market price, which can be significantly greater or less than the net asset value, may result in substantially different returns. Where applicable, excludes the effects of any sales charges and assumes the reinvestment of distributions.
- <sup>4</sup> Aggregate total return.
- <sup>5</sup> Annualized.
- <sup>6</sup> Includes reorganization costs associated with the Fund's reorganization. Without these costs total expenses, total expenses after fees waived and/or reimbursed, and total expenses after fees waived and/or reimbursed and/or paid indirectly and excluding interest expense, fees and amortization of offering costs would have been 1.40%, 1.40% and 0.91%, respectively.
- <sup>7</sup> Interest expense, fees and amortization of offering costs related to TOBs and/or VRDP Shares. See Note 4 and Note 10 of the Notes to Financial Statements for details.
- <sup>8</sup> For the year ended July 31, 2012, the total expense ratio after fees waived and/or reimbursed and/or paid indirectly and excluding interest expense, fees, amortization of offering costs, liquidity and remarketing fees was 0.99%.

See Notes to Financial Statements.

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# Notes to Financial Statements (Unaudited)

## 1. Organization:

The following are registered under the Investment Company Act of 1940, as amended (the "1940 Act"), as closed-end management investment companies and are referred to herein collectively as the "Funds", or individually, a "Fund":

Fund Name	Herein Referred To As	Organized	Diversification Classification
BlackRock MuniHoldings California Quality Fund, Inc.	MUC	Maryland	Non-diversified
BlackRock MuniHoldings New Jersey Quality Fund, Inc.	MUJ	Maryland	Non-diversified
BlackRock MuniYield Investment Quality Fund, Inc.	MFT	Massachusetts	Non-diversified
BlackRock MuniYield Michigan Quality Fund, Inc.	MIY	Maryland	Non-diversified
BlackRock MuniYield Pennsylvania Quality Fund, Inc.	MPA	Massachusetts	Non-diversified

The Boards of Directors of the Funds are collectively referred to throughout this report as the "Board of Directors" or the "Board", and the directors thereof are collectively referred to throughout this report as "Directors". The Funds determine and make available for publication the NAVs of their Common Shares on a daily basis.

The Funds, together with certain other registered investment companies advised by BlackRock Advisors, LLC (the "Manager") or its affiliates, are included in a complex of closed-end funds referred to as the Closed-End Complex.

Reorganization: The Board and shareholders of MIY and the Board and shareholders of BlackRock MuniYield Michigan Quality Fund II, Inc. ("MYM") approved the reorganizations of MYM into MIY. As a result, MIY acquired substantially all of the assets and assumed substantially all of the liabilities of MYM in exchange for an equal aggregate value of newly-issued Common Shares and Preferred Shares of MIY.

Each MYM Common Shareholder received Common Shares of MIY in an amount equal to the aggregate of such Common Shareholder's MYM Common Shares, as determined at the close of business on September 11, 2015, less the costs of MYM's reorganization. Cash was distributed for any fractional Common Shares.

Each MYM VRDP Shareholder received on a one-for-one basis one newly issued VRDP Share of MIY, par value \$0.10 per share and with a liquidation preference of \$100,000 per share, in exchange for each MYM VRDP Share held by such MYM VRDP Shareholder.

The reorganizations were accomplished by a tax-free exchange of Common Shares and VRDP Shares of MIY in the following amounts and at the following conversion ratios:

Target Fund	Shares Prior to Reorganization	Conversion Ratio	Shares of MIY
MYM Common Shares	12,098,420	0.93643508	11,329,360
MYM VRDP Shares	873	1	873

MYM's common net assets and composition of common net assets on September 11, 2015, the valuation date of the reorganization, were as follows:

	MYM
Net assets Applicable to Common Shares	\$ 173,278,358
Paid-in-capital	\$ 162,329,528
Undistributed net investment income	\$ 63,895
Accumulated net realized loss	\$ (4,955,955)
Net unrealized appreciation (depreciation)	\$ 15,840,890

For financial reporting purposes, assets received and shares issued by MIY were recorded at fair value. However, the cost basis of the investments received from MYM was carried forward to align ongoing reporting of MIY's realized and unrealized gains and losses with amounts distributable to shareholders for tax purposes.



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The net assets of MIY before the acquisition were \$279,109,521. The aggregate net assets of MIY immediately after the acquisition amounted to \$452,388,270. MYM's fair value and cost of investments and derivative financial instruments prior to the reorganization were as follows:

	<b>Fair Value of Investments and Derivative Financial Instruments</b>	<b>Cost of Investments</b>	<b>TOB Trust Certificates</b>	<b>Preferred Shares Value</b>
MIY	\$ 268,842,773	\$ 253,001,883	\$ 14,792,998	\$ 87,300,000

The purpose of these transactions was to combine two funds managed by the Manager with the same or substantially similar (but not identical) investment objectives, investment policies, strategies, risks and restrictions. Each reorganization was a tax-free event and was effective on September 14, 2015.

## Notes to Financial Statements (continued)

Assuming the acquisition had been completed on August 1, 2015, the beginning of the fiscal reporting period of MIY, the pro forma results of operations for the year ended January 31, 2016, are as follows:

Net investment income/loss: \$23,313,730

Net realized and change in unrealized gain/loss on investments: \$27,369,663

Net increase/decrease in net assets applicable to Common Shareholders resulting from operations: \$50,683,393

Because the combined investment portfolios have been managed as a single integrated portfolio since the acquisition was completed, it is not practicable to separate the amounts of revenue and earnings of MYM that have been included in MIY's Statement of Operations since September 14, 2015.

Reorganization costs incurred in connection with MYM's reorganization were expensed by MIY.

### 2. Significant Accounting Policies:

The financial statements are prepared in conformity with accounting principles generally accepted in the United States of America ( U.S. GAAP ), which may require management to make estimates and assumptions that affect the reported amounts of assets and liabilities in the financial statements, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of increases and decreases in net assets from operations during the reporting period. Actual results could differ from those estimates. Each Fund is considered an investment company under U.S. GAAP and follows the accounting and reporting guidance applicable to investment companies. Below is a summary of significant accounting policies:

**Segregation and Collateralization:** In cases where a Fund enters into certain investments (e.g., futures contracts) or certain borrowings (e.g., TOB Trust transactions) that would be treated as senior securities for 1940 Act purposes, a Fund may segregate or designate on its books and records cash or liquid assets having a market value at least equal to the amount of its future obligations under such investments or borrowings. Doing so allows the investment or borrowing to be excluded from treatment as a senior security. Furthermore, if required by an exchange or counterparty agreement, the Funds may be required to deliver/deposit cash and/or securities to/with an exchange, or broker-dealer or custodian as collateral for certain investments or obligations.

**Investment Transactions and Investment Income:** For financial reporting purposes, investment transactions are recorded on the dates the transactions are entered into (the trade dates). Realized gains and losses on investment transactions are determined on the identified cost basis. Interest income, including amortization and accretion of premiums and discounts on debt securities, is recognized on the accrual basis.

**Distributions:** Distributions from net investment income are declared monthly and paid monthly. Distributions of capital gains are recorded on the ex-dividend date and made at least annually. The character and timing of distributions are determined in accordance with federal income tax regulations, which may differ from U.S. GAAP. Distributions to Preferred Shareholders are accrued and determined as described in Note 10.

**Deferred Compensation Plan:** Under the Deferred Compensation Plan (the Plan ) approved by each Fund's Board, the independent Directors ( Independent Directors ) may defer a portion of their annual complex-wide compensation. Deferred amounts earn an approximate return as though equivalent dollar amounts had been invested in common shares of certain other BlackRock Closed-End Funds selected by the Independent Directors. This has the same economic effect for the Independent Directors as if the Independent Directors had invested the deferred amounts directly in certain other BlackRock Closed-End Funds.

The Plan is not funded and obligations thereunder represent general unsecured claims against the general assets of each Fund, if applicable. Deferred compensation liabilities are included in officer's and directors' fees payable in the Statements of Assets and Liabilities and will remain as a liability of the Funds until such amounts are distributed in accordance with the Plan.

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**Recent Accounting Standards:** In November 2016, the Financial Accounting Standards Board issued Accounting Standards Update - Restricted Cash - which will require entities to include the total of cash, cash equivalents, restricted cash, and restricted cash equivalents in the beginning and ending cash balances in the Statements of Cash Flows. The guidance will be applied retrospectively and is effective for fiscal years beginning after December 15, 2017, and interim periods within those years. Management is evaluating the impact, if any, of this guidance on the Funds presentation in the Statements of Cash Flows.

