

Form 5500 Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	Annual Return/Report of Employee Benefit Plan This form is required to be filed for employee benefit plans under sections 104 and 4065 of the Employee Retirement Income Security Act of 1974 (ERISA) and sections 6057(b) and 6058(a) of the Internal Revenue Code (the Code). ▶ Complete all entries in accordance with the instructions to the Form 5500.	OMB Nos. 1210-0110 1210-0089 2022 This Form is Open to Public Inspection
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Part I	Annual Report Identification Information
For calendar plan year 2022 or fiscal plan year beginning 01/01/2022 and ending 12/31/2022	
A This return/report is for:	☐ a multiemployer plan ☐ a multiple-employer plan (Filers checking this box must attach a list of participating employer information in accordance with the form instructions.) ☒ a single-employer plan ☐ a DFE (specify) _____
B This return/report is:	☐ the first return/report ☐ the final return/report ☐ an amended return/report ☐ a short plan year return/report (less than 12 months)
C If the plan is a collectively-bargained plan, check here.	☐
D Check box if filing under:	☒ Form 5558 ☐ automatic extension ☐ the DFVC program ☐ special extension (enter description)
E If this is a retroactively adopted plan permitted by SECURE Act section 201, check here.	☐

Part II	Basic Plan Information —enter all requested information
1a Name of plan TWO SIGMA 401(K) PLAN	1b Three-digit plan number (PN) ▶ 001
	1c Effective date of plan 01/01/2001
2a Plan sponsor's name (employer, if for a single-employer plan) Mailing address (include room, apt., suite no. and street, or P.O. Box) City or town, state or province, country, and ZIP or foreign postal code (if foreign, see instructions) TWO SIGMA INVESTMENTS, LP 100 AVENUE OF THE AMERICAS 16TH FLOOR NEW YORK, NY 10013	2b Employer Identification Number (EIN) 13-4181471 2c Plan Sponsor's telephone number 212-625-5700 2d Business code (see instructions) 523900

Caution: A penalty for the late or incomplete filing of this return/report will be assessed unless reasonable cause is established.

Under penalties of perjury and other penalties set forth in the instructions, I declare that I have examined this return/report, including accompanying schedules, statements and attachments, as well as the electronic version of this return/report, and to the best of my knowledge and belief, it is true, correct, and complete.

SIGN HERE	Filed with authorized/valid electronic signature.	10/13/2023	DAVID PENNEY
	Signature of plan administrator	Date	Enter name of individual signing as plan administrator
SIGN HERE			
	Signature of employer/plan sponsor	Date	Enter name of individual signing as employer or plan sponsor
SIGN HERE			
	Signature of DFE	Date	Enter name of individual signing as DFE

For Paperwork Reduction Act Notice, see the Instructions for Form 5500.

Form 5500 (2022)
v. 220413

3a Plan administrator's name and address ☒ Same as Plan Sponsor	3b Administrator's EIN 3c Administrator's telephone number
4 If the name and/or EIN of the plan sponsor or the plan name has changed since the last return/report filed for this plan, enter the plan sponsor's name, EIN, the plan name and the plan number from the last return/report: a Sponsor's name c Plan Name	4b EIN 4d PN
5 Total number of participants at the beginning of the plan year	5 2191
6 Number of participants as of the end of the plan year unless otherwise stated (welfare plans complete only lines 6a(1) , 6a(2) , 6b , 6c , and 6d). a(1) Total number of active participants at the beginning of the plan year a(2) Total number of active participants at the end of the plan year b Retired or separated participants receiving benefits c Other retired or separated participants entitled to future benefits..... d Subtotal. Add lines 6a(2) , 6b , and 6c e Deceased participants whose beneficiaries are receiving or are entitled to receive benefits. f Total. Add lines 6d and 6e g Number of participants with account balances as of the end of the plan year (only defined contribution plans complete this item)..... h Number of participants who terminated employment during the plan year with accrued benefits that were less than 100% vested.....	 6a(1) 1652 6a(2) 1933 6b 0 6c 604 6d 2537 6e 1 6f 2538 6g 2441 6h 85
7 Enter the total number of employers obligated to contribute to the plan (only multiemployer plans complete this item)	7
8a If the plan provides pension benefits, enter the applicable pension feature codes from the List of Plan Characteristics Codes in the instructions: 2E 2F 2G 2J 2K 2T 3H 3D b If the plan provides welfare benefits, enter the applicable welfare feature codes from the List of Plan Characteristics Codes in the instructions:	
9a Plan funding arrangement (check all that apply) (1) ☐ Insurance (2) ☐ Code section 412(e)(3) insurance contracts (3) ☒ Trust (4) ☐ General assets of the sponsor	9b Plan benefit arrangement (check all that apply) (1) ☐ Insurance (2) ☐ Code section 412(e)(3) insurance contracts (3) ☒ Trust (4) ☐ General assets of the sponsor
10 Check all applicable boxes in 10a and 10b to indicate which schedules are attached, and, where indicated, enter the number attached. (See instructions)	
a Pension Schedules (1) ☒ R (Retirement Plan Information) (2) ☐ MB (Multiemployer Defined Benefit Plan and Certain Money Purchase Plan Actuarial Information) - signed by the plan actuary (3) ☐ SB (Single-Employer Defined Benefit Plan Actuarial Information) - signed by the plan actuary	b General Schedules (1) ☒ H (Financial Information) (2) ☐ I (Financial Information – Small Plan) (3) ☐ 0 A (Insurance Information) (4) ☒ C (Service Provider Information) (5) ☒ D (DFE/Participating Plan Information) (6) ☐ G (Financial Transaction Schedules)

Part III Form M-1 Compliance Information (to be completed by welfare benefit plans)

11a If the plan provides welfare benefits, was the plan subject to the Form M-1 filing requirements during the plan year? (See instructions and 29 CFR 2520.101-2.) ☐ Yes ☐ No

If "Yes" is checked, complete lines 11b and 11c.

11b Is the plan currently in compliance with the Form M-1 filing requirements? (See instructions and 29 CFR 2520.101-2.) ☐ Yes ☐ No

11c Enter the Receipt Confirmation Code for the 2022 Form M-1 annual report. If the plan was not required to file the 2022 Form M-1 annual report, enter the Receipt Confirmation Code for the most recent Form M-1 that was required to be filed under the Form M-1 filing requirements. (Failure to enter a valid Receipt Confirmation Code will subject the Form 5500 filing to rejection as incomplete.)

Receipt Confirmation Code _____

SCHEDULE C (Form 5500) Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	Service Provider Information This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA). ▶ File as an attachment to Form 5500.	OMB No. 1210-0110
		2022
		This Form is Open to Public Inspection.

For calendar plan year 2022 or fiscal plan year beginning 01/01/2022 and ending 12/31/2022		
A Name of plan TWO SIGMA 401(K) PLAN	B Three-digit plan number (PN) ▶	001
C Plan sponsor's name as shown on line 2a of Form 5500 TWO SIGMA INVESTMENTS, LP	D Employer Identification Number (EIN) 13-4181471	

Part I	Service Provider Information (see instructions)
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You must complete this Part, in accordance with the instructions, to report the information required for **each person** who received, directly or indirectly, \$5,000 or more in total compensation (i.e., money or anything else of monetary value) in connection with services rendered to the plan or the person's position with the plan during the plan year. If a person received **only** eligible indirect compensation for which the plan received the required disclosures, you are required to answer line 1 but are not required to include that person when completing the remainder of this Part.

1 Information on Persons Receiving Only Eligible Indirect Compensation

- a Check "Yes" or "No" to indicate whether you are excluding a person from the remainder of this Part because they received only eligible indirect compensation for which the plan received the required disclosures (see instructions for definitions and conditions)..... ☒ Yes ☐ No
- b If you answered line 1a "Yes," enter the name and EIN or address of each person providing the required disclosures for the service providers who received only eligible indirect compensation. Complete as many entries as needed (see instructions).

(b) Enter name and EIN or address of person who provided you disclosures on eligible indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL
04-2647786

(b) Enter name and EIN or address of person who provided you disclosures on eligible indirect compensation
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2. Information on Other Service Providers Receiving Direct or Indirect Compensation. Except for those persons for whom you answered "Yes" to line 1a above, complete as many entries as needed to list each person receiving, directly or indirectly, \$5,000 or more in total compensation (i.e., money or anything else of value) in connection with services rendered to the plan or their position with the plan during the plan year. (See instructions).

(a) Enter name and EIN or address (see instructions)

STRATEGIC ADVISORS, INC.

04-2654524

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
27	ADVISOR	76441	Yes ☐ No ☒	Yes ☐ No ☐		Yes ☐ No ☐

(a) Enter name and EIN or address (see instructions)

FIDELITY INVESTMENTS INSTITUTIONAL

04-2647786

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
37 60 64 65	RECORDKEEPER	-119443	Yes ☒ No ☐	Yes ☒ No ☐	0	Yes ☒ No ☐

(a) Enter name and EIN or address (see instructions)

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
			Yes ☐ No ☐	Yes ☐ No ☐		Yes ☐ No ☐

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received \$1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
COL SM CAP INDEX I2 - COLUMBIA MGT PO BOX 219104 KANSAS CITY, MO 64121-9104	0.10%	
(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
TRP EQUITY INCOME - T. ROWE PRICE 52-2269240	0.15%	
(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	

Part II Service Providers Who Fail or Refuse to Provide Information

4 Provide, to the extent possible, the following information for each service provider who failed or refused to provide the information necessary to complete this Schedule.

