Pioneer Diversified High Income Trust Form N-Q September 28, 2012

OMB APPROVAL

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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM N-Q

CERTIFIED SHAREHOLDER REPORT OF REGISTERED MANAGEMENT INVESTMENT COMPANIES

Investment Company Act file number 811-22014

Pioneer Diversified High Income Trust (Exact name of registrant as specified in charter)

60 State Street, Boston, MA 02109 (Address of principal executive offices) (ZIP code)

Terrence J Cullen, Pioneer Investment Management, Inc., 60 State Street, Boston, MA 02109 (Name and address of agent for service)

Registrant's telephone number, including area code: (617) 742-7825

Date of fiscal year end: April 30

Date of reporting period: July 31, 2012

Form N-Q is to be used by management investment companies, other than small business investment companies registered on Form N-5 (239.24 and 274.5 of this chapter), to file reports with the Commission, not later than 60 days after close of the first and third fiscal quarters, pursuant to Rule 30b1-5under the Investment Company Act of 1940 (17 CFR 270.30b-5). The Commission may use the information provided on Form N-Q in its regulatory, disclosure review, inspection, and policymaking roles.

A registrant is required to disclose the information specified by Form N-Q, and the Commission will make this information public. A registrant is not required to respond to the collection of information contained in Form N-Q unless the Form displays a currently valid Office of Management and Budget ("OMB") control number. Please direct comments concerning the accuracy of the information collection burden estimate and any suggestions for reducing the burden to Secretary, Securities and Exchange Commission, 450 Fifth Street, NW, Washington, DC 20549-0609. The OMB has reviewed this collection of information under the clearance requirements of 44 U.S.C. ss. 3507.

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ITEM 1. Schedule of Investments.

Pioneer Diversified High Income Trust NQl July 31, 2012

Ticker Symbols: HNW

Schedule of Investments | 7/31/2012 (Consolidated) (unaudited)

Principal

Amount S&P/Moody's

USD (\$) Rating Value

ASSET BACKED SECURITIES - 1.1% of

Net Assets

450,000(a) BB/A2Bear Stearns Asset

Backed Securities Trust, Series 2004-BO1, Class

M3, 1.296%, 10/25/34 \$ 354,301

100,000 BB/NRCarNow Auto

Receivables Trust.

Series 2012-1A, Class D,

6.9%, 11/15/16 (144A) 100,249

699,000(a) CCC/Caa2Carrington Mortgage 439,648

Loan Trust,

Series 2007-FRE1, Class

| | =aga: :g. | Tionson Bivoromod riigir intomio Trace Tromin |
|-----|------------|---|
| | 443,571(a) | A2, 0.446%, 2/25/37 CC/NRCountrywide Asset-Backed Certificates, Series 2007-SD1, Class A1, 0.696%, 3/25/47 |
| | 128,555(a) | (144A) 179,781 B-/B3GSAMP Trust, |
| | 120,333(a) | Series 2006-HE8, Class A2B, 0.376%, 1/25/37 114,516 |
| EUR | 107,128 | CCC-/Caa2New Reclamation Group Pty., Ltd., 8.125%, 2/1/13 (144A) \$ 92,286 |
| | 956,414(a) | B-/Caa1Aircraft Finance Trust, Series 1999-1A, Class A1, 0.729%, 5/15/24 (144A) \$ 430,386 |
| | 3,554(a) | B-/Ba3Aircraft Finance Trust, Series 1999-1A, Class A2, 0.749%, 5/15/24 |
| | | (144A) 3,305 |
| | | TOTAL ASSET BACKED SECURITIES (Cost \$1,876,395) \$ 1,714,472 |
| | | COLLATERALIZED MORTGAGE OBLIGATIONS - 0.7% of Net Assets |
| | 369,809(a) | D/CDowney Savings & Loan Association Mortgage Loan Trust, Series 2005-AR6, Class 2A1B, 0.617%, 10/19/45 |
| | 182,628(b) | \$ 85,229 BB-/NRGSR Mortgage Loan Trust, Series 2004-3F, Class B1, 5.736%, 2/25/34 155,123 |
| | 904,548(a) | 2/25/34 155,123 AAA/Ba2Impac CMB Trust, Series 2004-9, Class 1A1, |
| | 103,852(a) | 1.006%, 1/25/35 714,577 D/NRWaMu Mortgage Pass 85,196 Through Certificates, |