**Indemnifications:** In the normal course of business, a Fund enters into contracts that contain a variety of representations that provide general indemnification. A Fund's maximum exposure under these arrangements is unknown because it involves future potential claims against a Fund, which cannot be predicted with any certainty.

**Other:** Expenses directly related to a Fund are charged to that Fund. Other operating expenses shared by several funds, including other funds managed by the Manager, are prorated among those funds on the basis of relative net assets or other appropriate methods.

Through May 31, 2016, the Funds had an arrangement with their custodian whereby credits were earned on uninvested cash balances, which could be used to reduce custody fees and/or overdraft charges. Credits previously earned have been utilized until December 31, 2016. Under current arrangements effective June 1, 2016, the Funds no longer earn credits on uninvested cash, and may incur charges on uninvested cash balances and overdrafts, subject to certain conditions.

## Notes to Financial Statements (continued)

### 3. Investment Valuation and Fair Value Measurements:

**Investment Valuation Policies:** The Funds' investments are valued at fair value (also referred to as "market value" within the financial statements) as of the close of trading on the New York Stock Exchange ("NYSE") (generally 4:00 p.m., Eastern time). U.S. GAAP defines fair value as the price the Funds would receive to sell an asset or pay to transfer a liability in an orderly transaction between market participants at the measurement date. The Funds determine the fair values of their financial instruments using various independent dealers or pricing services under policies approved by the Board. The BlackRock Global Valuation Methodologies Committee (the "Global Valuation Committee") is the committee formed by management to develop global pricing policies and procedures and to oversee the pricing function for all financial instruments.

**Fair Value Inputs and Methodologies:** The following methods and inputs are used to establish the fair value of each Fund's assets and liabilities:

Municipal investments (including commitments to purchase such investments on a "when-issued" basis) are valued on the basis of prices provided by dealers or pricing services. In determining the value of a particular investments, pricing services may use certain information with respect to transactions in such investments, quotations from dealers, pricing matrixes, market transactions in comparable investments and information with respect to various relationships between investments.

Investments in open-end U.S. mutual funds are valued at NAV each business day.

Futures contracts traded on exchanges are valued at their last sale price.

If events (e.g., a company announcement, market volatility or a natural disaster) occur that are expected to materially affect the value of such investments, or in the event that the application of these methods of valuation results in a price for an investment that is deemed not to be representative of the market value of such investment, or if a price is not available, the investment will be valued by the Global Valuation Committee, or its delegate, in accordance with a policy approved by the Board as reflecting fair value ("Fair Valued Investments"). The fair valuation approaches that may be used by the Global Valuation Committee will include Market approach, Income approach and Cost approach. Valuation techniques such as discounted cash flow, use of market comparables and matrix pricing are types of valuation approaches and typically used in determining fair value. When determining the price for Fair Valued Investments, the Global Valuation Committee, or its delegate, seeks to determine the price that each Fund might reasonably expect to receive or pay from the current sale or purchase of that asset or liability in an arm's-length transaction. Fair value determinations shall be based upon all available factors that the Global Valuation Committee, or its delegate, deems relevant and consistent with the principles of fair value measurement. The pricing of all Fair Valued Investments is subsequently reported to the Board or a committee thereof on a quarterly basis.

**Fair Value Hierarchy:** Various inputs are used in determining the fair value of investments and derivative financial instruments. These inputs to valuation techniques are categorized into a fair value hierarchy consisting of three broad levels for financial statement purposes as follows:

**Level 1** — unadjusted price quotations in active markets/exchanges for identical assets or liabilities that each Fund has the ability to access

**Level 2** — other observable inputs (including, but not limited to, quoted prices for similar assets or liabilities in markets that are active, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable for the assets or liabilities (such as interest rates, yield curves, volatilities, prepayment speeds, loss severities, credit risks and default rates) or other market corroborated inputs)

**Level 3** — unobservable inputs based on the best information available in the circumstances, to the extent observable inputs are not available (including each Fund's own assumptions used in determining the fair value of investments and derivative financial instruments)

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The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). Accordingly, the degree of judgment exercised in determining fair value is greatest for instruments categorized in Level 3. The inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, for disclosure purposes, the fair value hierarchy classification is determined based on the lowest level input that is significant to the fair value measurement in its entirety. Investments classified within Level 3 have significant unobservable inputs used by the Global Valuation Committee in determining the price for Fair Valued Investments. Level 3 investments include equity or debt issued by Private Companies. There may not be a secondary market, and/or there are a limited number of investors. Level 3 investments may also be adjusted to reflect illiquidity and/or non-transferability, with the amount of such discount estimated by the Global Valuation Committee in the absence of market information.

Changes in valuation techniques may result in transfers into or out of an assigned level within the hierarchy. In accordance with each Fund's policy, transfers between different levels of the fair value hierarchy are deemed to have occurred as of the beginning of the reporting period. The categorization of a value determined for investments and derivative financial instruments is based on the pricing transparency of the investments and derivative financial instruments and is not necessarily an indication of the risks associated with investing in those securities.

#### **4. Securities and Other Investments:**

**Zero-Coupon Bonds:** Zero-coupon bonds are normally issued at a significant discount from face value and do not provide for periodic interest payments. These bonds may experience greater volatility in market value than other debt obligations of similar maturity which provide for regular interest payments.

## Notes to Financial Statements (continued)

**Forward Commitments and When-Issued Delayed Delivery Securities:** Certain Funds may purchase securities on a when-issued basis and may purchase or sell securities on a forward commitment basis. Settlement of such transactions normally occurs within a month or more after the purchase or sale commitment is made. A Fund may purchase securities under such conditions with the intention of actually acquiring them, but may enter into a separate agreement to sell the securities before the settlement date. Since the value of securities purchased may fluctuate prior to settlement, a Fund may be required to pay more at settlement than the security is worth. In addition, a Fund is not entitled to any of the interest earned prior to settlement. When purchasing a security on a delayed delivery basis, a Fund assumes the rights and risks of ownership of the security, including the risk of price and yield fluctuations. In the event of default by the counterparty, a Fund's maximum amount of loss is the unrealized appreciation of unsettled when-issued transactions.

**Municipal Bonds Transferred to TOB Trusts:** The Funds leverage their assets through the use of TOB Trust transactions. The Funds transfer municipal bonds into a special purpose trust (a TOB Trust). A TOB Trust generally issues two classes of beneficial interests: short-term floating rate interests (TOB Trust Certificates), which are sold to third party investors, and residual inverse floating rate interests (TOB Residuals), which are generally issued to the participating fund that contributed the municipal bonds to the TOB Trust. The TOB Trust Certificates have interest rates that generally reset weekly and their holders have the option to tender such certificates to the TOB Trust for redemption at par and any accrued interest at each reset date. The TOB Residuals held by a Fund generally provide the Fund with the right to cause the holders of a proportional share of the TOB Trust Certificates to tender their certificates to the TOB Trust at par plus accrued interest. The Funds may withdraw a corresponding share of the municipal bonds from the TOB Trust. Other funds managed by the investment adviser may also contribute municipal bonds to a TOB Trust into which a Fund has contributed bonds. If multiple BlackRock advised funds participate in the same TOB Trust, the economic rights and obligations under the TOB Residuals will be shared among the funds ratably in proportion to their participation in the TOB Trust.

TOB Trusts are generally supported by a liquidity facility provided by a third party bank or other financial institution (the Liquidity Provider) that allows the holders of the TOB Trust Certificates to tender their certificates in exchange for payment of par plus accrued interest on any business day. The tendered TOB Trust Certificates may be purchased by the Liquidity Provider and are usually remarketed by a Remarketing Agent, which is typically an affiliated entity of the Liquidity Provider. The Remarketing Agent may also purchase the tendered TOB Trust Certificates for its own account in the event of a failed remarketing.

