

The Ithaka Group
PORTFOLIO APPRAISAL
North Carolina Retirement System
North Carolina Department of State Treasurer
December 31, 2016

Quantity	Security	Unit Cost	Total Cost	Price	Market Value	Pct. Assets	Cur. Yield
CASH AND EQUIVALENTS							
	BNY MELLON MMF		68,321.33		68,321.33	0.4	0.0
	Dividend Accruals		4,576.98		4,576.98	0.0	0.0
			72,898.31		72,898.31	0.4	0.0
COMMON STOCK							
6,126.0000	Adobe Systems Inc.	87.71	537,302.70	102.95	630,671.70	3.4	0.0
3,582.0000	Alexion Pharmaceuticals	129.33	463,253.83	122.35	438,257.70	2.3	0.0
1,226.0000	Alphabet Inc. Class C	634.09	777,393.91	771.82	946,251.32	5.0	0.0
1,372.0000	Amazon.com Inc.	304.75	418,112.61	749.87	1,028,821.64	5.5	0.0
2,698.0000	BioMarin Pharmaceutical	112.76	304,234.72	82.84	223,502.32	1.2	0.0
705.0000	Biogen Inc.	372.59	262,676.21	283.58	199,923.90	1.1	0.0
6,677.0000	Celgene Corp.	78.01	520,847.32	115.75	772,862.75	4.1	0.0
3,342.0000	DexCom, Inc.	90.91	303,824.90	59.70	199,517.40	1.1	0.0
1,780.0000	Domino's Pizza, Inc.	109.44	194,799.64	159.24	283,447.20	1.5	1.0
5,448.0000	Edwards Lifesciences Corp.	105.75	576,126.92	93.70	510,477.60	2.7	0.0
11,978.0000	Facebook, Inc. cl A	42.23	505,846.81	115.05	1,378,068.90	7.3	0.0
2,823.0000	Home Depot Inc.	136.23	384,569.25	134.08	378,507.84	2.0	2.1
3,081.0000	Illumina Inc	189.39	583,499.36	128.04	394,491.24	2.1	0.0
3,392.0000	Incyte Corp	87.78	297,744.08	100.27	340,115.84	1.8	0.0
8,450.0000	Mastercard Inc.	54.55	460,972.85	103.25	872,462.50	4.6	0.7
3,550.0000	Middleby Corporation	84.56	300,184.17	128.81	457,275.50	2.4	0.0
4,632.0000	Nike Inc cl B	64.53	298,922.11	50.83	235,444.56	1.3	1.3
670.0000	O'Reilly Automotive, Inc.	255.47	171,167.24	278.41	186,534.70	1.0	0.0
3,790.0000	Palo Alto Networks, Inc.	154.55	585,740.14	125.05	473,939.50	2.5	0.0
10,542.0000	PayPal Holdings, Inc.	38.67	407,668.63	39.47	416,092.74	2.2	0.0
1,721.0000	Regeneron Pharmaceuticals	287.18	494,240.48	367.09	631,761.89	3.4	0.0
13,833.0000	Salesforce.com Inc	47.74	660,439.62	68.46	947,007.18	5.0	0.0
6,155.0000	Splunk Inc.	43.57	268,164.60	51.15	314,828.25	1.7	0.0
14,931.0000	Starbucks Corporation	35.93	536,467.68	55.52	828,969.12	4.4	1.4
6,256.0000	TJX Companies Inc.	68.08	425,929.12	75.13	470,013.28	2.5	1.4
580.0000	The Priceline Group Inc.	707.95	410,611.00	1,466.06	850,314.80	4.5	0.0
2,145.0000	Transdigm Group, Inc.	123.35	264,580.94	248.96	534,019.20	2.8	0.0
4,387.0000	Ulta Salon, Cosmetics	161.68	709,280.51	254.94	1,118,421.78	6.0	0.0
1,946.0000	Ultimate Software Group Inc.	184.86	359,744.09	182.35	354,853.10	1.9	0.0
8,529.0000	Under Armour, Inc. Cl A	14.90	127,109.77	29.05	247,767.45	1.3	0.0
8,589.0000	Under Armour, Inc. Cl C	14.42	123,839.81	25.17	216,185.13	1.2	0.0
13,678.0000	VISA Inc.	47.81	653,877.71	78.02	1,067,157.56	5.7	0.7
4,799.0000	Walt Disney Company	91.54	439,316.01	104.22	500,151.78	2.7	1.4
4,040.0000	Workday, Inc.	76.31	308,307.33	66.09	267,003.60	1.4	0.0
			14,136,796.07		18,715,120.97	99.6	0.3
TOTAL PORTFOLIO			14,209,694.38		18,788,019.28	100.0	0.3