(a) Enter name and EIN or address of service provider (see instructions)	(b) Nature of Service Code(s)	(c) Describe the information that the service provider failed or refused to provide
(a) Enter name and EIN or address of service provider (see instructions)	(b) Nature of Service Code(s)	(c) Describe the information that the service provider failed or refused to provide
(a) Enter name and EIN or address of service provider (see instructions)	(b) Nature of Service Code(s)	(c) Describe the information that the service provider failed or refused to provide
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(a) Enter name and EIN or address of service provider (see instructions)	(b) Nature of Service Code(s)	(c) Describe the information that the service provider failed or refused to provide
(a) Enter name and EIN or address of service provider (see instructions)	(b) Nature of Service Code(s)	(c) Describe the information that the service provider failed or refused to provide

Part III Termination Information on Accountants and Enrolled Actuaries (see instructions)
(complete as many entries as needed)

a Name:	b EIN:
c Position:	
d Address:	e Telephone:

Explanation:

a Name:	b EIN:
c Position:	
d Address:	e Telephone:

Explanation:

a Name:	b EIN:
c Position:	
d Address:	e Telephone:

Explanation:

a Name:	b EIN:
c Position:	
d Address:	e Telephone:

Explanation:

a Name:	b EIN:
c Position:	
d Address:	e Telephone:

Explanation:

SCHEDULE D (Form 5500) Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration	DFE/Participating Plan Information This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA). ► File as an attachment to Form 5500.	OMB No. 1210-0110 2022 This Form is Open to Public Inspection.
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For calendar plan year 2022 or fiscal plan year beginning 01/01/2022 and ending 12/31/2022		
A Name of plan TWO SIGMA 401(K) PLAN	B Three-digit plan number (PN) ►	001
C Plan or DFE sponsor's name as shown on line 2a of Form 5500 TWO SIGMA INVESTMENTS, LP	D Employer Identification Number (EIN) 13-4181471	

Part I	Information on interests in MTIAs, CCTs, PSAs, and 103-12 IEs (to be completed by plans and DFEs) (Complete as many entries as needed to report all interests in DFEs)
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a Name of MTIA, CCT, PSA, or 103-12 IE:	SMALL CAP VAL II I1
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b Name of sponsor of entity listed in (a):	WILMINGTON TRUST, N.A.
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c EIN-PN	38-4097325-488	d Entity code	C	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)	569495
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a Name of MTIA, CCT, PSA, or 103-12 IE:	
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b Name of sponsor of entity listed in (a):	
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c EIN-PN		d Entity code		e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)	
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a Name of MTIA, CCT, PSA, or 103-12 IE:	
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b Name of sponsor of entity listed in (a):	
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c EIN-PN		d Entity code		e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)	
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a Name of MTIA, CCT, PSA, or 103-12 IE:	
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b Name of sponsor of entity listed in (a):	
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c EIN-PN		d Entity code		e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)	
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a Name of MTIA, CCT, PSA, or 103-12 IE:	
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b Name of sponsor of entity listed in (a):	
--	--

c EIN-PN		d Entity code		e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)	
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a Name of MTIA, CCT, PSA, or 103-12 IE:	
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b Name of sponsor of entity listed in (a):	
--	--

c EIN-PN		d Entity code		e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)	
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a Name of MTIA, CCT, PSA, or 103-12 IE:	
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b Name of sponsor of entity listed in (a):	
--	--

c EIN-PN		d Entity code		e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)	
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a Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
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103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
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103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)

Part II **Information on Participating Plans (to be completed by DFEs)**

(Complete as many entries as needed to report all participating plans)

a Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
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plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
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plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN

SCHEDULE H (Form 5500) Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	Financial Information This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA), and section 6058(a) of the Internal Revenue Code (the Code). ► File as an attachment to Form 5500.	OMB No. 1210-0110 2022 This Form is Open to Public Inspection
For calendar plan year 2022 or fiscal plan year beginning <u>01/01/2022</u> and ending <u>12/31/2022</u>		
A Name of plan <u>TWO SIGMA 401(K) PLAN</u>	B Three-digit plan number (PN) ►	<u>001</u>
C Plan sponsor's name as shown on line 2a of Form 5500 <u>TWO SIGMA INVESTMENTS, LP</u>	D Employer Identification Number (EIN) <u>13-4181471</u>	

Part I	Asset and Liability Statement		(a) Beginning of Year	(b) End of Year
1	Current value of plan assets and liabilities at the beginning and end of the plan year. Combine the value of plan assets held in more than one trust. Report the value of the plan's interest in a commingled fund containing the assets of more than one plan on a line-by-line basis unless the value is reportable on lines 1c(9) through 1c(14). Do not enter the value of that portion of an insurance contract which guarantees, during this plan year, to pay a specific dollar benefit at a future date. Round off amounts to the nearest dollar. MTIAs, CCTs, PSAs, and 103-12 IEs do not complete lines 1b(1), 1b(2), 1c(8), 1g, 1h, and 1i. CCTs, PSAs, and 103-12 IEs also do not complete lines 1d and 1e. See instructions.			
	Assets			
a	Total noninterest-bearing cash.....	1a	0	0
b	Receivables (less allowance for doubtful accounts):			
(1)	Employer contributions.....	1b(1)	0	0
(2)	Participant contributions.....	1b(2)	0	0
(3)	Other.....	1b(3)	0	0
c	General investments:			
(1)	Interest-bearing cash (include money market accounts & certificates of deposit).....	1c(1)	14750931	17287799
(2)	U.S. Government securities	1c(2)	0	0
(3)	Corporate debt instruments (other than employer securities):			
(A)	Preferred	1c(3)(A)	0	0
(B)	All other	1c(3)(B)	0	0
(4)	Corporate stocks (other than employer securities):			
(A)	Preferred	1c(4)(A)	0	0
(B)	Common.....	1c(4)(B)	0	0
(5)	Partnership/joint venture interests	1c(5)	0	0
(6)	Real estate (other than employer real property)	1c(6)	0	0
(7)	Loans (other than to participants).....	1c(7)	0	0
(8)	Participant loans.....	1c(8)	1632647	1819891
(9)	Value of interest in common/collective trusts.....	1c(9)	556888	569495
(10)	Value of interest in pooled separate accounts	1c(10)	0	0
(11)	Value of interest in master trust investment accounts.....	1c(11)	0	0
(12)	Value of interest in 103-12 investment entities	1c(12)	0	0
(13)	Value of interest in registered investment companies (e.g., mutual funds).....	1c(13)	438261796	389202484
(14)	Value of funds held in insurance company general account (unallocated contracts).....	1c(14)	0	0
(15)	Other	1c(15)	0	0

1d Employer-related investments:		(a) Beginning of Year	(b) End of Year
(1) Employer securities	1d(1)	0	0
(2) Employer real property	1d(2)	0	0
e Buildings and other property used in plan operation	1e	0	0
f Total assets (add all amounts in lines 1a through 1e)	1f	455202262	408879669

Liabilities

g Benefit claims payable	1g	0	0
h Operating payables	1h	0	0
i Acquisition indebtedness	1i	0	0
j Other liabilities	1j	0	0
k Total liabilities (add all amounts in lines 1g through 1j)	1k	0	0

Net Assets

l Net assets (subtract line 1k from line 1f)	1l	455202262	408879669
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Part II Income and Expense Statement

2 Plan income, expenses, and changes in net assets for the year. Include all income and expenses of the plan, including any trust(s) or separately maintained fund(s) and any payments/receipts to/from insurance carriers. Round off amounts to the nearest dollar. MTIAs, CCTs, PSAs, and 103-12 IEs do not complete lines 2a, 2b(1)(E), 2e, 2f, and 2g.

Income

		(a) Amount	(b) Total
a Contributions:			
(1) Received or receivable in cash from: (A) Employers	2a(1)(A)	8131825	
(B) Participants	2a(1)(B)	51914172	
(C) Others (including rollovers)	2a(1)(C)	7937051	
(2) Noncash contributions	2a(2)	0	
(3) Total contributions. Add lines 2a(1)(A) , (B) , (C) , and line 2a(2)	2a(3)		67983048
b Earnings on investments:			
(1) Interest:			
(A) Interest-bearing cash (including money market accounts and certificates of deposit)	2b(1)(A)	208182	
(B) U.S. Government securities	2b(1)(B)	0	
(C) Corporate debt instruments	2b(1)(C)	0	
(D) Loans (other than to participants)	2b(1)(D)	0	
(E) Participant loans	2b(1)(E)	90354	
(F) Other	2b(1)(F)	0	
(G) Total interest. Add lines 2b(1)(A) through (F)	2b(1)(G)		298536
(2) Dividends: (A) Preferred stock	2b(2)(A)	0	
(B) Common stock	2b(2)(B)	0	
(C) Registered investment company shares (e.g. mutual funds)	2b(2)(C)	10719126	
(D) Total dividends. Add lines 2b(2)(A) , (B) , and (C)	2b(2)(D)		10719126
(3) Rents	2b(3)		0
(4) Net gain (loss) on sale of assets: (A) Aggregate proceeds	2b(4)(A)	0	
(B) Aggregate carrying amount (see instructions)	2b(4)(B)	0	
(C) Subtract line 2b(4)(B) from line 2b(4)(A) and enter result	2b(4)(C)		0
(5) Unrealized appreciation (depreciation) of assets: (A) Real estate	2b(5)(A)	0	
(B) Other	2b(5)(B)	0	
(C) Total unrealized appreciation of assets. Add lines 2b(5)(A) and (B)	2b(5)(C)		0