The TOB Trust may be collapsed without the consent of a Fund, upon the occurrence of tender option termination events (TOTEs) or mandatory termination events (MTEs), as defined in the TOB Trust agreements. TOTEs include the bankruptcy or default of the issuer of the municipal bonds held in the TOB Trust, a substantial downgrade in the credit quality of the issuer of the municipal bonds held in the TOB Trust, failure of any scheduled payment of principal or interest on the municipal bonds, and/or a judgment or ruling that interest on the municipal bond is subject to federal income taxation. MTEs may include, among other things, a failed remarketing of the TOB Trust Certificates, the inability of the TOB Trust to obtain renewal of the liquidity support agreement and a substantial decline in the market value of the municipal bonds held in the TOB Trust. Upon the occurrence of a TOTE or an MTE, the TOB Trust would be liquidated with the proceeds applied first to any accrued fees owed to the trustee of the TOB Trust, the Remarketing Agent and the Liquidity Provider. In the case of an MTE, after the payment of fees, the TOB Trust Certificates holders would be paid before the TOB Residuals holders (i.e., the Funds). In contrast, in the case of a TOTE, after payment of fees, the TOB Trust Certificates holders and the TOB Residuals holders would be paid pro rata in proportion to the respective face values of their certificates. During the six months ended January 31, 2017, no TOB Trusts in which a Fund participated were terminated without the consent of a Fund.

While a Fund's investment policies and restrictions expressly permit investments in inverse floating rate securities, such as TOB Residuals, they generally restrict the ability of a Fund to borrow money for purposes of making investments. The Funds' management believes that a Fund's restrictions on borrowings do not apply to the Funds' TOB Trust transactions. Each Fund's transfer of the municipal bonds to a TOB Trust is considered a secured borrowing for financial reporting purposes. The cash received by the TOB Trust from the sale of the TOB Trust Certificates, less certain transaction expenses, is paid to a Fund. A Fund typically invests the cash received in additional municipal bonds. The municipal bonds deposited into a TOB Trust are presented in a Fund's Schedule of Investments and the TOB Trust Certificates are shown in Other Liabilities in the Statements of Assets and Liabilities. Any loans drawn by the TOB Trust pursuant to the liquidity facility to purchase tendered TOB Trust Certificates would be shown as Loan for TOB Trust Certificates.

**Volcker Rule Impact:** On December 10, 2013, regulators published final rules implementing section 619 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (the Volcker Rule), which precludes banking entities and their affiliates from sponsoring and investing in TOB Trusts. Banking entities subject to the Volcker Rule were required to fully comply by July 21, 2015, with respect to investments in and relationships with TOB Trusts established after December 31, 2013 (Non-Legacy TOB Trusts), and by July 21, 2017, with respect to investments in and relationships with TOB Trusts established prior to December 31, 2013 (Legacy TOB Trusts).

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As a result, a new structure for TOB Trusts has been designed in which no banking entity would sponsor the TOB Trust. Specifically, a Fund establishes, structures and sponsors the TOB Trusts in which it holds TOB Residuals. In such a structure, certain responsibilities that previously belonged to a third party bank are performed by, or on behalf of, the Funds. The Funds have restructured any Non-Legacy TOB Trusts and are in the process of restructuring Legacy TOB Trusts in conformity with regulatory guidelines. Until all restructurings are completed, a Fund may, for a period of time, hold TOB Residuals in both Legacy TOB Trusts and new or restructured non-bank sponsored TOB Trusts.

## Notes to Financial Statements (continued)

Under the new TOB Trust structure, the Liquidity Provider or Remarketing Agent will no longer purchase the tendered TOB Trust Certificates even in the event of failed remarketing. This may increase the likelihood that a TOB Trust will need to be collapsed and liquidated in order to purchase the tendered TOB Trust Certificates. The TOB Trust may draw upon a loan from the Liquidity Provider to purchase the tendered TOB Trust Certificates. Any loans made by the Liquidity Provider will be secured by the purchased TOB Trust Certificates held by the TOB Trust and will be subject to an increased interest rate based on the number of days the loan is outstanding.

Accounting for TOB Trusts: The municipal bonds deposited into a TOB Trust are presented in a Fund's Schedule of Investments and the TOB Trust Certificates are shown in Other Liabilities in the Statements of Assets and Liabilities. Any loans drawn by the TOB Trust pursuant to the liquidity facility to purchase tendered TOB Trust Certificates are shown as Loan for TOB Trust Certificates. The carrying amount of a Fund's payable to the holder of the TOB Trust Certificates or liquidity provider, as reported in the Statements of Assets and Liabilities as TOB Trust Certificates or Loan for TOB Trust Certificates, approximates its fair value.

Interest income, including amortization and accretion of premiums and discounts, from the underlying municipal bonds is recorded by a Fund on an accrual basis. Interest expense incurred on the TOB Trust transaction and other expenses related to remarketing, administration, trustee, liquidity and other services to a TOB Trust are shown as interest expense, fees and amortization of offering costs in the Statements of Operations. Fees paid upon creation of the TOB Trust are recorded as debt issuance costs and are amortized to interest expense, fees and amortization of offering costs in the Statements of Operations to the expected maturity of the TOB Trust. In connection with the restructurings of the TOB Trusts to non-bank sponsored TOB Trusts, a Fund incurred non-recurring, legal and restructuring fees, which are recorded as interest expense, fees and amortization of deferred offering costs in the Statements of Operations.

For the six months ended January 31, 2017, the following table is a summary of each Fund's TOB Trusts:

	Underlying Municipal Bonds Transferred to TOB Trusts <sup>1</sup>	Liability for TOB Trust Certificates <sup>2</sup>	Range of Interest Rates on TOB Trust Certificates at Period End	Average TOB Trust Certificates Outstanding	Daily Weighted Average Rate of Interest and Other Expenses on TOB Trusts
MUC	\$ 376,902,532	\$ 179,415,265	0.67% - 0.86%	\$ 177,178,929	1.29%
MUJ	\$ 98,365,753	\$ 55,088,706	0.69% - 0.86%	\$ 55,088,706	1.35%
MFT	\$ 46,716,693	\$ 25,820,715	0.67% - 1.01%	\$ 24,312,679	1.33%
MIY	\$ 111,081,733	\$ 57,062,222	0.69% - 0.86%	\$ 50,650,199	1.35%
MPA	\$ 92,004,950	\$ 52,082,674	0.69% - 0.81%	\$ 50,566,816	1.29%

<sup>1</sup> The municipal bonds transferred to a TOB Trust are generally high grade municipal bonds. In certain cases, when municipal bonds transferred are lower grade municipal bonds, the TOB Trust transaction may include a credit enhancement feature that provides for the timely payment of principal and interest on the bonds to the TOB Trust by a credit enhancement provider in the event of default of the municipal bond. The TOB Trust would be responsible for the payment of the credit enhancement fee and the Funds, as TOB Residuals holders, would be responsible for reimbursement of any payments of principal and interest made by the credit enhancement provider. The maximum potential amounts owed by the Funds, for such reimbursements, as applicable, are included in the maximum potential amounts disclosed for recourse TOB Trusts.

<sup>2</sup> The Funds may invest in TOB Trusts that are structured on a non-recourse or recourse basis. When a Fund invests in TOB Trusts on a non-recourse basis, the Liquidity Provider may be required to make a payment under the liquidity facility. In such an event, the Liquidity Provider will typically either (i) fund the full amount owed under the liquidity facility and be subsequently reimbursed from only the proceeds of the liquidation of all or a portion of the municipal bonds held in the TOB Trust or the remarketing of the TOB Trust Certificates, or (ii) liquidate all or a portion of the municipal bonds held in the TOB Trust and then fund the balance, if any, of the amount owed under the liquidity facility over the liquidation proceeds (the "Liquidation Shortfall"). If a Fund invests in a TOB Trust on a recourse basis, a Fund will usually enter into a reimbursement agreement with the Liquidity Provider where a Fund is required to reimburse the Liquidity Provider the amount of any Liquidation Shortfall. As a result, if a Fund invests in a recourse TOB Trust, a Fund will bear the risk of loss with respect to any Liquidation Shortfall. If multiple funds participate in any such TOB Trust, these losses will be shared ratably, including the maximum potential amounts owed by a Fund at January 31, 2017, in proportion to their participation in the TOB Trust. The recourse TOB Trusts are identified in the Schedules of Investments including the maximum potential amounts owed by a Fund at January 31, 2017.