The Ithaka Group
PERFORMANCE HISTORY
NET OF FEES
North Carolina Retirement System
From 05-02-13 to 12-31-16

Time Period			Percent Return Per Period				Cumulative TWR Basis = 100			
			Portfolio	Russell 1000 Growth	Russell 3000 Growth	S&P 500	Portfolio	Russell 1000 Growth	Russell 3000 Growth	S&P 500
05-02-2013	to	05-02-2013					100.00	100.00	100.00	100.00
05-02-2013	to	05-31-2013	1.82	1.69	2.00	2.08	101.82	101.69	102.00	102.08
05-31-2013	to	06-30-2013	-2.21	-1.88	-1.78	-1.50	99.57	99.78	100.18	100.54
06-30-2013	to	07-31-2013	7.69	5.30	5.48	4.95	107.22	105.07	105.68	105.52
07-31-2013	to	08-31-2013	1.83	-1.71	-1.73	-3.13	109.19	103.27	103.84	102.21
08-31-2013	to	09-30-2013	8.56	4.46	4.66	2.97	118.53	107.87	108.68	105.26
09-30-2013	to	10-31-2013	2.80	4.42	4.21	4.46	121.85	112.64	113.26	109.95
10-31-2013	to	11-30-2013	3.28	2.82	2.92	2.80	125.84	115.82	116.57	113.03
11-30-2013	to	12-31-2013	2.75	2.86	2.79	2.36	129.30	119.13	119.82	115.70
12-31-2013	to	01-31-2014	-1.21	-2.85	-2.76	-3.56	127.74	115.73	116.51	111.58
01-31-2014	to	02-28-2014	6.81	5.15	5.12	4.31	136.44	121.69	122.48	116.39
02-28-2014	to	03-31-2014	-7.00	-1.01	-1.13	0.69	126.88	120.46	121.10	117.20
03-31-2014	to	04-30-2014	-5.12	0.00	-0.41	0.62	120.39	120.47	120.61	117.92
04-30-2014	to	05-31-2014	2.87	3.12	2.95	2.10	123.85	124.22	124.16	120.40
05-31-2014	to	06-30-2014	2.94	1.95	2.27	1.91	127.49	126.64	126.98	122.70
06-30-2014	to	07-31-2014	0.37	-1.53	-1.89	-1.51	127.96	124.70	124.58	120.85
07-31-2014	to	08-31-2014	5.38	4.58	4.66	3.77	134.85	130.42	130.39	125.40
08-31-2014	to	09-30-2014	-2.44	-1.45	-1.75	-1.55	131.56	128.53	128.11	123.45
09-30-2014	to	10-31-2014	3.03	2.64	2.90	2.32	135.55	131.91	131.82	126.32
10-31-2014	to	11-30-2014	1.56	3.17	2.98	2.45	137.66	136.09	135.74	129.42
11-30-2014	to	12-31-2014	-1.83	-1.04	-0.75	-0.42	135.14	134.67	134.73	128.88
12-31-2014	to	01-31-2015	0.72	-1.53	-1.59	-3.10	136.12	132.61	132.59	124.87
01-31-2015	to	02-28-2015	8.35	6.67	6.71	5.49	147.49	141.45	141.48	131.73
02-28-2015	to	03-31-2015	-1.45	-1.14	-0.92	-1.74	145.36	139.84	140.18	129.44
03-31-2015	to	04-30-2015	-0.32	0.50	0.23	0.85	144.89	140.54	140.51	130.54
04-30-2015	to	05-31-2015	0.28	1.41	1.58	1.05	145.30	142.52	142.73	131.91
05-31-2015	to	06-30-2015	1.24	-1.76	-1.52	-2.10	147.10	140.01	140.56	129.14
06-30-2015	to	07-31-2015	5.21	3.39	3.14	1.97	154.76	144.76	144.98	131.69
07-31-2015	to	08-31-2015	-6.87	-6.07	-6.19	-6.26	144.14	135.97	136.00	123.45
08-31-2015	to	09-30-2015	-2.66	-2.47	-2.78	-2.64	140.30	132.60	132.22	120.18
09-30-2015	to	10-31-2015	9.66	8.61	8.39	8.30	153.86	144.02	143.31	130.16
10-31-2015	to	11-30-2015	-0.14	0.28	0.53	0.05	153.65	144.43	144.07	130.22
11-30-2015	to	12-31-2015	-1.13	-1.47	-1.72	-1.75	151.91	142.31	141.59	127.94
12-31-2015	to	01-31-2016	-8.77	-5.58	-5.97	-5.07	138.59	134.36	133.13	121.45
01-31-2016	to	02-29-2016	-4.20	-0.04	-0.09	-0.41	132.77	134.31	133.01	120.95
02-29-2016	to	03-31-2016	5.42	6.74	6.81	6.60	139.97	143.36	142.07	128.93
03-31-2016	to	04-30-2016	0.51	-0.91	-0.78	0.27	140.68	142.05	140.96	129.28
04-30-2016	to	05-31-2016	2.33	1.94	2.00	1.53	143.95	144.81	143.78	131.26
05-31-2016	to	06-30-2016	-2.94	-0.39	-0.40	0.09	139.72	144.24	143.20	131.38
06-30-2016	to	07-31-2016	7.22	4.72	4.86	3.56	149.81	151.05	150.16	136.05
07-31-2016	to	08-31-2016	-0.44	-0.50	-0.38	-0.12	149.14	150.30	149.59	135.89
08-31-2016	to	09-30-2016	1.10	0.37	0.45	-0.12	150.79	150.85	150.26	135.72
09-30-2016	to	10-31-2016	-3.07	-2.36	-2.65	-1.97	146.15	147.30	146.27	133.05
10-31-2016	to	11-30-2016	-0.96	2.18	2.68	3.44	144.75	150.51	150.19	137.63
11-30-2016	to	12-31-2016	-2.09	1.24	1.25	1.82	141.72	152.38	152.06	140.14
Date to Date										
05-02-2013	to	12-31-2016	41.72	52.38	52.06	40.14				
Annualized			9.98	12.18	12.12	9.65				