		(a) Amount	(b) Total
(6) Net investment gain (loss) from common/collective trusts	2b(6)		-43596
(7) Net investment gain (loss) from pooled separate accounts	2b(7)		0
(8) Net investment gain (loss) from master trust investment accounts	2b(8)		0
(9) Net investment gain (loss) from 103-12 investment entities.....	2b(9)		0
(10) Net investment gain (loss) from registered investment companies (e.g., mutual funds)	2b(10)		-100228667
c Other income	2c		0
d Total income. Add all income amounts in column (b) and enter total	2d		-21271553
Expenses			
e Benefit payment and payments to provide benefits:			
(1) Directly to participants or beneficiaries, including direct rollovers	2e(1)	25067593	
(2) To insurance carriers for the provision of benefits	2e(2)	0	
(3) Other	2e(3)	0	
(4) Total benefit payments. Add lines 2e(1) through (3)	2e(4)		25067593
f Corrective distributions (see instructions)	2f		26449
g Certain deemed distributions of participant loans (see instructions)	2g		0
h Interest expense	2h		0
i Administrative expenses: (1) Professional fees	2i(1)	0	
(2) Contract administrator fees	2i(2)	0	
(3) Investment advisory and management fees	2i(3)	76441	
(4) Other	2i(4)	-119443	
(5) Total administrative expenses. Add lines 2i(1) through (4)	2i(5)		-43002
j Total expenses. Add all expense amounts in column (b) and enter total	2j		25051040
Net Income and Reconciliation			
k Net income (loss). Subtract line 2j from line 2d	2k		-46322593
l Transfers of assets:			
(1) To this plan	2l(1)		0
(2) From this plan	2l(2)		0

Part III Accountant's Opinion

3 Complete lines 3a through 3c if the opinion of an independent qualified public accountant is attached to this Form 5500. Complete line 3d if an opinion is not attached.

a The attached opinion of an independent qualified public accountant for this plan is (see instructions):

(1) ☒ Unmodified (2) ☐ Qualified (3) ☐ Disclaimer (4) ☐ Adverse

b Check the appropriate box(es) to indicate whether the IQPA performed an ERISA section 103(a)(3)(C) audit. Check both boxes (1) and (2) if the audit was performed pursuant to both 29 CFR 2520.103-8 and 29 CFR 2520.103-12(d). Check box (3) if pursuant to neither.

(1) ☐ DOL Regulation 2520.103-8 (2) ☐ DOL Regulation 2520.103-12(d) (3) ☒ neither DOL Regulation 2520.103-8 nor DOL Regulation 2520.103-12(d).

c Enter the name and EIN of the accountant (or accounting firm) below:

(1) Name: **ERNST & YOUNG, LLP**

(2) EIN: **34-6565596**

d The opinion of an independent qualified public accountant is **not attached** because:

(1) ☐ This form is filed for a CCT, PSA, or MTIA. (2) ☐ It will be attached to the next Form 5500 pursuant to 29 CFR 2520.104-50.

Part IV Compliance Questions

4 CCTs and PSAs do not complete Part IV. MTIAs, 103-12 IEs, and GIAs do not complete lines 4a, 4e, 4f, 4g, 4h, 4k, 4m, 4n, or 5. 103-12 IEs also do not complete lines 4j and 4l. MTIAs also do not complete line 4l.

During the plan year:

a Was there a failure to transmit to the plan any participant contributions within the time period described in 29 CFR 2510.3-102? Continue to answer "Yes" for any prior year failures until fully corrected. (See instructions and DOL's Voluntary Fiduciary Correction Program.)

	Yes	No	Amount
4a		X	

	Yes	No	Amount
b Were any loans by the plan or fixed income obligations due the plan in default as of the close of the plan year or classified during the year as uncollectible? Disregard participant loans secured by participant's account balance. (Attach Schedule G (Form 5500) Part I if "Yes" is checked.)			
4b		X	
c Were any leases to which the plan was a party in default or classified during the year as uncollectible? (Attach Schedule G (Form 5500) Part II if "Yes" is checked.)			
4c		X	
d Were there any nonexempt transactions with any party-in-interest? (Do not include transactions reported on line 4a. Attach Schedule G (Form 5500) Part III if "Yes" is checked.)			
4d		X	
e Was this plan covered by a fidelity bond?	X		1000000
f Did the plan have a loss, whether or not reimbursed by the plan's fidelity bond, that was caused by fraud or dishonesty?		X	
4f		X	
g Did the plan hold any assets whose current value was neither readily determinable on an established market nor set by an independent third party appraiser?			
4g		X	
h Did the plan receive any noncash contributions whose value was neither readily determinable on an established market nor set by an independent third party appraiser?			
4h		X	
i Did the plan have assets held for investment? (Attach schedule(s) of assets if "Yes" is checked, and see instructions for format requirements.)	X		
4i	X		
j Were any plan transactions or series of transactions in excess of 5% of the current value of plan assets? (Attach schedule of transactions if "Yes" is checked and see instructions for format requirements.)			
4j		X	
k Were all the plan assets either distributed to participants or beneficiaries, transferred to another plan, or brought under the control of the PBGC?			
4k		X	
l Has the plan failed to provide any benefit when due under the plan?			
4l		X	
m If this is an individual account plan, was there a blackout period? (See instructions and 29 CFR 2520.101-3.)			
4m		X	
n If 4m was answered "Yes," check the "Yes" box if you either provided the required notice or one of the exceptions to providing the notice applied under 29 CFR 2520.101-3.			
4n		X	

5a Has a resolution to terminate the plan been adopted during the plan year or any prior plan year? ☐ Yes ☒ No
If "Yes," enter the amount of any plan assets that reverted to the employer this year _____.

5b If, during this plan year, any assets or liabilities were transferred from this plan to another plan(s), identify the plan(s) to which assets or liabilities were transferred. (See instructions.)

5b(1) Name of plan(s)	5b(2) EIN(s)	5b(3) PN(s)

5c Was the plan a defined benefit plan covered under the PBGC insurance program at any time during this plan year? (See ERISA section 4021 and instructions.) ☐ Yes ☐ No ☐ Not determined

If "Yes" is checked, enter the My PAA confirmation number from the PBGC premium filing for this plan year _____.

SCHEDULE R (Form 5500) Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	Retirement Plan Information This schedule is required to be filed under sections 104 and 4065 of the Employee Retirement Income Security Act of 1974 (ERISA) and section 6058(a) of the Internal Revenue Code (the Code). ► File as an attachment to Form 5500.	OMB No. 1210-0110 2022 This Form is Open to Public Inspection.
For calendar plan year 2022 or fiscal plan year beginning 01/01/2022 and ending 12/31/2022		
A Name of plan TWO SIGMA 401(K) PLAN		B Three-digit plan number (PN) ► 001
C Plan sponsor's name as shown on line 2a of Form 5500 TWO SIGMA INVESTMENTS, LP		D Employer Identification Number (EIN) 13-4181471
Part I	Distributions	
All references to distributions relate only to payments of benefits during the plan year.		
1 Total value of distributions paid in property other than in cash or the forms of property specified in the instructions.....		1
2 Enter the EIN(s) of payor(s) who paid benefits on behalf of the plan to participants or beneficiaries during the year (if more than two, enter EINs of the two payors who paid the greatest dollar amounts of benefits): EIN(s): 04-6568107		
Profit-sharing plans, ESOPs, and stock bonus plans, skip line 3.		
3 Number of participants (living or deceased) whose benefits were distributed in a single sum, during the plan year.....		3
Part II	Funding Information (If the plan is not subject to the minimum funding requirements of section 412 of the Internal Revenue Code or ERISA section 302, skip this Part.)	
4 Is the plan administrator making an election under Code section 412(d)(2) or ERISA section 302(d)(2)? ☐ Yes ☐ No ☐ N/A If the plan is a defined benefit plan, go to line 8.		
5 If a waiver of the minimum funding standard for a prior year is being amortized in this plan year, see instructions and enter the date of the ruling letter granting the waiver. Date: Month _____ Day _____ Year _____ If you completed line 5, complete lines 3, 9, and 10 of Schedule MB and do not complete the remainder of this schedule.		
6 a Enter the minimum required contribution for this plan year (include any prior year accumulated funding deficiency not waived).....		6a
b Enter the amount contributed by the employer to the plan for this plan year.....		6b
c Subtract the amount in line 6b from the amount in line 6a. Enter the result (enter a minus sign to the left of a negative amount).....		6c
If you completed line 6c, skip lines 8 and 9.		
7 Will the minimum funding amount reported on line 6c be met by the funding deadline? ☐ Yes ☐ No ☐ N/A		
8 If a change in actuarial cost method was made for this plan year pursuant to a revenue procedure or other authority providing automatic approval for the change or a class ruling letter, does the plan sponsor or plan administrator agree with the change? ☐ Yes ☐ No ☐ N/A		
Part III	Amendments	
9 If this is a defined benefit pension plan, were any amendments adopted during this plan year that increased or decreased the value of benefits? If yes, check the appropriate box. If no, check the "No" box..... ☐ Increase ☐ Decrease ☐ Both ☐ No		
Part IV	ESOPs (see instructions). If this is not a plan described under section 409(a) or 4975(e)(7) of the Internal Revenue Code, skip this Part.	
10 Were unallocated employer securities or proceeds from the sale of unallocated securities used to repay any exempt loan?..... ☐ Yes ☐ No		
11 a Does the ESOP hold any preferred stock?..... ☐ Yes ☐ No		
b If the ESOP has an outstanding exempt loan with the employer as lender, is such loan part of a "back-to-back" loan? (See instructions for definition of "back-to-back" loan.)..... ☐ Yes ☐ No		
12 Does the ESOP hold any stock that is not readily tradable on an established securities market?..... ☐ Yes ☐ No		
For Paperwork Reduction Act Notice, see the Instructions for Form 5500.		
Schedule R (Form 5500) 2022 v. 220413		