For the six months ended January 31, 2017, the following table is a summary of each Fund's Loan for TOB Trust Certificates:



	Loan Outstanding at Period End	Range of Interest Rates on Loans at Period End	Average Loans Outstanding	Daily Weighted Average Rate of Interest and Other Expenses on Loans
MUC			\$ 323,133	0.78%
MIY	\$ 659,835	0.50% - 0.50%	\$ 3,102,692	0.81%

#### 5. Derivative Financial Instruments:

The Funds engage in various portfolio investment strategies using derivative contracts both to increase the returns of the Funds and/or to manage their exposure to certain risks such as credit risk, equity risk, interest rate risk, foreign currency exchange rate risk, commodity price risk or other risks (e.g., inflation risk). Derivative financial instruments categorized by risk exposure are included in the Schedules of Investments. These contracts may be transacted on an exchange or over-the-counter ( OTC ).

## Notes to Financial Statements (continued)

**Futures Contracts:** Certain Funds invest in long and/or short positions in futures and options on futures contracts to gain exposure to, or manage exposure to changes in interest rates (interest rate risk), changes in the value of equity securities (equity risk) or foreign currencies (foreign currency exchange rate risk).

Futures contracts are agreements between the Funds and a counterparty to buy or sell a specific quantity of an underlying instrument at a specified price and on a specified date. Depending on the terms of a contract, it is settled either through physical delivery of the underlying instrument on the settlement date or by payment of a cash amount on the settlement date. Upon entering into a futures contract, the Funds are required to deposit initial margin with the broker in the form of cash or securities in an amount that varies depending on a contract's size and risk profile. The initial margin deposit must then be maintained at an established level over the life of the contract.

Securities deposited as initial margin are designated in the Schedules of Investments and cash deposited, if any, is shown as cash pledged for futures contracts in the Statements of Assets and Liabilities. Pursuant to the contract, the Funds agree to receive from or pay to the broker an amount of cash equal to the daily fluctuation in market value of the contract (variation margin). Variation margin is recorded as unrealized appreciation (depreciation) and, if any, shown as variation margin receivable (or payable) on futures contracts in the Statements of Assets and Liabilities. When the contract is closed, a realized gain or loss is recorded in the Statements of Operations equal to the difference between the value of the contract at the time it was opened and the value at the time it was closed. The use of futures contracts involves the risk of an imperfect correlation in the movements in the price of futures contracts and interest, foreign currency exchange rates or underlying assets.

### 6. Investment Advisory Agreement and Other Transactions with Affiliates:

The PNC Financial Services Group, Inc. is the largest stockholder and an affiliate of BlackRock, Inc. (BlackRock) for 1940 Act purposes.

**Investment Advisory:** Each Fund entered into an Investment Advisory Agreement with the Manager, the Funds' investment adviser, an indirect, wholly-owned subsidiary of BlackRock, to provide investment advisory and administration services. The Manager is responsible for the management of each Fund's portfolio and provides the personnel, facilities, equipment and certain other services necessary to the operations of each Fund.

For such services, each Fund pays the Manager a monthly fee at an annual rate equal to the following percentages of the average daily value of each Fund's net assets:

	MUC	MUJ	MFT	MIY	MPA
Investment advisory fees	0.55%	0.50%	0.50%	0.49%	0.49%

For purposes of calculating these fees, net assets mean the total assets of each Fund minus the sum of its accrued liabilities (which does not include liabilities represented by TOB Trusts and the liquidation preference of preferred shares). It is understood that the liquidation preference of any outstanding preferred stock (other than accumulated dividends) and TOB Trusts is not considered a liability in determining a Fund's NAV.

**Waivers:** The Manager voluntarily agreed to waive its investment advisory fees by the amount of investment advisory fees each Fund pays to the Manager indirectly through its investment in affiliated money market funds (the affiliated money market fund waiver). These amounts are included in fees waived by the Manager in the Statements of Operations. For the six months ended January 31, 2017, the amounts waived were as follows:

	MUC	MUJ	MFT	MIY	MPA
Amounts waived	\$ 3,447	\$ 2,573	\$ 257	\$ 1,750	\$ 1,685

Effective September 1, 2016, the Manager voluntarily agreed to waive its investment advisory fee with respect to any portion of the Fund's assets invested in affiliated equity or fixed-income mutual funds or affiliated exchange-traded funds that have a contractual management fee. Prior to September 1, 2016, the Manager did not waive such fees. On December 2, 2016, the Manager entered into a Master Advisory Fee Agreement (Agreement), contractually committing to this arrangement through June 30, 2017. The Agreement can be renewed for annual periods thereafter, and may be terminated on 90 days' notice, each subject to approval by a majority of the Fund's independent directors.

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The Manager, for MUC, voluntarily agreed to waive its investment advisory fee on the proceeds of the Preferred Shares and TOB Trusts that exceed 35% of total assets minus the sum of its accrued liabilities (which does not include liabilities represented by TOB Trusts and the liquidation preference of preferred shares). This amount is included in fees waived by the Manager in the Statements of Operations. For the six months ended January 31, 2017, the waiver was \$225,177.

### Officers and Directors:

Certain officers and/or directors of the Funds are officers and/or directors of BlackRock or its affiliates. The Funds reimburse the Manager for a portion of the compensation paid to the Funds' Chief Compliance Officer, which is included in Officer and Directors in the Statements of Operations.

## Notes to Financial Statements (continued)

**7. Purchases and Sales:**

For the six months ended January 31, 2017, purchases and sales of investments, excluding short-term securities, were as follows:

	MUC	MUJ	MFT	MIY	MPA
Purchases	\$ 62,045,098	\$ 40,537,551	\$ 45,699,741	\$ 54,631,284	\$ 13,567,665
Sales	\$ 57,915,559	\$ 25,354,320	\$ 41,843,572	\$ 45,592,131	\$ 22,246,091

**8. Income Tax Information:**

It is the Funds' policy to comply with the requirements of the Internal Revenue Code of 1986, as amended, applicable to regulated investment companies, and to distribute substantially all of their taxable income to their shareholders. Therefore, no federal income tax provision is required.

Each Fund files U.S. federal and various state and local tax returns. No income tax returns are currently under examination. The statute of limitations on each Fund's U.S. federal tax returns generally remains open for each of the four years ended July 31, 2016. The statutes of limitations on each Fund's state and local tax returns may remain open for an additional year depending upon the jurisdiction.

Management has analyzed tax laws and regulations and their application to the Funds as of January 31, 2017, inclusive of the open tax return years, and does not believe that there are any uncertain tax positions that require recognition of a tax liability in the Funds' financial statements.

As of July 31, 2016, the Funds had capital loss carryforwards available to offset future realized capital gains through the indicated expiration dates as follows:

Expires July 31,	MUC	MUJ	MFT	MIY	MPA
No expiration date <sup>1</sup>	\$ 715,648	\$ 7,192,954	\$ 6,705,444	\$ 6,581,843	\$ 2,596,823
2017	6,504,940			2,031,132	1,653,517
2018			4,616,682		893,908
2019					50,303
<b>Total</b>	<b>\$ 7,220,588</b>	<b>\$ 7,192,954</b>	<b>\$ 11,322,126</b>	<b>\$ 8,612,975</b>	<b>\$ 5,194,551</b>

<sup>1</sup> Must be utilized prior to losses subject to expiration.

As of January 31, 2017, gross unrealized appreciation and depreciation based on cost for federal income tax purposes were as follows:

	MUC	MUJ	MFT	MIY	MPA
Tax cost	\$ 820,156,648	\$ 655,283,870	\$ 164,649,500	\$ 641,430,622	\$ 271,947,598
Gross unrealized appreciation	\$ 48,199,215	\$ 40,193,385	\$ 14,303,721	\$ 34,625,527	\$ 16,567,515
Gross unrealized depreciation	(5,823,947)	(6,778,630)	(734,341)	(3,490,126)	(5,551,136)
Net unrealized appreciation	\$ 42,375,268	\$ 33,414,755	\$ 13,569,380	\$ 31,135,401	\$ 11,016,379

**9. Principal Risks:**

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Many municipalities insure repayment of their bonds, which may reduce the potential for loss due to credit risk. The market value of these bonds may fluctuate for other reasons, including market perception of the value of such insurance, and there is no guarantee that the insurer will meet its obligation.