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PERFORMANCE HISTORY
GROSS OF FEES
North Carolina Retirement System
From 05-02-13 to 12-31-16

Time Period			Percent Return Per Period				Cumulative TWR Basis = 100			
			Portfolio	Russell 1000 Growth	Russell 3000 Growth	S&P 500	Portfolio	Russell 1000 Growth	Russell 3000 Growth	S&P 500
05-02-2013	to	05-02-2013					100.00	100.00	100.00	100.00
05-02-2013	to	05-31-2013	1.82	1.69	2.00	2.08	101.82	101.69	102.00	102.08
05-31-2013	to	06-30-2013	-2.21	-1.88	-1.78	-1.50	99.57	99.78	100.18	100.54
06-30-2013	to	07-31-2013	7.78	5.30	5.48	4.95	107.32	105.07	105.68	105.52
07-31-2013	to	08-31-2013	1.83	-1.71	-1.73	-3.13	109.28	103.27	103.84	102.21
08-31-2013	to	09-30-2013	8.60	4.46	4.66	2.97	118.68	107.87	108.68	105.26
09-30-2013	to	10-31-2013	2.94	4.42	4.21	4.46	122.17	112.64	113.26	109.95
10-31-2013	to	11-30-2013	3.28	2.82	2.92	2.80	126.18	115.82	116.57	113.03
11-30-2013	to	12-31-2013	2.75	2.86	2.79	2.36	129.64	119.13	119.82	115.70
12-31-2013	to	01-31-2014	-1.07	-2.85	-2.76	-3.56	128.26	115.73	116.51	111.58
01-31-2014	to	02-28-2014	6.81	5.15	5.12	4.31	137.00	121.69	122.48	116.39
02-28-2014	to	03-31-2014	-7.00	-1.01	-1.13	0.69	127.41	120.46	121.10	117.20
03-31-2014	to	04-30-2014	-4.97	0.00	-0.41	0.62	121.07	120.47	120.61	117.92
04-30-2014	to	05-31-2014	2.87	3.12	2.95	2.10	124.55	124.22	124.16	120.40
05-31-2014	to	06-30-2014	2.94	1.95	2.27	1.91	128.21	126.64	126.98	122.70
06-30-2014	to	07-31-2014	0.51	-1.53	-1.89	-1.51	128.87	124.70	124.58	120.85
07-31-2014	to	08-31-2014	5.38	4.58	4.66	3.77	135.81	130.42	130.39	125.40
08-31-2014	to	09-30-2014	-2.44	-1.45	-1.75	-1.55	132.49	128.53	128.11	123.45
09-30-2014	to	10-31-2014	3.18	2.64	2.90	2.32	136.71	131.91	131.82	126.32
10-31-2014	to	11-30-2014	1.56	3.17	2.98	2.45	138.84	136.09	135.74	129.42
11-30-2014	to	12-31-2014	-1.83	-1.04	-0.75	-0.42	136.30	134.67	134.73	128.88
12-31-2014	to	01-31-2015	0.87	-1.53	-1.59	-3.10	137.48	132.61	132.59	124.87
01-31-2015	to	02-28-2015	8.35	6.67	6.71	5.49	148.97	141.45	141.48	131.73
02-28-2015	to	03-31-2015	-1.39	-1.14	-0.92	-1.74	146.89	139.84	140.18	129.44
03-31-2015	to	04-30-2015	-0.32	0.50	0.23	0.85	146.42	140.54	140.51	130.54
04-30-2015	to	05-31-2015	0.28	1.41	1.58	1.05	146.83	142.52	142.73	131.91
05-31-2015	to	06-30-2015	1.44	-1.76	-1.52	-2.10	148.95	140.01	140.56	129.14