Part V Additional Information for Multiemployer Defined Benefit Pension Plans

13 Enter the following information for each employer that (1) contributed more than 5% of total contributions to the plan during the plan year or (2) was one of the top-ten highest contributors (measured in dollars). See instructions. *Complete as many entries as needed to report all applicable employers.*

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

d Date collective bargaining agreement expires (If employer contributes under more than one collective bargaining agreement, check box ☐ and see instructions regarding required attachment. Otherwise, enter the applicable date.) Month _____ Day _____ Year _____

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

d Date collective bargaining agreement expires (If employer contributes under more than one collective bargaining agreement, check box ☐ and see instructions regarding required attachment. Otherwise, enter the applicable date.) Month _____ Day _____ Year _____

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

d Date collective bargaining agreement expires (If employer contributes under more than one collective bargaining agreement, check box ☐ and see instructions regarding required attachment. Otherwise, enter the applicable date.) Month _____ Day _____ Year _____

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

d Date collective bargaining agreement expires (If employer contributes under more than one collective bargaining agreement, check box ☐ and see instructions regarding required attachment. Otherwise, enter the applicable date.) Month _____ Day _____ Year _____

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

d Date collective bargaining agreement expires (If employer contributes under more than one collective bargaining agreement, check box ☐ and see instructions regarding required attachment. Otherwise, enter the applicable date.) Month _____ Day _____ Year _____

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

d Date collective bargaining agreement expires (If employer contributes under more than one collective bargaining agreement, check box ☐ and see instructions regarding required attachment. Otherwise, enter the applicable date.) Month _____ Day _____ Year _____

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

14	Enter the number of deferred vested and retired participants (inactive participants), as of the beginning of the plan year, whose contributing employer is no longer making contributions to the plan for:	
a	The current plan year. Check the box to indicate the counting method used to determine the number of inactive participants: ☐ last contributing employer ☐ alternative ☐ reasonable approximation (see instructions for required attachment).....	14a
b	The plan year immediately preceding the current plan year. ☐ Check the box if the number reported is a change from what was previously reported (see instructions for required attachment)	14b
c	The second preceding plan year. ☐ Check the box if the number reported is a change from what was previously reported (see instructions for required attachment)	14c
15	Enter the ratio of the number of participants under the plan on whose behalf no employer had an obligation to make an employer contribution during the current plan year to:	
a	The corresponding number for the plan year immediately preceding the current plan year.....	15a
b	The corresponding number for the second preceding plan year.....	15b
16	Information with respect to any employers who withdrew from the plan during the preceding plan year:	
a	Enter the number of employers who withdrew during the preceding plan year	16a
b	If line 16a is greater than 0, enter the aggregate amount of withdrawal liability assessed or estimated to be assessed against such withdrawn employers.....	16b
17	If assets and liabilities from another plan have been transferred to or merged with this plan during the plan year, check box and see instructions regarding supplemental information to be included as an attachment ☐	

Part VI Additional Information for Single-Employer and Multiemployer Defined Benefit Pension Plans

18 If any liabilities to participants or their beneficiaries under the plan as of the end of the plan year consist (in whole or in part) of liabilities to such participants and beneficiaries under two or more pension plans as of immediately before such plan year, check box and see instructions regarding supplemental information to be included as an attachment ☐

19 If the total number of participants is 1,000 or more, complete lines (a) through (c)

a Enter the percentage of plan assets held as:
 Stock: _____% Investment-Grade Debt: _____% High-Yield Debt: _____% Real Estate: _____% Other: _____%

b Provide the average duration of the combined investment-grade and high-yield debt:
☐ 0-3 years ☐ 3-6 years ☐ 6-9 years ☐ 9-12 years ☐ 12-15 years ☐ 15-18 years ☐ 18-21 years ☐ 21 years or more

c What duration measure was used to calculate line 19(b)?
☐ Effective duration ☐ Macaulay duration ☐ Modified duration ☐ Other (specify): _____

20 PBGC missed contribution reporting requirements. If this is a multiemployer plan or a single-employer plan that is not covered by PBGC, skip line 20.

a Is the amount of unpaid minimum required contributions for all years from Schedule SB (Form 5500) line 40 greater than zero? ☐ Yes ☐ No

b If line 20a is "Yes," has PBGC been notified as required by ERISA sections 4043(c)(5) and/or 303(k)(4)? Check the applicable box:

☐ Yes.

☐ No. Reporting was waived under 29 CFR 4043.25(c)(2) because contributions equal to or exceeding the unpaid minimum required contribution were made by the 30th day after the due date.

☐ No. The 30-day period referenced in 29 CFR 4043.25(c)(2) has not yet ended, and the sponsor intends to make a contribution equal to or exceeding the unpaid minimum required contribution by the 30th day after the due date.

☐ No. Other. Provide explanation _____

FINANCIAL STATEMENTS
AND SUPPLEMENTAL SCHEDULE

Two Sigma 401(k) Plan
December 31, 2022 and 2021
and Years Ended December 31, 2022 and 2021
With Report of Independent Auditors

Two Sigma 401(k) Plan

Financial Statements
and Supplemental Schedule

December 31, 2022 and 2021
and Years Ended December 31, 2022 and 2021

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Building a better
working world

Report of Independent Auditors

The Plan Administrator
Two Sigma 401(k) Plan

Opinion

We have audited the financial statements of the Two Sigma 401(k) Plan (the “Plan”), an employee benefit plan subject to the Employee Retirement Income Security Act of 1974 (ERISA), which comprise the statements of net assets available for benefits as of December 31, 2022 and 2021, and the related statements of changes in net assets available for benefits for the years then ended, and the related notes (collectively referred to as the “financial statements”).

In our opinion, the accompanying financial statements present fairly, in all material respects, the net assets available for benefits of the Plan at December 31, 2022 and 2021, and the changes in its net assets available for benefits for the years then ended, in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor’s Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Plan and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Plan’s ability to continue as a going concern for one year after the date that the financial statements are available to be issued.

Management is also responsible for maintaining a current plan instrument, including all plan amendments, administering the Plan, and determining that the Plan’s transactions that are presented and disclosed in the financial statements are in conformity with the Plan’s provisions, including maintaining sufficient records with respect to each of the participants, to determine the benefits due or which may become due to such participants.

Auditor’s Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor’s report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.



In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Plan's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control related matters that we identified during the audit.

Supplemental Schedule Required by ERISA

Our audits were conducted for the purpose of forming an opinion of the financial statements as a whole. The supplemental Schedule of Assets (Held at End of Year) as of December 31, 2022 (referred to as the "supplemental schedule"), is presented for purposes of additional analysis and is not a required part of the financial statements but is supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under ERISA. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to auditing procedures applied in the audits of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with GAAS.

In forming our opinion on the supplemental schedule, we evaluated whether the supplemental schedule, including its form and content, is presented in conformity with the Department of Labor's Rules and Regulations for Reporting and Disclosure under ERISA.

In our opinion, the information in the supplemental schedule is fairly stated, in all material respects, in relation to the financial statements as a whole, and the form and content are presented in conformity with the Department of Labor's Rules and Regulations for Reporting and Disclosure under ERISA.

Ernst & Young LLP

August 24, 2023

Two Sigma 401(k) Plan

Statements of Net Assets Available for Plan Benefits

	December 31	
	2022	2021
Assets		
Investments, at fair value:		
Registered investment funds	\$389,202,484	\$438,261,796
Registered money market fund	17,287,799	14,750,931
Collective investment trust	569,495	556,888
Total investments	407,059,778	453,569,615
Notes receivable from participants	1,819,891	1,632,647
Net assets available for plan benefits	\$408,879,669	\$455,202,262

See accompanying notes to the financial statements.

Two Sigma 401(k) Plan

Statements of Changes in Net Assets Available for Plan Benefits

	Years Ended December 31	
	2022	2021
Net investment income / (loss):		
Realized and unrealized appreciation / (depreciation) in fair value of investments	\$(100,271,076)	\$ 45,500,617
Interest and dividends	11,016,473	17,405,072
Total net investment income / (loss)	(89,254,603)	62,905,689
Other Income ⁽¹⁾ (Note 1)	286,883	15,000
Contributions:		
Employee contributions	51,914,172	43,578,027
Employee rollovers	7,937,051	6,389,028
Employer contributions	8,131,825	8,181,594
Total Contributions	67,983,048	58,148,649
Deductions:		
Benefits paid to participants	(25,094,042)	(35,866,627)
Participant transaction expenses ⁽¹⁾	(124,804)	(78,131)
Plan administrative expenses	(119,075)	(722)
Total deductions ⁽¹⁾	(25,337,921)	(35,945,480)
Net increase/(decrease) in net assets available for plan benefits	(46,322,593)	85,123,858
Net assets available for plan benefits:		
Beginning of year	455,202,262	370,078,404
End of year	<u>\$408,879,669</u>	<u>\$455,202,262</u>

(1) Certain 2021 amounts have been reclassified to conform to current presentation.

See accompanying notes to the financial statements.

Two Sigma 401(k) Plan

Notes to Financial Statements

December 31, 2022

1. Description of the Plan

The following description of the Two Sigma 401(k) Plan (the “Plan”) is provided for general information purposes only. Participants should refer to the Basic Plan Document (“Plan Document”) for more complete information. Terms used in this description have the same meaning as in the Plan Document. A Plan year commences on January 1 and ends on December 31 (“Plan Year”).