Inventories of municipal bonds held by brokers and dealers may decrease, which would lessen their ability to make a market in these securities. Such a reduction in market making capacity could potentially decrease a Fund's ability to buy or sell bonds. As a result, a Fund may sell a security at a lower price, sell other securities to raise cash, or give up an investment opportunity, any of which could have a negative impact on performance. If a Fund needed to sell large blocks of bonds, those sales could further reduce the bonds' prices and impact performance.

In the normal course of business, the Funds invest in securities and enter into transactions where risks exist due to fluctuations in the market (market risk) or failure of the issuer to meet all its obligations, including the ability to pay principal and interest when due (issuer credit risk). The value of securities held by the Funds may decline in response to certain events, including those directly involving the issuers of securities owned by the Funds. Changes arising from the general economy, the overall market and local, regional or global political and/or social instability, as well as currency, interest rate and price fluctuations, may also affect the securities' value.

Each Fund may be exposed to prepayment risk, which is the risk that borrowers may exercise their option to prepay principal earlier than scheduled during periods of declining interest rates, which would force each Fund to reinvest in lower yielding securities. Each Fund may also be exposed to reinvestment risk, which is the risk that income from each Fund's portfolio will decline if each Fund invests the proceeds from matured, traded or called fixed income securities at market interest rates that are below each Fund portfolio's current earnings rate.

The Funds may hold a significant amount of bonds subject to calls by the issuers at defined dates and prices. When bonds are called by issuers and the Funds reinvest the proceeds received, such investments may be in securities with lower yields than the bonds originally held, and correspondingly, could adversely impact the yield and total return performance of a Fund.

## Notes to Financial Statements (continued)

It is possible that regulators could take positions that could limit the market for non-bank sponsored TOB Trust transactions or the Funds' ability to hold TOB Residuals. Under the new TOB Trust structure, the Funds will have certain additional duties and responsibilities, which may give rise to certain additional risks including, but not limited to, compliance, securities law and operational risks.

There can be no assurance that the Funds can successfully enter into restructured TOB Trust transactions in order to refinance their existing TOB Residuals holdings prior to the compliance date for the Volcker Rule, which may require that the Funds unwind existing TOB Trusts. There can be no assurance that alternative forms of leverage will be available to the Funds and any alternative forms of leverage may be more or less advantageous to the Funds than existing TOB leverage.

Should short-term interest rates rise, the Funds' investments in TOB Trust transactions may adversely affect the Funds' net investment income and dividends to Common Shareholders. Also, fluctuations in the market value of municipal bonds deposited into the TOB Trust may adversely affect the Funds' NAVs per share.

The SEC and various federal banking and housing agencies have adopted credit risk retention rules for securitizations (the Risk Retention Rules), which take effect in December 2016. The Risk Retention Rules would require the sponsor of a TOB Trust to retain at least 5% of the credit risk of the underlying assets supporting the TOB Trust's municipal bonds. The Risk Retention Rules may adversely affect the Funds' ability to engage in TOB Trust transactions or increase the costs of such transactions in certain circumstances.

TOB Trust transactions constitute an important component of the municipal bond market. Accordingly, implementation of the Volcker Rule and Risk Retention Rules may adversely impact the municipal market, including through reduced demand for and liquidity of municipal bonds and increased financing costs for municipal issuers. Any such developments could adversely affect the Funds. The ultimate impact of these rules on the TOB Trust market and the overall municipal market is not yet certain.

**Counterparty Credit Risk:** Similar to issuer credit risk, the Funds may be exposed to counterparty credit risk, or the risk that an entity may fail to or be unable to perform on its commitments related to unsettled or open transactions. The Funds manage counterparty credit risk by entering into transactions only with counterparties that the Manager believes have the financial resources to honor their obligations and by monitoring the financial stability of those counterparties. Financial assets, which potentially expose the Funds to market, issuer and counterparty credit risks, consist principally of financial instruments and receivables due from counterparties. The extent of the Funds' exposure to market, issuer and counterparty credit risks with respect to these financial assets is approximately their value recorded in the Statements of Assets and Liabilities, less any collateral held by the Funds.

A derivative contract may suffer a mark-to-market loss if the value of the contract decreases due to an unfavorable change in the market rates or values of the underlying instrument. Losses can also occur if the counterparty does not perform under the contract.

With exchange-traded futures, there is less counterparty credit risk to the Funds since the exchange or clearinghouse, as counterparty to such instruments, guarantees against a possible default. The clearinghouse stands between the buyer and the seller of the contract; therefore, credit risk is limited to failure of the clearinghouse. While offset rights may exist under applicable law, a Fund does not have a contractual right of offset against a clearing broker or clearinghouse in the event of a default (including the bankruptcy or insolvency). Additionally, credit risk exists in exchange-traded futures with respect to initial and variation margin that is held in a clearing broker's customer accounts. While clearing brokers are required to segregate customer margin from their own assets, in the event that a clearing broker becomes insolvent or goes into bankruptcy and at that time there is a shortfall in the aggregate amount of margin held by the clearing broker for all its clients, typically the shortfall would be allocated on a pro rata basis across all the clearing broker's customers, potentially resulting in losses to the Funds.

**Concentration Risk:** MUC, MUJ, MIY and MPA invest a substantial amount of their assets in issuers located in a single state or limited number of states. This may subject each Fund to the risk that economic, political or social issues impacting a particular state or group of states could have an adverse and disproportionate impact on the income from, or the value or liquidity of, the Funds' respective portfolios. Investment percentages in specific states or U.S. territories are presented in the Schedules of Investments.

As of period end, MUC invested a significant portion of its assets in securities in the county, city, special district and school district sector, MFT invested a significant portion of its assets in securities in the transportation sector and MIY invested a significant portion of its assets in securities in the health sector. Changes in economic conditions affecting such sectors would have a greater impact on the Funds and could affect the value, income and/or liquidity of positions in such securities.

The Funds invest a significant portion of their assets in fixed income securities and/or use derivatives tied to the fixed income markets. Changes in market interest rates or economic conditions may affect the value and/or liquidity of such investments. Interest rate risk is the risk that prices

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of bonds and other fixed income securities will increase as interest rates fall and decrease as interest rates rise. The Funds may be subject to a greater risk of rising interest rates due to the current period of historically low rates.

## Notes to Financial Statements (continued)

**10. Capital Share Transactions:**

## Common Shares

MFT and MPA are authorized to issue an unlimited number of Common Shares and 1 million Preferred Shares. The par value for each Fund's Common Shares is \$0.10. The par value for each Fund's Preferred Shares outstanding is \$0.05. The Board is authorized, however, to reclassify any unissued Common Shares to Preferred Shares without approval of Common Shareholders.

MUC, MUJ and MIY are authorized to issue 200 million shares, all of which were initially classified as Common Shares. The par value for each Fund's Common Shares is \$0.10. The par value for each Fund's Preferred Shares outstanding is \$0.10. The Board is authorized, however, to reclassify any unissued Common Shares to Preferred Shares without approval of Common Shareholders.

For the six months ended January 31, 2017, Common Shares issued and outstanding increased by 950 for MFT. For the year ended July 31, 2016, Common Shares issued and outstanding increased by 11,329,360 due to the reorganization for MIY.

## Preferred Shares

Each Fund's Preferred Shares rank prior to the Fund's Common Shares as to the payment of dividends by the Fund and distribution of assets upon dissolution or liquidation of a Fund. The 1940 Act prohibits the declaration of any dividend on a Fund's Common Shares or the repurchase of a Fund's Common Shares if a Fund fails to maintain asset coverage of at least 200% of the liquidation preference of the Fund's outstanding Preferred Shares. In addition, pursuant to the Preferred Shares governing instruments, a Fund is restricted from declaring and paying dividends on classes of shares ranking junior to or on parity with the Fund's Preferred Shares or repurchasing such shares if a Fund fails to declare and pay dividends on the Preferred Shares, redeem any Preferred Shares required to be redeemed under the Preferred Shares governing instruments or comply with the basic maintenance amount requirement of the ratings agencies rating the Preferred Shares.

The holders of Preferred Shares have voting rights equal to the voting rights of the holders of Common Shares (one vote per share) and will vote together with holders of Common Shares (one vote per share) as a single class on certain matters. However, the holders of Preferred Shares, voting as a separate class, are also entitled to elect two Directors to the Board of each Fund. The holders of Preferred Shares are also entitled to elect the full Board of Directors if dividends on the Preferred Shares are not paid for a period of two years. The holders of Preferred Shares are also generally entitled to a separate class vote to amend the Preferred Share governing documents. In addition, the 1940 Act requires the approval of the holders of a majority of any outstanding Preferred Shares, voting as a separate class, to (a) adopt any plan of reorganization that would adversely affect the Preferred Shares, (b) change a Fund's sub-classification as a closed-end investment company or change its fundamental investment restrictions or (c) change its business so as to cease to be an investment company.