06-30-2015	to	07-31-2015	5.21	3.39	3.14	1.97	156.71	144.76	144.98	131.69
07-31-2015	to	08-31-2015	-6.87	-6.07	-6.19	-6.26	145.95	135.97	136.00	123.45
08-31-2015	to	09-30-2015	-2.45	-2.47	-2.78	-2.64	142.37	132.60	132.22	120.18
09-30-2015	to	10-31-2015	9.81	8.61	8.39	8.30	156.33	144.02	143.31	130.16
10-31-2015	to	11-30-2015	-0.14	0.28	0.53	0.05	156.12	144.43	144.07	130.22
11-30-2015	to	12-31-2015	-1.07	-1.47	-1.72	-1.75	154.45	142.31	141.59	127.94
12-31-2015	to	01-31-2016	-8.62	-5.58	-5.97	-5.07	141.13	134.36	133.13	121.45
01-31-2016	to	02-29-2016	-4.13	-0.04	-0.09	-0.41	135.30	134.31	133.01	120.95
02-29-2016	to	03-31-2016	5.42	6.74	6.81	6.60	142.63	143.36	142.07	128.93
03-31-2016	to	04-30-2016	0.65	-0.91	-0.78	0.27	143.55	142.05	140.96	129.28
04-30-2016	to	05-31-2016	2.33	1.94	2.00	1.53	146.89	144.81	143.78	131.26
05-31-2016	to	06-30-2016	-2.88	-0.39	-0.40	0.09	142.66	144.24	143.20	131.38
06-30-2016	to	07-31-2016	7.22	4.72	4.86	3.56	152.95	151.05	150.16	136.05
07-31-2016	to	08-31-2016	-0.44	-0.50	-0.38	-0.12	152.27	150.30	149.59	135.89
08-31-2016	to	09-30-2016	1.30	0.37	0.45	-0.12	154.25	150.85	150.26	135.72
09-30-2016	to	10-31-2016	-2.93	-2.36	-2.65	-1.97	149.73	147.30	146.27	133.05
10-31-2016	to	11-30-2016	-0.90	2.18	2.68	3.44	148.39	150.51	150.19	137.63
11-30-2016	to	12-31-2016	-2.09	1.24	1.25	1.82	145.28	152.38	152.06	140.14
Date to Date										
05-02-2013	to	12-31-2016	45.28	52.38	52.06	40.14				

The Ithaka Group
TRANSACTION SUMMARY
North Carolina Retirement System
North Carolina Department of State Treasurer
From 12-01-2016 To 12-31-2016

Tran Code	Security	Trade Date	Settle Date	Quantity	Close Meth.	S/D Type	S/D Symbol	Trade Amount	Lot
wd	Dividend Accruals	12-01-2016	12-01-2016			caus	BNYMMF	1,626.56	
dv	Nike Inc cl B	12-01-2016	01-03-2017			caus	divacc	833.76	
wd	Dividend Accruals	12-02-2016	12-02-2016			caus	BNYMMF	3,398.25	
in	BNY MELLON MMF	12-02-2016	12-02-2016			caus	BNYMMF	76.70	
in	BNY MELLON MMF	12-02-2016	12-02-2016			caus	BNYMMF	0.19	
wd	Dividend Accruals	12-06-2016	12-06-2016			caus	BNYMMF	2,256.87	
dv	Walt Disney Company	12-08-2016	01-11-2017			caus	divacc	3,743.22	
dv	Domino's Pizza, Inc.	12-13-2016	12-30-2016			caus	divacc	676.40	
wd	Dividend Accruals	12-15-2016	12-15-2016			caus	BNYMMF	1,947.87	
wd	Dividend Accruals	12-30-2016	12-30-2016			caus	BNYMMF	676.40	