General

The Plan is a defined contribution plan covering substantially all employees, including part time employees who meet certain eligibility requirements, (the “Participants” or individually the “Participant”), who are or were employed by Two Sigma Investments, LP (“TSI”), Two Sigma Solutions, LLC, a participating wholly-owned subsidiary of TSI, Two Sigma Insurance Quantified, LP, and, effective January 1, 2022, Sunbow Enterprises LLC and Anzu Enterprises LLC (“Anzu”), all affiliates of TSI, (collectively, the “Plan Participating Entities”). On September 1, 2022, Anzu was removed as a covered entity under the Plan with any active participants given the option to remain in the Plan. TSI is the plan sponsor and administrator (“Plan Sponsor”). The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974 (“ERISA”). NFP Retirement, Inc. provides certain investment advisory services for which TSI pays a quarterly fee in the amount of \$15,000.

The Plan Sponsor designated a 401(k) committee (the “Committee”). The purpose of the Committee is to provide oversight on: investment options and performance for the Plan, service provider performance, Plan expenses, and compliance with Plan documents and ERISA, including any interpretive decisions required relating to the Plan.

On March 27, 2020, the Coronavirus Aid, Relief, and Economic Security Act (the “CARES Act”) was signed into law. The Plan has adopted provisions from the CARES Act and intends to amend the Plan Document by December 31, 2025 and in no event later than permitted by IRS guidance.

Eligibility and Participation

Employees are eligible to participate in the Plan as described in the Plan Document and become eligible on the first day of the month subsequent to the date of hire.

Plan Administration

The Plan Sponsor has assigned all operating and recordkeeping responsibilities of the Plan, including participant recordkeeping, to Fidelity Management Trust Company, which acts as the Plan’s trustee, third party administrator, and custodian (the “Trustee”).

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

1. Description of the Plan (continued)

Contributions

Each year, Participants may make pre-tax elective contributions to the Plan in any amount up to 90% of their combined salary, bonuses, overtime and all other cash compensation paid during a Plan Year, subject to the Internal Revenue Service (“IRS”) limitations. Employee contributions were limited by the IRS to a maximum of \$20,500 and \$19,500 per year for 2022 and 2021. For employees age 50 or older, the IRS allowed an additional annual contribution of up to \$6,500 for 2022 and 2021. For the years ended December 31, 2022 and 2021, Participants contributed \$28,995,543 and \$25,316,853 in pre-tax elective contributions, respectively.

The Plan Participating Entities made qualified matching contributions equal to 100% of each Participant’s contribution that is not in excess of \$5,000. Only Participants that are not “Non-Access Employees” are eligible for this match. Non-Access Employees are defined as employees who do not have unsupervised access to the physical space or electronic systems of the Plan Participating Entities. For the years ended December 31, 2022 and 2021, the Plan Participating Entities contributed \$7,954,706 and \$8,059,079 in qualified matching contributions, respectively. For the years ended December 31, 2022 and 2021, TSI made discretionary qualified contributions on behalf of certain eligible Participants in the amount of \$177,119 and \$122,515, respectively. These amounts are included in employer contributions on the Statements of Changes in Net Assets Available for Plan Benefits.

The Plan provides a “rollover” provision for new employees receiving distributions from a qualified plan of a former employer. These amounts are included in employee rollovers on the Statements of Changes in Net Assets Available for Plan Benefits. For the years ended December 31, 2022 and 2021, Participants contributed \$7,595,808 and \$6,135,827 for pre-tax rollovers and \$21,895 and \$2,029 for post-tax rollovers, respectively.

The Plan includes a Roth elective deferral option based on the requirements provided by Section 402A of the Internal Revenue Code (the “Code”). The Roth elective deferral option permits Participants to make post-tax salary deferral contributions by payroll deduction, subject to the Participants’ Roth elective deferrals combined with their pretax deferrals not exceeding the lesser of 90% of their compensation or certain limitations. For the years ended December 31, 2022 and 2021, Participants deferred \$3,788,338 and \$3,067,716 in Roth contributions, respectively. For the years ended December 31, 2022 and 2021, Participants contributed \$319,348 and \$251,172 in Roth rollovers, respectively. These amounts are included in employee contributions and employee rollovers on the Statements of Changes in Net Assets Available for Plan Benefits, respectively.

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

1. Description of the Plan (continued)

Contributions (continued)

The Plan includes a non-deductible post-tax contribution option which permits Participants to make post-tax salary deferral contributions by payroll deduction, subject to the Participants' deferrals, employer match and employee post-tax deferrals not exceeding \$61,000 and \$58,000 for the years ended December 31, 2022 and 2021, respectively. For the years ended December 31, 2022 and 2021, Participants deferred \$19,130,291 and \$15,193,458 in post-tax deferrals, respectively. These amounts are included in employee contributions on the Statements of Changes in Net Assets Available for Plan Benefits.

Participant Accounts

Individual accounts are maintained for each Participant of the Plan. Each Participant's account is credited with the Participant's contributions and matching employer contributions as allowed for under the Plan. A Participant may direct contributions to each or any of the Plan's investment options and may exchange existing account balances among the Plan's investment options. Daily, each Participant account is increased or decreased with his or her proportionate share of the appreciation or depreciation in the fair market value of his or her directed investment accounts, as defined in the Plan Document. Each Participant is entitled to the benefit provided from the vested portion of his or her account. The Plan Sponsor's contributions are invested in the same manner as that of the Participant's elective contributions.

Vesting

Participants are immediately vested in their contributions plus actual earnings thereon. Vesting in the Plan Sponsor contribution portion of their accounts plus actual earnings thereon is based on years of continuous service. A Participant vests in equal 25% installments for each year of credited services, and is 100% vested on the entire balance and any future matches after four years of credited services.

Notes Receivable from Participants

Under the CARES Act, limits on qualified participant loans taken between March 27, 2020 and September 23, 2020 increased to the lesser of \$100,000 or 100% of the participant's vested account balance. Qualified participants are defined as those diagnosed with novel coronavirus disease ("COVID-19") or whose spouse or dependents are diagnosed with COVID-19, or those who experience adverse financial consequences due to COVID-19. Qualified participants with existing outstanding loans with a repayment due date between March 27, 2020 through December 31, 2021 may delay such loan repayments for up to one year.

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

1. Description of the Plan (continued)

Notes Receivable from Participants (continued)

Notwithstanding the CARES Act's changes, Participants may borrow from their accounts a minimum of \$1,000 up to a maximum equal to the lesser of \$50,000 or 50% of their vested account balance. Loan terms may not extend beyond five years from the date of the loan unless such loan is for the purchase of a primary residence, in which case the loan repayment period may not extend beyond 10 years from the date of the loan. A Participant may only have one loan outstanding at any point in time. Each Participant's loan is secured by the balance in the Participant's account, reduces the Participant's invested amounts, and bears interest at a rate determined by the Plan Sponsor. Principal and interest must be repaid in level payments through after-tax payroll deductions on at least a quarterly basis. In the event of default, death, disability or termination of employment, the entire outstanding principal and accrued interest shall be immediately due and payable.

The Plan Sponsor shall consider a loan in default if any scheduled repayment remains unpaid as of the last business day of the calendar quarter following the calendar quarter in which a loan is initially considered past due. Any default in repayment to the Plan will result in treating the balance due for the loan as a distributable event from the Plan. If a distributable event occurs as defined by the Code, the Participant will be deemed to have received a taxable distribution from the Plan. For the years ended December 31, 2022 and 2021, defaults on Participant loans totaled \$46,531 and \$88,223, respectively. These amounts are included in benefits paid to participants in the Statements of Changes in Net Assets Available for Plan Benefits.

Interest income on the loan balance is reinvested based on Participant elections. Participant loans are measured at their unpaid principal balance plus any accrued and unpaid interest and classified as notes receivable from participants on the Statements of Net Assets Available for Plan Benefits. Interest income earned on notes receivable from participants is recorded on an accrual basis. The total amounts of the interest earned on loan balances during 2022 and 2021 were \$90,354 and \$82,432, respectively, and are included in interest and dividends in the accompanying Statements of Changes in Net Assets Available for Plan Benefits.

Payment of Benefits

On termination of service due to death, disability, retirement or termination of employment, a Participant or his or her beneficiaries may elect to receive a lump sum distribution equal to the vested value of the Participant's account.

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

1. Description of the Plan (continued)

Payment of Benefits (continued)

Distributions under the Plan shall be made consistent with the provisions of Section 401(a)(9) of the Code and all treasury regulations promulgated under that Section. In the event of financial hardship, a Participant may apply to the Plan Sponsor to receive a distribution from his or her account up to an amount not to exceed the Participant's pre-tax or post-tax contributions to the Plan, subject to a \$500 minimum amount. Hardship withdrawals are strictly regulated by the IRS and a Participant must exhaust all available loan options and available distributions prior to requesting a hardship withdrawal. A Participant who has attained the age of 59½ shall be entitled to receive a distribution of all or a portion of the vested value of his or her account. Hardship withdrawals totaled \$36,998 and \$75,627 for the years ended December 31, 2022 and 2021, respectively, and are included in benefits paid to participants in the Statements of Changes in Net Assets Available for Plan Benefits.

Break in Service

A Participant who terminates employment after participating in the Plan and is subsequently re-employed after completing one hour of service shall be eligible to become a Participant of the Plan upon enrollment in accordance with the Plan guidelines. If the Participant returns within five years, the Participant's prior service will again count toward vesting, and the non-vested portion of the Participant's benefit which the Participant lost when the Participant terminated employment will be reinstated. There were three participants in 2022 and one participant in 2021 that were re-employed without incurring a 5 year break in service.