## VRDP Shares

MUJ, MIY and MPA (collectively, the VRDP Funds), have issued Series W-7 VRDP Shares, \$100,000 liquidation preference per share, in privately negotiated offerings. The VRDP Shares were offered to qualified institutional buyers as defined pursuant to Rule 144A under the Securities Act of 1933, as amended, (the Securities Act). The VRDP Shares include a liquidity feature and are currently in a special rate period, each as described below.

As of the period end, the VRDP Shares outstanding of each Fund were as follows:

	Issue Date	Shares Issued	Aggregate Principal	Maturity Date
MUJ	6/30/11	1,727	\$ 172,700,000	7/01/41
	4/13/15	644	\$ 64,400,000	7/01/41
MIY	4/21/11	1,446	\$ 144,600,000	5/01/41
	9/14/15	873	\$ 87,300,000	5/01/41
MPA	5/19/11	663	\$ 66,300,000	6/01/41
	4/13/15	163	\$ 16,300,000	7/01/42

Redemption Terms: Each VRDP Fund is required to redeem its VRDP Shares on the maturity date, unless earlier redeemed or repurchased. Six months prior to the maturity date, VRDP Fund is required to begin to segregate liquid assets with the Fund's custodian to fund the redemption. In addition, VRDP Funds are required to redeem certain of their outstanding VRDP Shares if they fail to comply with certain asset coverage, basic



maintenance amount or leverage requirements.

Subject to certain conditions, the VRDP Shares may also be redeemed, in whole or in part, at any time at the option of VRDP Funds. The redemption price per VRDP Share is equal to the liquidation preference per share plus any outstanding unpaid dividends. In the event of an optional redemption of the VRDP Shares during the period commencing on the date of issuance and ending on the initial termination date of the fee agreement, VRDP Funds must pay the respective liquidity provider fees on such redeemed VRDP Shares for the remaining term of the fee agreement up to such initial termination date.

Liquidity Feature: The VRDP Funds entered into a fee agreement with the liquidity provider that requires an initial commitment and a per annum liquidity fee payable to the liquidity provider. These fees, if applicable, are shown as liquidity fees in the Statements of Operations.

## Notes to Financial Statements (continued)

The fee agreements between VRDP Funds and the liquidity provider are for a 364 day term and are scheduled to expire, unless renewed or terminated in advance as follows:

	MUJ	MIY	MPA
Expiration date	4/19/17	7/06/17	7/06/17

In the event the fee agreement is not renewed or is terminated in advance, and the VRDP Funds do not enter into a fee agreement with an alternate liquidity provider, the VRDP Shares will be subject to mandatory purchase by the liquidity provider prior to the termination of the fee agreement. In the event of such mandatory purchase, VRDP Funds are required to redeem the VRDP Shares six months after the purchase date. Immediately after such mandatory purchase, VRDP Funds are required to begin to segregate liquid assets with their custodian to fund the redemption. There is no assurance the VRDP Funds will replace such redeemed VRDP Shares with any other preferred shares or other form of leverage.

Remarketing: The VRDP Funds may incur remarketing fees of 0.10% on the aggregate principal amount of all the Funds' VRDP Shares, which, if any, are included in remarketing fees on Preferred Shares in the Statements of Operations. During any special rate period (as described below), the VRDP Funds may incur no remarketing fees.

Dividends: Dividends on the VRDP Shares are payable monthly at a variable rate set weekly by the remarketing agent. Such dividend rates are generally based upon a spread over a base rate and cannot exceed a maximum rate. In the event of a failed remarketing, the dividend rate of the VRDP Shares will be reset to a maximum rate. The maximum rate is determined based on, among other things, the long-term preferred share rating assigned to the VRDP Shares and the length of time that the VRDP Shares fail to be remarketed. At the date of issuance, the VRDP Shares were assigned long-term ratings of Aaa from Moody's and AAA from Fitch. Subsequent to the issuance of the VRDP Shares, Moody's completed a review of its methodology for rating securities issued by registered closed-end funds. As of period end, the VRDP Shares were assigned a long-term rating of Aa2 from Moody's under its new ratings methodology. The VRDP Shares continue to be assigned a long-term rating of AAA from Fitch.

For the six months ended January 31, 2017, the annualized dividend rates for the VRDP Shares were as follows:

	MUJ	MIY	MPA
Rate	1.53%	1.54%	1.54%

Ratings: The short-term ratings on the VRDP Shares are directly related to the short-term ratings of the liquidity provider for such VRDP Shares. Changes in the credit quality of the liquidity provider could cause a change in the short-term credit ratings of the VRDP Shares as rated by Moody's, Fitch and/or S&P. A change in the short-term credit rating of the liquidity provider or the VRDP Shares may adversely affect the dividend rate paid on such shares, although the dividend rate paid on the VRDP Shares is not directly based upon either short-term rating. The liquidity provider may be terminated prior to the scheduled termination date if the liquidity provider fails to maintain short-term debt ratings in one of the two highest rating categories.

Special Rate Period: On June 21, 2012, MIY and MPA commenced a three year term ending June 24, 2015 (the "special rate period") with respect to their VRDP Shares, during which the VRDP Shares will not be subject to any remarketing and the dividend rate will be based on a predetermined methodology. In June 2015, the special rate period was extended to June 22, 2016. In June 2016, the special rate period was extended to June 21, 2017. On April 17, 2014, MUJ commenced a three-year term ending April 19, 2017 ("special rate period") with respect to their VRDP Shares, during which the VRDP Shares will not be subject to any remarketing and the dividend rate will be based on a predetermined methodology. The implementation of the special rate period resulted in a mandatory tender of the VRDP Shares prior to the commencement of the special rate period. The mandatory tender event was not the result of a failed remarketing. The short-term ratings on the VRDP Shares for MIY and MPA were withdrawn by Moody's, Fitch and/or S&P at the commencement of the special rate period. Prior to June 21, 2017 for MIY and MPA and April 19, 2017 for MUJ, the holder of the VRDP Shares and VRDP Funds may mutually agree to extend the special rate period. If the special rate period is not extended, the VRDP Shares will revert to remarketable securities upon the termination of the special rate period and will be remarketed and available for purchase by qualified institutional investors.

During the special rate period, the liquidity and fee agreements remain in effect and the VRDP Shares remain subject to mandatory redemption by MUJ on the maturity date. The VRDP Shares will not be remarketed or subject to optional or mandatory tender events during the special rate

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period. During the special rate period, MUJ will be required to comply with the same asset coverage, basic maintenance amount and leverage requirements for the VRDP Shares as is required when the VRDP Shares are not in a special rate period. MUJ will pay a nominal fee at the annual rate of 0.01% to the liquidity provider and remarketing agent during the special rate period. MUJ will also pay dividends monthly based on the sum of the Securities Industry and Financial Markets Association ( SIFMA ) Municipal Swap Index rate and a percentage per annum based on the long-term ratings assigned to the VRDP Shares.

If VRDP Funds redeem the VRDP Shares prior to the end of the special rate period and the VRDP Shares have long-term ratings above A1/A+ and its equivalent by all ratings agencies then rating the VRDP Shares, then such redemption may be subject to a redemption premium payable to the holder of the VRDP Shares based on the time remaining in the special rate period, subject to certain exceptions for redemptions that are required to comply with minimum asset coverage requirements.

## Notes to Financial Statements (continued)

For the six months ended January 31, 2017, the VRDP Shares issued and outstanding remained constant. For the year ended July 31, 2016, the VRDP Shares issued and outstanding for MUJ and MPA remained constant, and the VRDP Shares issued and outstanding increased by 873 due to the reorganization of MIY.

### VMTP Shares

MUC and MFT (collectively, the VMTP Funds/Trusts), have issued Series W-7 VMTP Shares, \$100,000 liquidation preference per share, in privately negotiated offerings and sale of VMTP Shares exempt from registration under the Securities Act. The VMTP Shares are subject to certain restrictions on transfer, and VMTP Funds may also be required to register the VMTP Shares for sale under the Securities Act under certain circumstances. In addition, amendments to the VMTP governing documents generally require the consent of the holders of VMTP Shares.