Series 2006-AR16, Class 3A1, 5.01%, 12/25/36

100,000(b) NR/NRVericrest Opportunity

Loan Transferee,

Series 2012-NL1A, Class A2, 8.112%, 3/25/49

(144A) \$ 100,487

TOTAL

COLLATERALIZED

MORTGAGE OBLIGATIONS

(Cost \$1,348,661) \$1,140,612

COMMERCIAL

MORTGAGE-BACKED

SECURITIES - 0.3% of

Net Assets

175,340(a) NR/Ba1JP Morgan Chase

Commercial Mortgage

Securities Corp.,

Series 2006-FL2A, Class

G, 0.609%, 11/15/18

(144A) \$ 142,026

Principal

Amount S&P/Moody's

USD (\$) Rating Value

250,000(b) BB+/Baa3Bear Stearns Commercial

Mortgage Securities, Series 2006-PW12, Class

AJ, 5.757%, 9/11/38 \$ 214,990

200,000(a) BBB+/Baa2Morgan Stanley Capital I,

Inc., Series 2007-XLF9,

Class C, 0.949%,

12/15/20 (144A) \$ 183,154

| | TOTAL COMMERCIAL MORTGAGE-BACKED SECURITIES (Cost \$546,382) | \$ 540,170 |
|-----------|--|-------------------------|
| | SENIOR SECURED FLOATING RATE LOAN INTERESTS - 28.9% of Net Assets * | |
| | AUTOMOBILES & COMPONENTS - 1.9% Auto Parts & Equipment - 0.6% | |
| 138,733 | B+/Ba3Federal-Mogul Corp., Tranche B Term Loan, | |
| 70,782 | 2.178%, 12/29/14 B+/Ba3Federal-Mogul Corp., Tranche C Term Loan, | \$ 132,252 |
| 150,000 | 2.178%, 12/28/15 | 67,475 |
| 158,000 | B+/B1Metaldyne LLC, Term Loan, 5.25%, 5/18/17 | 158,101 |
| 284,288 | B/B1TI Group Automotive Systems LLC, Term | , |
| 223,616 | Loan, 6.75%, 3/14/18 BB/Ba2Tomkins LLC, Term | 276,470 |
| | Loan B-1, 4.25%, 9/29/16 | 224,664 |
| 142,825 | B+/Ba2UCI International, Inc., Term Loan, 5.5%, | |
| | 7/26/17 | 143,985 \$ 1,002,947 |
| | Automobile | , , , , , , , |
| 1,485,000 | Manufacturers - 0.9% BB/Ba2Chrysler Group LLC, Tranche B Term Loan, | |
| | 6.0%, 5/24/17 Tires & Rubber - 0.4% | \$ 1,510,751 |
| 575,000 | BB/Ba1Goodyear Tire & Rubber Co., Extended Second | |
| | Lien Term Loan, 4.75%, 4/30/19 | \$ 569,538 |
| | Total Automobiles & Components | \$ 3,083,236 |
| | CAPITAL GOODS - | |

3.4%

| | Aerospace & Defense - 1.6% | |
|-----------|--|----------------------------|
| 895,747 | B+/B3API Technologies Corp., | |
| | Term Loan, 8.75%, 6/27/16 | \$ 900,225 |
| 605,843 | B/B2DAE Aviation Holdings, | Ψ 700,223 |
| | Inc., Tranche B-1 Term | |
| 212.050 | Loan, 5.45%, 7/31/14 | 605,843 |
| 213,850 | BB-/B1Hunter Defense | |
| | Technologies, Inc., Term Loan, 3.5%, 8/22/14 | 186,584 |
| 576,069 | B/B2Standard Aero, Ltd., | 100,00. |
| | Tranche B-2 Term Loan, | |
| | 5.34%, 7/31/14 | 576,069 |
| 326,121 | BB-/B1TASC, Inc., New | |
| | Tranche B Term Loan, | 222 656 |
| | 4.5%, 12/18/15 | 322,656 \$ 2,591,377 |
| | Building Products - 0.7% | |
| 1,047,188 | B+/B1Goodman Global, Inc., | |
| | First Lien Initial Term | |
| | Loan, 5.75%, 10/28/16 | \$ 1,050,455 |
| | Construction & Farm | |
| | Machinery & Heavy | |
| 415,000 | Trucks - 0.6% BB/Ba2Manitowoc Co., Inc., | |
| 413,000 | Term Loan B, 4.25%, | |
| | 11/13/17 | \$ 414,222 |
| 560,000 | BB-/B2Thyssenkrupp Waupaca, | , , |
| | Term Loan, 8.5%, | |
| | 6/29/17 | 564,900 |
| | | \$ 979,122 |
| Principal | | |
| Amount | S&P/Moody's | |
| USD (\$) | Rating | Value |
| | | |
| | Electrical Components | |
| 565,000 | & Equipment - 0.4% B/B3WireCo WorldGroup, | |
| 303,000 | Inc., Term Loan, 4.75%, | |
| | 2/15/17 | \$ 566,412 |
| | Trading Companies & | |
| | Distributors - 0.1% | |
| 200,000 | BBB-/Ba2AWAS Finance | |
| | Luxembourg 2012 SA, | |
| | Term Loan, 4.5%, 7/16/18 | \$ 200 250 |
| | | \$ 200,250 \$ 5,387,616 |
| | Total Capital Goods | Ψ 5,507,010 |

| 204,153 | I S ((BB-/Ba30 I I I | COMMERCIAL & PROFESSIONAL SERVICES - 1.0% Commercial Printing - 0.1% Cenveo Corp., Facility Ferm Loan B, 6.625%, 12/21/16 Environmental & Facilities Services - 0.8% | \$ 204,408 |
|-----------|---|--|----------------------------|
| 1,068,378 | CCC+/Caa1S | Synagro Technologies, Inc., First Lien Term | |
| 294,400 | B/B1\ I | Loan, 2.25%, 4/2/14 Waste Industries USA, Inc., Term Loan B, | \$ 929,489 |
| 207,910 | 8 B+/B1I | 4.75%, 3/17/17 Security & Alarm Services - 0.1% Protection One, Inc., Term Loan, 5.75%, | 294,768 \$ 1,224,257 |
| | 7 | 3/21/19 Total Commercial & Professional Services | \$ 208,819 \$ 1,637,484 |
| 214,901 | I I S BB/Ba3I I | CONSUMER DURABLES & APPAREL - 0.1% Housewares & Specialties - 0.1% Reynolds Group Holdings, Inc., Tranche B Term Loan, 6.5%, 2/9/18 | \$ 217,318 |
| | | Fotal Consumer Durables & Apparel | \$ 217,318 |
| 550,000 | 8 B+/B1I | CONSUMER SERVICES - 1.2% Restaurants - 0.7% Landry's Inc., Term Loan B, 6.5%, 4/24/18 | \$ 552,518 |
| 553,613 | B/Ba31 | NPC International, Inc., 2012 Term Loan, 5.25%, 12/28/18 | 558,457 |