Forfeitures

Forfeitures represent non-vested employer contribution amounts forfeited by Participants. Forfeitures are first used to reduce Plan-related administrative expenses with any remaining amounts used to reduce future Plan Sponsor contributions. Please see additional information in Note 4.

Plan Termination

Although it has not expressed any intention to do so, the Plan Sponsor has the right under the Plan to terminate the Plan subject to the provisions set forth in ERISA. In the event of Plan termination, Participants will become 100% vested in their total account balance under the Plan.

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

1. Description of the Plan (continued)

Participant Transaction Expenses and Plan Administrative Expenses

To the extent permitted by law, Plan expenses associated with the administration of the Plan are paid by the Plan, unless the expenses are paid by the Plan Sponsor, pursuant to the terms of the Plan. Administrative expenses paid by the Plan may include recordkeeping and trustee fees. Such expenses paid by the Plan are included in Plan administrative expenses on the Statements of Changes in Net Assets Available for Plan Benefits. Loan set up fees and other participant administrative fees, if any, are charged to each Participant's account and are included in participant transaction expenses on the Statements of Changes in Net Assets Available for Plan Benefits.

Effective August 1, 2021, the Trustee administrative fee was amended from a variable to a fixed annual fee of \$73. For active Participants, such fee is paid by the Plan Sponsor. For separated Participants, such fee is charged directly to their respective Plan account.

Revenue Credits

Participants may generate revenue credits based on certain investment choices made in the Plan. These revenue credits are generally payments made by individual mutual fund companies to the Trustee to incentivize the use of their funds on the Trustee's platform. Such revenue credits totaled \$286,883 and \$15,000 for the years ending December 31, 2022 and 2021, respectively, and are included in Other income on the Statements of Changes in Net Assets Available for Plan Benefits.

2. Summary of Significant Accounting Policies

Basis of Accounting

The accompanying financial statements have been prepared in accordance with accounting principles generally accepted in the United States ("US GAAP").

The preparation of financial statements in conformity with US GAAP requires the Plan Sponsor to make estimates and assumptions that affect the reported amounts in the financial statements. The Plan Sponsor believes that the estimates utilized in preparing the financial statements are reasonable. Actual results could differ from these estimates.

Investment Valuation and Income Recognition

The Plan's investments are stated at fair value. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price). Shares of registered investment funds and registered money market funds held by the Plan at year end are valued at quoted market prices, which represent the net asset value reported by such registered investment companies.

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

2. Summary of Significant Accounting Policies (continued)

Investment Valuation and Income Recognition (continued)

Purchases and sales of securities are recorded on a trade-date basis. Interest income on investments is recorded on an accrual basis.

Dividends are recorded on the ex-dividend date. Net realized and unrealized appreciation / (depreciation) in fair value of investments includes the Plan's gains and losses on investments bought and sold as well as held during the year. See Note 3 for further discussion and disclosures related to fair value measurements.

The Trustee revalues the Plan's investments at the close of each business day based on the changes in the net asset values reported by the registered investment companies and any other fluctuation of market prices of the investments. Accordingly, changes to investments for each Participant will be reflected in each Participant's account on a daily basis.

Benefits Paid to Participants

Benefit payments to Participants are recorded upon distribution. Benefits paid to participants on the Statements of Changes in Net Assets Available for Plan Benefits include transfers requested by Participants of their account balances to other non-Plan Sponsor related qualified plans or accounts in the amount of \$6,410,412 and \$11,868,438 for 2022 and 2021, respectively. Such transfers represent distributions of after-tax Participant contributions, as well as Participant rollover withdrawals for funds previously rolled into the Plan.

Risks and Uncertainties

The Plan invests in various investment securities, in particular through its investment funds. Investment funds are exposed to various risks such as interest rate, market and credit risks. Due to the level of risk associated with certain investment funds, it is at least reasonably possible that changes in the values of investment funds will occur in the near term and that such changes could materially affect Participants' account balances and the amounts reported in the Statements of Net Assets Available for Plan Benefits.

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

3. Fair Value Measurement

At December 31, 2022 and 2021, Plan investments are classified and disclosed in one of the following categories based on market price observability. Market price observability is impacted by a number of factors, including the type of investment and the characteristics specific to the investment. Investments with readily available quoted prices or for which fair value can be measured from actively quoted prices generally will have a higher degree of market price observability and a lesser degree of judgment used in measuring fair value:

Level I – Quoted prices are available in active markets as of the reporting date. The type of investments which would generally be included in Level I include registered investment and money market funds, collective investment trusts, listed equities, certain bonds and other exchange-traded investments.

Level II – Pricing inputs are other than quoted prices in active markets, which are either directly or indirectly observable as of the reporting date, and fair value is determined through the use of models or quotations received from brokers and other external pricing vendors.

Level III – Pricing inputs are unobservable for the investment and include situations where there is little, if any, market activity for the investment. The inputs into the determination of fair value require significant management judgment or estimation.

The following table summarizes the Plan's portfolio investments that were accounted for at fair value by level within the fair value hierarchy:

Total investments at fair value at December 31, 2022:

	Level I	Level II	Level III	Total
Registered investment funds	\$ 389,202,484	\$ -	\$ -	\$ 389,202,484
Registered money market fund	17,287,799	-	-	17,287,799
Collective investment trust	569,495	-	-	569,495
Total registered investments	<u>\$ 407,059,778</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 407,059,778</u>

Total investments at fair value at December 31, 2021:

	Level I	Level II	Level III	Total
Registered investment funds	\$ 438,261,796	\$ -	\$ -	\$ 438,261,796
Registered money market fund	14,750,931	-	-	14,750,931
Collective investment trust	556,888	-	-	556,888
Total registered investments	<u>\$ 453,569,615</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 453,569,615</u>

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

4. Forfeitures

During 2022 and 2021, forfeited non-vested amounts totaled \$923,344 and \$1,042,827, respectively. Total forfeitures of \$1,551,592 and \$424,825 in 2022 and 2021, respectively, were used to offset employer contributions and, in 2022, Plan administrative expenses, other than those paid directly by the Plan Sponsor. Forfeitures of \$79,234 and \$707,482 still remained to offset future employer contributions at December 31, 2022 and 2021, respectively.

5. Related-Party Transactions

Certain Plan investments are shares of mutual funds or money market funds managed by the Trustee. These transactions qualify as permitted party-in-interest transactions; however, they are exempt from prohibited transactions under ERISA.

In the normal course of business certain officers and employees of the Plan Sponsor (who may also be Participants in the Plan) perform administrative services related to the Plan's operation, recordkeeping and financial reporting. The Plan Sponsor pays these individuals' salaries and also pays for a portion of other administrative expenses on the Plan's behalf.

The foregoing transactions are not deemed prohibited party-in-interest transactions, because they are covered by statutory and administrative exemptions from the Code and ERISA's rules on prohibited transactions.

6. Tax Status

The Plan adopted an IRS pre-approved volume submitter defined contribution plan ("Volume Submitter Plan"), effective February 1, 2016, which was superseded by an updated pre-approved Plan effective March 10, 2022. The aforementioned Volume Submitter Plans have received an advisory letter from the IRS dated March 31, 2014 and an opinion letter from the IRS dated June 30, 2020, stating that the form of the plan is qualified under Section 401 of the Code and, therefore, the related trust is tax-exempt. The plan administrator has determined that it is eligible to, and has chosen to, rely on the current IRS pre-approved plan opinion. Once qualified, the Plan is required to operate in conformity with the Code to maintain its qualified status. The plan administrator believes the Plan is being operated in compliance with the applicable requirements of the Code and, therefore, believes the Plan is qualified and the related trust is tax-exempt.

US GAAP requires plan management to evaluate tax positions taken by the Plan and recognize a tax liability if the Plan has taken an uncertain position that more likely than not would not be sustained upon examination by the IRS. Plan management has analyzed the tax positions taken by the Plan, and has concluded that there are no uncertain positions taken or expected to be taken. The Plan is subject to routine audits by taxing jurisdictions; however, there are currently no audits for any tax periods in progress.

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

7. Subsequent Events

The Plan Sponsor has evaluated subsequent events through August 24, 2023, the date the financial statements were available to be issued. There are no subsequent events which require disclosure, other than those described below.

Supplemental Schedule

Two Sigma 401(k) Plan
 EIN #13-4181471 Plan #001
 Schedule H, Line 4(i) – Schedule of Assets (Held at End of Year)
 December 31, 2022

Identity of Issue, Borrower, Lessor or Similar Party	Shares	Fair Value
Registered Investment Funds		
Fidelity 500 Index Fund*	771,253	\$ 102,669,245
Fidelity Freedom Index 2050 Fund - Institutional Premium Class*	2,996,486	59,090,711
Fidelity Freedom Index 2040 Fund - Institutional Premium Class*	1,684,887	31,945,465
Fidelity Freedom Index 2060 Fund - Institutional Premium Class*	1,915,802	26,323,119
Fidelity Select Technology Portfolio*	1,139,502	20,328,711
Fidelity Extended Market Index Fund*	311,353	19,621,474
Conestoga Small Cap Fund Investors Class	272,009	16,366,809
Fidelity U.S. Bond Index Fund*	1,478,351	15,049,611
Fidelity Global ex U.S. Index Fund*	1,055,994	13,252,727
T. Rowe Price Blue Chip Growth Fund	101,016	10,497,552
Fidelity Balanced Fund - Class K*	450,689	10,329,788
Fidelity Freedom Index 2030 Fund - Institutional Premium Class*	559,849	9,405,466
T. Rowe Price Equity Income Fund	247,612	8,087,010
Fidelity Natural Resources Fund*	180,434	7,011,683
Fidelity Pacific Basin Fund*	243,782	6,682,067
Fidelity Real Estate Investment Portfolio*	166,051	6,198,666
BlackRock Inflation Protected Bond Fund BlackRock Shares	518,845	4,980,911
Fidelity Emerging Markets Index Fund*	514,420	4,850,985
Invesco EQV Emerging Markets All Cap R6	151,684	4,691,573
PIMCO High Yield Fund Institutional Class	540,781	4,061,264
Fidelity Europe*	117,827	3,619,653
T. Rowe Price Small Cap Value Fund	64,310	3,074,041
Fidelity Freedom Index 2020 Fund - Institutional Premium Class*	57,553	811,500
Fidelity Freedom Index Income Fund - Investor Class*	23,097	252,453
		<u>389,202,484</u>
Collective Investment Trust		
Wilmington Trust CIT Small Cap Value Fund II Fee Class I1	39,194	569,495
Registered Money Market Fund		
Fidelity Government Money Market Fund*	17,287,799	17,287,799
Notes Receivable From Participants		
Notes receivable from Participants (varying maturity dates between 2023 and 2032 and interest rates of 5.00%-5.75%)*		<u>1,819,891</u>
		<u>\$ 408,879,669</u>

*Permitted party-in-interest.