As of period end, the VMTP Shares outstanding of each Fund were as follows:

	Issue Date	Shares Issued	Aggregate Principal	Term Redemption Date
MUC	3/22/12	2,540	\$ 254,000,000	3/30/19
MFT	12/16/11	565	\$ 56,500,000	1/2/19

Redemption Terms: Each VMTP Fund is required to redeem its VMTP Shares on the term redemption date, unless earlier redeemed or repurchased or unless extended. In September 2015, the term redemption date for MUC's VMTP Shares was extended until March 30, 2019. There is no assurance that the term of a Fund's VMTP Shares will be extended further or that a Fund's VMTP Shares will be replaced with any other preferred shares or other form of leverage upon the redemption or repurchase of the VMTP Shares. Six months prior to the term redemption date, each VMTP Fund is required to begin to segregate liquid assets with the Fund's custodian to fund the redemption. In addition, each VMTP Fund is required to redeem certain of its outstanding VMTP Shares if it fails to comply with certain asset coverage, basic maintenance amount or leverage requirements.

Subject to certain conditions, a Fund's VMTP Shares may be redeemed, in whole or in part, at any time at the option of the Fund. The redemption price per VMTP Share is equal to the liquidation preference per share plus any outstanding unpaid dividends and applicable redemption premium. If the Fund redeems the VMTP Shares prior to the term redemption date and the VMTP Shares have long-term ratings above A1/A+ or its equivalent by the ratings agencies then rating the VMTP Shares, then such redemption may be subject to a prescribed redemption premium (up to 3% of the liquidation preference) payable to the holder of the VMTP Shares based on the time remaining until the term redemption date, subject to certain exceptions for redemptions that are required to comply with minimum asset coverage requirements.

Dividends: Dividends on the VMTP Shares are declared daily and payable monthly at a variable rate set weekly at a fixed rate spread to the SIFMA Municipal Swap Index. The fixed spread is determined based on the long-term preferred share rating assigned to the VMTP Shares by the ratings agencies then rating the VMTP Shares. At the date of issuance, the VMTP Shares were assigned long-term ratings of Aaa from Moody's and AAA from Fitch. Subsequent to the issuance of the VMTP Shares, Moody's completed a review of its methodology for rating securities issued by registered closed-end funds. As of period end, the VMTP Shares were assigned a long-term rating of Aa1 for MFT and Aa2 for MUC from Moody's under its new rating methodology. The VMTP Shares continue to be assigned a long-term rating of AAA from Fitch. The dividend rate on the VMTP Shares is subject to a step-up spread if the Funds fail to comply with certain provisions, including, among other things, the timely payment of dividends, redemptions or gross-up payments, and complying with certain asset coverage and leverage requirements.

For the six months ended January 31, 2017, the average annualized dividend rates for the VMTP Shares were as follows:

	MUC	MFT
Rate	1.56%	1.65%

For the six months ended January 31, 2017, VMTP Shares issued and outstanding of each Fund remained constant.

Offering Costs: The Funds incurred costs in connection with the issuance of VRDP Shares and/or VMTP Shares, which were recorded as a direct deduction from the carrying value of the related debt liability and will be amortized over the life of the VRDP Shares with the exception

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of upfront fees paid to the liquidity provider which were amortized over the life of the liquidity agreement and VMTP Shares. Amortization of these costs is included in interest expense, fees and amortization of offering costs in the Statements of Operations.

Financial Reporting: The VRDP and VMTP Shares are considered debt of the issuer; therefore, the liquidation preference, which approximates fair value, of the VRDP and VMTP Shares is recorded as a liability in the Statements of Assets and Liabilities net of offerings costs. Unpaid dividends are included in interest expense and fees payable in the Statements of Assets and Liabilities, and the dividends accrued and paid on the VRDP and VMTP Shares are included as a component of interest expense, fees and amortization of offering costs in the Statements of Operations. The VRDP and VMTP Shares are treated as equity for tax purposes. Dividends paid to holders of the VRDP and VMTP Shares are generally classified as tax-exempt income for tax-reporting purposes.

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## Notes to Financial Statements (concluded)

### 11. Subsequent Events:

Management's evaluation of the impact of all subsequent events on the Funds' financial statements was completed through the date the financial statements were issued and the following items were noted:

	Common Dividend Per Share		Preferred Shares <sup>3</sup>		
	Paid <sup>1</sup>	Declared <sup>2</sup>	Shares	Series	Declared
MUC	\$ 0.0615	\$ 0.0615	VMTP	W-7	\$ 306,505
MUJ	\$ 0.0675	\$ 0.0675	VRDP	W-7	\$ 278,815
MFT	\$ 0.0710	\$ 0.0670	VMTP	W-7	\$ 71,657
MIY	\$ 0.0640	\$ 0.0640	VRDP	W-7	\$ 276,268
MPA	\$ 0.0623	\$ 0.0623	VRDP	W-7	\$ 98,403

<sup>1</sup> Net investment income dividend paid on March 1, 2017 to Common Shareholders of record on February 15, 2017.

<sup>2</sup> Net investment income dividend declared on March 1, 2017, payable to Common Shareholders of record on March 15, 2017.

<sup>3</sup> Dividends declared for period February 1, 2017 to February 28, 2017.

## Officers and Directors

Richard E. Cavanagh, Chair of the Board and Director

Karen P. Robards, Vice Chair of the Board and Director

Michael J. Castellano, Director

Cynthia L. Egan, Director

Frank J. Fabozzi, Director

Jerrold B. Harris, Director

R. Glenn Hubbard, Director

W. Carl Kester, Director

Catherine A. Lynch, Director

Barbara G. Novick, Director

John M. Perlowski, Director, President and Chief Executive Officer

Jonathan Diorio, Vice President

Neal J. Andrews, Chief Financial Officer

Jay M. Fife, Treasurer

Charles Park, Chief Compliance Officer

Janey Ahn, Secretary

<b>Investment Adviser</b>	<b>Accounting Agent and Custodian</b>	<b>VRDP Tender and Paying Agent and VMTP Redemption and Paying Agent</b>	<b>Independent Registered Public Accounting Firm</b>	<b>Address of the Funds</b>
BlackRock Advisors, LLC Wilmington, DE 19809	State Street Bank and Trust Company Boston, MA 02110	The Bank of New York Mellon New York, NY 10289	Deloitte & Touche LLP Boston, MA 02116	100 Bellevue Parkway Wilmington, DE 19809
	<b>Transfer Agent</b>	<b>VRDP Liquidity Providers</b>	<b>Legal Counsel</b>	
	Computershare Trust Company, N.A. Canton, MA 02021	Citibank, N.A. <sup>1</sup> New York, NY 10179	Skadden, Arps, Slate, Meagher & Flom LLP Boston, MA 02116	

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Bank of America, N.A.<sup>2</sup>

New York, NY 10036

**VRDP Remarketing Agents**

Citigroup Global Markets Inc.<sup>1</sup>

New York, NY 10179

Merrill Lynch, Pierce,  
Fenner & Smith Incorporated<sup>2</sup>

New York, NY 10036

<sup>1</sup> For MIY and MPA.

<sup>2</sup> For MUJ.



## Additional Information

### Fund Certification

Certain Funds are listed for trading on the NYSE and have filed with the NYSE their annual chief executive officer certification regarding compliance with the NYSE's listing standards. The Funds filed with the SEC the certification of its chief executive officer and chief financial officer required by section 302 of the Sarbanes-Oxley Act.

### Dividend Policy

Each Fund's dividend policy is to distribute all or a portion of its net investment income to its shareholders on a monthly basis. In order to provide shareholders with a more stable level of distributions, the Funds may at times pay out less than the entire amount of net investment income earned in any particular month and may at times in any particular month pay out such accumulated but undistributed income in addition to net investment income earned in that month. As a result, the distributions paid by the Funds for any particular month may be more or less than the amount of net investment income earned by the Funds during such month. The Funds' current accumulated but undistributed net investment income, if any, is disclosed in the Statements of Assets and Liabilities, which comprises part of the financial information included in this report.