Note: Cost information is not required for participant directed investments. All investments are participant directed, and therefore cost information is not included.

FINANCIAL STATEMENTS
AND SUPPLEMENTAL SCHEDULE

Two Sigma 401(k) Plan
December 31, 2022 and 2021
and Years Ended December 31, 2022 and 2021
With Report of Independent Auditors

Two Sigma 401(k) Plan

Financial Statements
and Supplemental Schedule

December 31, 2022 and 2021
and Years Ended December 31, 2022 and 2021

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Building a better
working world

Report of Independent Auditors

The Plan Administrator
Two Sigma 401(k) Plan

Opinion

We have audited the financial statements of the Two Sigma 401(k) Plan (the “Plan”), an employee benefit plan subject to the Employee Retirement Income Security Act of 1974 (ERISA), which comprise the statements of net assets available for benefits as of December 31, 2022 and 2021, and the related statements of changes in net assets available for benefits for the years then ended, and the related notes (collectively referred to as the “financial statements”).

In our opinion, the accompanying financial statements present fairly, in all material respects, the net assets available for benefits of the Plan at December 31, 2022 and 2021, and the changes in its net assets available for benefits for the years then ended, in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor’s Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Plan and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Plan’s ability to continue as a going concern for one year after the date that the financial statements are available to be issued.

Management is also responsible for maintaining a current plan instrument, including all plan amendments, administering the Plan, and determining that the Plan’s transactions that are presented and disclosed in the financial statements are in conformity with the Plan’s provisions, including maintaining sufficient records with respect to each of the participants, to determine the benefits due or which may become due to such participants.

Auditor’s Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor’s report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.



In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Plan's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control related matters that we identified during the audit.

Supplemental Schedule Required by ERISA

Our audits were conducted for the purpose of forming an opinion of the financial statements as a whole. The supplemental Schedule of Assets (Held at End of Year) as of December 31, 2022 (referred to as the "supplemental schedule"), is presented for purposes of additional analysis and is not a required part of the financial statements but is supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under ERISA. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to auditing procedures applied in the audits of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with GAAS.

In forming our opinion on the supplemental schedule, we evaluated whether the supplemental schedule, including its form and content, is presented in conformity with the Department of Labor's Rules and Regulations for Reporting and Disclosure under ERISA.

In our opinion, the information in the supplemental schedule is fairly stated, in all material respects, in relation to the financial statements as a whole, and the form and content are presented in conformity with the Department of Labor's Rules and Regulations for Reporting and Disclosure under ERISA.

Ernst & Young LLP

August 24, 2023

Two Sigma 401(k) Plan

Statements of Net Assets Available for Plan Benefits

	December 31	
	2022	2021
Assets		
Investments, at fair value:		
Registered investment funds	\$389,202,484	\$438,261,796
Registered money market fund	17,287,799	14,750,931
Collective investment trust	569,495	556,888
Total investments	407,059,778	453,569,615
Notes receivable from participants	1,819,891	1,632,647
Net assets available for plan benefits	\$408,879,669	\$455,202,262

See accompanying notes to the financial statements.

Two Sigma 401(k) Plan

Statements of Changes in Net Assets Available for Plan Benefits

	Years Ended December 31	
	2022	2021
Net investment income / (loss):		
Realized and unrealized appreciation / (depreciation) in fair value of investments	\$(100,271,076)	\$ 45,500,617
Interest and dividends	11,016,473	17,405,072
Total net investment income / (loss)	(89,254,603)	62,905,689
Other Income ⁽¹⁾ (Note 1)	286,883	15,000
Contributions:		
Employee contributions	51,914,172	43,578,027
Employee rollovers	7,937,051	6,389,028
Employer contributions	8,131,825	8,181,594
Total Contributions	67,983,048	58,148,649
Deductions:		
Benefits paid to participants	(25,094,042)	(35,866,627)
Participant transaction expenses ⁽¹⁾	(124,804)	(78,131)
Plan administrative expenses	(119,075)	(722)
Total deductions ⁽¹⁾	(25,337,921)	(35,945,480)
Net increase/(decrease) in net assets available for plan benefits	(46,322,593)	85,123,858
Net assets available for plan benefits:		
Beginning of year	455,202,262	370,078,404
End of year	<u>\$408,879,669</u>	<u>\$455,202,262</u>

(1) Certain 2021 amounts have been reclassified to conform to current presentation.

See accompanying notes to the financial statements.

Two Sigma 401(k) Plan

Notes to Financial Statements

December 31, 2022

1. Description of the Plan

The following description of the Two Sigma 401(k) Plan (the “Plan”) is provided for general information purposes only. Participants should refer to the Basic Plan Document (“Plan Document”) for more complete information. Terms used in this description have the same meaning as in the Plan Document. A Plan year commences on January 1 and ends on December 31 (“Plan Year”).

General

The Plan is a defined contribution plan covering substantially all employees, including part time employees who meet certain eligibility requirements, (the “Participants” or individually the “Participant”), who are or were employed by Two Sigma Investments, LP (“TSI”), Two Sigma Solutions, LLC, a participating wholly-owned subsidiary of TSI, Two Sigma Insurance Quantified, LP, and, effective January 1, 2022, Sunbow Enterprises LLC and Anzu Enterprises LLC (“Anzu”), all affiliates of TSI, (collectively, the “Plan Participating Entities”). On September 1, 2022, Anzu was removed as a covered entity under the Plan with any active participants given the option to remain in the Plan. TSI is the plan sponsor and administrator (“Plan Sponsor”). The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974 (“ERISA”). NFP Retirement, Inc. provides certain investment advisory services for which TSI pays a quarterly fee in the amount of \$15,000.

The Plan Sponsor designated a 401(k) committee (the “Committee”). The purpose of the Committee is to provide oversight on: investment options and performance for the Plan, service provider performance, Plan expenses, and compliance with Plan documents and ERISA, including any interpretive decisions required relating to the Plan.

On March 27, 2020, the Coronavirus Aid, Relief, and Economic Security Act (the “CARES Act”) was signed into law. The Plan has adopted provisions from the CARES Act and intends to amend the Plan Document by December 31, 2025 and in no event later than permitted by IRS guidance.

Eligibility and Participation

Employees are eligible to participate in the Plan as described in the Plan Document and become eligible on the first day of the month subsequent to the date of hire.

Plan Administration

The Plan Sponsor has assigned all operating and recordkeeping responsibilities of the Plan, including participant recordkeeping, to Fidelity Management Trust Company, which acts as the Plan’s trustee, third party administrator, and custodian (the “Trustee”).

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

1. Description of the Plan (continued)

Contributions

Each year, Participants may make pre-tax elective contributions to the Plan in any amount up to 90% of their combined salary, bonuses, overtime and all other cash compensation paid during a Plan Year, subject to the Internal Revenue Service (“IRS”) limitations. Employee contributions were limited by the IRS to a maximum of \$20,500 and \$19,500 per year for 2022 and 2021. For employees age 50 or older, the IRS allowed an additional annual contribution of up to \$6,500 for 2022 and 2021. For the years ended December 31, 2022 and 2021, Participants contributed \$28,995,543 and \$25,316,853 in pre-tax elective contributions, respectively.

The Plan Participating Entities made qualified matching contributions equal to 100% of each Participant’s contribution that is not in excess of \$5,000. Only Participants that are not “Non-Access Employees” are eligible for this match. Non-Access Employees are defined as employees who do not have unsupervised access to the physical space or electronic systems of the Plan Participating Entities. For the years ended December 31, 2022 and 2021, the Plan Participating Entities contributed \$7,954,706 and \$8,059,079 in qualified matching contributions, respectively. For the years ended December 31, 2022 and 2021, TSI made discretionary qualified contributions on behalf of certain eligible Participants in the amount of \$177,119 and \$122,515, respectively. These amounts are included in employer contributions on the Statements of Changes in Net Assets Available for Plan Benefits.

The Plan provides a “rollover” provision for new employees receiving distributions from a qualified plan of a former employer. These amounts are included in employee rollovers on the Statements of Changes in Net Assets Available for Plan Benefits. For the years ended December 31, 2022 and 2021, Participants contributed \$7,595,808 and \$6,135,827 for pre-tax rollovers and \$21,895 and \$2,029 for post-tax rollovers, respectively.