### General Information

The Funds do not make available copies of their Statements of Additional Information because the Funds' shares are not continuously offered, which means that the Statement of Additional Information of each Fund has not been updated after completion of the respective Fund's offerings and the information contained in each Fund's Statement of Additional Information may have become outdated.

During the period, there were no material changes in the Funds' investment objectives or policies or to the Funds' charters or by-laws that would delay or prevent a change of control of the Funds that were not approved by the shareholders or in the principal risk factors associated with investment in the Funds. Except as disclosed on page 68 there have been no changes in the persons who are primarily responsible for the day-to-day management of the Funds' portfolios.

Effective September 26, 2016, BlackRock implemented a new methodology for calculating effective duration for BlackRock's municipal bond portfolios. The new methodology replaces the model previously used by BlackRock to evaluate municipal bond duration and is a common indicator of an investment's sensitivity to interest rate movements. The new methodology is applied to the Funds' duration reported for any periods after September 26, 2016.

Quarterly performance, semi-annual and annual reports, current net asset value and other information regarding the Funds, including each Fund's effective duration and additional information about the new methodology, may be found on BlackRock's website, which can be accessed at <http://www.blackrock.com>. Any reference to BlackRock's website in this report is intended to allow investors public access to information regarding the Funds and does not, and is not intended to, incorporate BlackRock's website in this report.

### Electronic Delivery

Shareholders can sign up for e-mail notifications of quarterly statements, annual and semi-annual shareholder reports by enrolling in the electronic delivery program. Electronic copies of shareholder reports are available on BlackRock's website.

To enroll in electronic delivery:

Shareholders Who Hold Accounts with Investment Advisers, Banks or Brokerages:

Please contact your financial advisor. Please note that not all investment advisers, banks or brokerages may offer this service.

### Householding

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The Funds will mail only one copy of shareholder documents, including annual and semi-annual reports and proxy statements, to shareholders with multiple accounts at the same address. This practice is commonly called "householding" and is intended to reduce expenses and eliminate duplicate mailings of shareholder documents. Mailings of your shareholder documents may be househanded indefinitely unless you instruct us otherwise. If you do not want the mailing of these documents to be combined with those for other members of your household, please call the Funds at (800) 882-0052.

## Additional Information (concluded)

### General Information (concluded)

#### Availability of Quarterly Schedule of Investments

The Funds file their complete schedule of portfolio holdings with the SEC for the first and third quarters of each fiscal year on Form N-Q. The Funds' Forms N-Q are available on the SEC's website at <http://www.sec.gov> and may also be reviewed and copied at the SEC's Public Reference Room in Washington, D.C. Information on the operation of the Public Reference Room or how to access documents on the SEC's website without charge may be obtained by calling (800) SEC-0330. The Funds' Forms N-Q may also be obtained upon request and without charge by calling (800) 882-0052.

#### Availability of Proxy Voting Policies and Procedures

A description of the policies and procedures that the Funds use to determine how to vote proxies relating to portfolio securities is available upon request and without charge (1) by calling (800) 882-0052; (2) at <http://www.blackrock.com>; and (3) on the SEC's website at <http://www.sec.gov>.

#### Availability of Proxy Voting Record

Information about how the Funds voted proxies relating to securities held in the Funds' portfolios during the most recent 12-month period ended June 30 is available upon request and without charge (1) at <http://www.blackrock.com>; or by calling (800) 882-0052; and (2) on the SEC's website at <http://www.sec.gov>.

#### Availability of Fund Updates

BlackRock will update performance and certain other data for the Funds on a monthly basis on its website in the Closed-end Funds section of <http://www.blackrock.com> as well as certain other material information as necessary from time to time. Investors and others are advised to check the website for updated performance information and the release of other material information about the Funds. This reference to BlackRock's website is intended to allow investors public access to information regarding the Funds and does not, and is not intended to, incorporate BlackRock's website in this report.

### BlackRock Privacy Principles

BlackRock is committed to maintaining the privacy of its current and former fund investors and individual clients (collectively, "Clients") and to safeguarding their non-public personal information. The following information is provided to help you understand what personal information BlackRock collects, how we protect that information and why in certain cases we share such information with select parties.

If you are located in a jurisdiction where specific laws, rules or regulations require BlackRock to provide you with additional or different privacy-related rights beyond what is set forth below, then BlackRock will comply with those specific laws, rules or regulations.

BlackRock obtains or verifies personal non-public information from and about you from different sources, including the following:

(i) information we receive from you or, if applicable, your financial intermediary, on applications, forms or other documents; (ii) information about your transactions with us, our affiliates, or others; (iii) information we receive from a consumer reporting agency; and (iv) from visits to our websites.

BlackRock does not sell or disclose to non-affiliated third parties any non-public personal information about its Clients, except as permitted by law or as is necessary to respond to regulatory requests or to service Client accounts. These non-affiliated third parties are required to protect the confidentiality and security of this information and to use it only for its intended purpose.

We may share information with our affiliates to service your account or to provide you with information about other BlackRock products or services that may be of interest to you. In addition, BlackRock restricts access to non-public personal information about its Clients to those BlackRock employees with a legitimate business need for the information. BlackRock maintains physical, electronic and procedural safeguards that are designed to protect the non-public personal information of its Clients, including procedures relating to the proper storage and disposal of such information.



This report is intended for current holders. It is not a prospectus. Past performance results shown in this report should not be considered a representation of future performance. The Funds have leveraged their Common Shares, which creates risks for Common Shareholders, including the likelihood of greater volatility of net asset value and market price of the Common Shares, and the risk that fluctuations in short-term interest rates may reduce the Common Shares' yield. Statements and other information herein are as dated and are subject to change.

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Item 2 Code of Ethics Not Applicable to this semi-annual report

Item 3 Audit Committee Financial Expert Not Applicable to this semi-annual report

Item 4 Principal Accountant Fees and Services Not Applicable to this semi-annual report

Item 5 Audit Committee of Listed Registrants Not Applicable to this semi-annual report

Item 6 Investments

(a) The registrant's Schedule of Investments is included as part of the Report to Stockholders filed under Item 1 of this Form.

(b) Not Applicable due to no such divestments during the semi-annual period covered since the previous Form N-CSR filing.

Item 7 Disclosure of Proxy Voting Policies and Procedures for Closed-End Management Investment Companies  
Not Applicable to this semi-annual report

Item 8 Portfolio Managers of Closed-End Management Investment Companies

(a) Not Applicable to this semi-annual report.

(b) As of the date of this filing, there have been no changes in any of the portfolio managers identified in the most recent annual report on Form N-CSR.

Item 9 Purchases of Equity Securities by Closed-End Management Investment Company and Affiliated Purchasers  
Not Applicable

Item 10 Submission of Matters to a Vote of Security Holders There have been no material changes to these procedures.

Item 11 Controls and Procedures

(a) The registrant's principal executive and principal financial officers, or persons performing similar functions, have concluded that the registrant's disclosure controls and procedures (as defined in Rule 30a-3(c) under the Investment Company Act of 1940, as amended (the "1940 Act")) are effective as of a date within 90 days of the filing of this report based on the evaluation of these controls and procedures required by Rule 30a-3(b) under the 1940 Act and Rule 13a-15(b) under the Securities Exchange Act of 1934, as amended.

(b) There were no changes in the registrant's internal control over financial reporting (as defined in Rule 30a-3(d) under the 1940 Act) that occurred during the second fiscal quarter of the period covered by this report that have materially affected, or are reasonably likely to materially affect, the registrant's internal control over financial reporting.

Item 12 Exhibits attached hereto

(a)(1) Code of Ethics Not Applicable to this semi-annual report

(a)(2) Certifications Attached hereto

(a)(3) Not Applicable

(b) Certifications Attached hereto

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

BlackRock MuniYield Pennsylvania Quality Fund

By: /s/ John M. Perlowski  
John M. Perlowski  
Chief Executive Officer (principal executive officer) of

BlackRock MuniYield Pennsylvania Quality Fund

Date: April 5, 2017

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

By: /s/ John M. Perlowski  
John M. Perlowski  
Chief Executive Officer (principal executive officer) of

BlackRock MuniYield Pennsylvania Quality Fund

Date: April 5, 2017

By: /s/ Neal J. Andrews  
Neal J. Andrews  
Chief Financial Officer (principal financial officer) of

BlackRock MuniYield Pennsylvania Quality Fund

Date: April 5, 2017