The Plan includes a Roth elective deferral option based on the requirements provided by Section 402A of the Internal Revenue Code (the “Code”). The Roth elective deferral option permits Participants to make post-tax salary deferral contributions by payroll deduction, subject to the Participants’ Roth elective deferrals combined with their pretax deferrals not exceeding the lesser of 90% of their compensation or certain limitations. For the years ended December 31, 2022 and 2021, Participants deferred \$3,788,338 and \$3,067,716 in Roth contributions, respectively. For the years ended December 31, 2022 and 2021, Participants contributed \$319,348 and \$251,172 in Roth rollovers, respectively. These amounts are included in employee contributions and employee rollovers on the Statements of Changes in Net Assets Available for Plan Benefits, respectively.

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

1. Description of the Plan (continued)

Contributions (continued)

The Plan includes a non-deductible post-tax contribution option which permits Participants to make post-tax salary deferral contributions by payroll deduction, subject to the Participants' deferrals, employer match and employee post-tax deferrals not exceeding \$61,000 and \$58,000 for the years ended December 31, 2022 and 2021, respectively. For the years ended December 31, 2022 and 2021, Participants deferred \$19,130,291 and \$15,193,458 in post-tax deferrals, respectively. These amounts are included in employee contributions on the Statements of Changes in Net Assets Available for Plan Benefits.

Participant Accounts

Individual accounts are maintained for each Participant of the Plan. Each Participant's account is credited with the Participant's contributions and matching employer contributions as allowed for under the Plan. A Participant may direct contributions to each or any of the Plan's investment options and may exchange existing account balances among the Plan's investment options. Daily, each Participant account is increased or decreased with his or her proportionate share of the appreciation or depreciation in the fair market value of his or her directed investment accounts, as defined in the Plan Document. Each Participant is entitled to the benefit provided from the vested portion of his or her account. The Plan Sponsor's contributions are invested in the same manner as that of the Participant's elective contributions.

Vesting

Participants are immediately vested in their contributions plus actual earnings thereon. Vesting in the Plan Sponsor contribution portion of their accounts plus actual earnings thereon is based on years of continuous service. A Participant vests in equal 25% installments for each year of credited services, and is 100% vested on the entire balance and any future matches after four years of credited services.

Notes Receivable from Participants

Under the CARES Act, limits on qualified participant loans taken between March 27, 2020 and September 23, 2020 increased to the lesser of \$100,000 or 100% of the participant's vested account balance. Qualified participants are defined as those diagnosed with novel coronavirus disease ("COVID-19") or whose spouse or dependents are diagnosed with COVID-19, or those who experience adverse financial consequences due to COVID-19. Qualified participants with existing outstanding loans with a repayment due date between March 27, 2020 through December 31, 2021 may delay such loan repayments for up to one year.

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

1. Description of the Plan (continued)

Notes Receivable from Participants (continued)

Notwithstanding the CARES Act's changes, Participants may borrow from their accounts a minimum of \$1,000 up to a maximum equal to the lesser of \$50,000 or 50% of their vested account balance. Loan terms may not extend beyond five years from the date of the loan unless such loan is for the purchase of a primary residence, in which case the loan repayment period may not extend beyond 10 years from the date of the loan. A Participant may only have one loan outstanding at any point in time. Each Participant's loan is secured by the balance in the Participant's account, reduces the Participant's invested amounts, and bears interest at a rate determined by the Plan Sponsor. Principal and interest must be repaid in level payments through after-tax payroll deductions on at least a quarterly basis. In the event of default, death, disability or termination of employment, the entire outstanding principal and accrued interest shall be immediately due and payable.

The Plan Sponsor shall consider a loan in default if any scheduled repayment remains unpaid as of the last business day of the calendar quarter following the calendar quarter in which a loan is initially considered past due. Any default in repayment to the Plan will result in treating the balance due for the loan as a distributable event from the Plan. If a distributable event occurs as defined by the Code, the Participant will be deemed to have received a taxable distribution from the Plan. For the years ended December 31, 2022 and 2021, defaults on Participant loans totaled \$46,531 and \$88,223, respectively. These amounts are included in benefits paid to participants in the Statements of Changes in Net Assets Available for Plan Benefits.

Interest income on the loan balance is reinvested based on Participant elections. Participant loans are measured at their unpaid principal balance plus any accrued and unpaid interest and classified as notes receivable from participants on the Statements of Net Assets Available for Plan Benefits. Interest income earned on notes receivable from participants is recorded on an accrual basis. The total amounts of the interest earned on loan balances during 2022 and 2021 were \$90,354 and \$82,432, respectively, and are included in interest and dividends in the accompanying Statements of Changes in Net Assets Available for Plan Benefits.

Payment of Benefits

On termination of service due to death, disability, retirement or termination of employment, a Participant or his or her beneficiaries may elect to receive a lump sum distribution equal to the vested value of the Participant's account.

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

1. Description of the Plan (continued)

Payment of Benefits (continued)

Distributions under the Plan shall be made consistent with the provisions of Section 401(a)(9) of the Code and all treasury regulations promulgated under that Section. In the event of financial hardship, a Participant may apply to the Plan Sponsor to receive a distribution from his or her account up to an amount not to exceed the Participant's pre-tax or post-tax contributions to the Plan, subject to a \$500 minimum amount. Hardship withdrawals are strictly regulated by the IRS and a Participant must exhaust all available loan options and available distributions prior to requesting a hardship withdrawal. A Participant who has attained the age of 59½ shall be entitled to receive a distribution of all or a portion of the vested value of his or her account. Hardship withdrawals totaled \$36,998 and \$75,627 for the years ended December 31, 2022 and 2021, respectively, and are included in benefits paid to participants in the Statements of Changes in Net Assets Available for Plan Benefits.

Break in Service

A Participant who terminates employment after participating in the Plan and is subsequently re-employed after completing one hour of service shall be eligible to become a Participant of the Plan upon enrollment in accordance with the Plan guidelines. If the Participant returns within five years, the Participant's prior service will again count toward vesting, and the non-vested portion of the Participant's benefit which the Participant lost when the Participant terminated employment will be reinstated. There were three participants in 2022 and one participant in 2021 that were re-employed without incurring a 5 year break in service.

Forfeitures

Forfeitures represent non-vested employer contribution amounts forfeited by Participants. Forfeitures are first used to reduce Plan-related administrative expenses with any remaining amounts used to reduce future Plan Sponsor contributions. Please see additional information in Note 4.

Plan Termination

Although it has not expressed any intention to do so, the Plan Sponsor has the right under the Plan to terminate the Plan subject to the provisions set forth in ERISA. In the event of Plan termination, Participants will become 100% vested in their total account balance under the Plan.

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

1. Description of the Plan (continued)

Participant Transaction Expenses and Plan Administrative Expenses

To the extent permitted by law, Plan expenses associated with the administration of the Plan are paid by the Plan, unless the expenses are paid by the Plan Sponsor, pursuant to the terms of the Plan. Administrative expenses paid by the Plan may include recordkeeping and trustee fees. Such expenses paid by the Plan are included in Plan administrative expenses on the Statements of Changes in Net Assets Available for Plan Benefits. Loan set up fees and other participant administrative fees, if any, are charged to each Participant's account and are included in participant transaction expenses on the Statements of Changes in Net Assets Available for Plan Benefits.

Effective August 1, 2021, the Trustee administrative fee was amended from a variable to a fixed annual fee of \$73. For active Participants, such fee is paid by the Plan Sponsor. For separated Participants, such fee is charged directly to their respective Plan account.

Revenue Credits

Participants may generate revenue credits based on certain investment choices made in the Plan. These revenue credits are generally payments made by individual mutual fund companies to the Trustee to incentivize the use of their funds on the Trustee's platform. Such revenue credits totaled \$286,883 and \$15,000 for the years ending December 31, 2022 and 2021, respectively, and are included in Other income on the Statements of Changes in Net Assets Available for Plan Benefits.

2. Summary of Significant Accounting Policies

Basis of Accounting

The accompanying financial statements have been prepared in accordance with accounting principles generally accepted in the United States ("US GAAP").

The preparation of financial statements in conformity with US GAAP requires the Plan Sponsor to make estimates and assumptions that affect the reported amounts in the financial statements. The Plan Sponsor believes that the estimates utilized in preparing the financial statements are reasonable. Actual results could differ from these estimates.

Investment Valuation and Income Recognition

The Plan's investments are stated at fair value. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price). Shares of registered investment funds and registered money market funds held by the Plan at year end are valued at quoted market prices, which represent the net asset value reported by such registered investment companies.

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

2. Summary of Significant Accounting Policies (continued)

Investment Valuation and Income Recognition (continued)

Purchases and sales of securities are recorded on a trade-date basis. Interest income on investments is recorded on an accrual basis.

Dividends are recorded on the ex-dividend date. Net realized and unrealized appreciation / (depreciation) in fair value of investments includes the Plan's gains and losses on investments bought and sold as well as held during the year. See Note 3 for further discussion and disclosures related to fair value measurements.

The Trustee revalues the Plan's investments at the close of each business day based on the changes in the net asset values reported by the registered investment companies and any other fluctuation of market prices of the investments. Accordingly, changes to investments for each Participant will be reflected in each Participant's account on a daily basis.

Benefits Paid to Participants

Benefit payments to Participants are recorded upon distribution. Benefits paid to participants on the Statements of Changes in Net Assets Available for Plan Benefits include transfers requested by Participants of their account balances to other non-Plan Sponsor related qualified plans or accounts in the amount of \$6,410,412 and \$11,868,438 for 2022 and 2021, respectively. Such transfers represent distributions of after-tax Participant contributions, as well as Participant rollover withdrawals for funds previously rolled into the Plan.

Risks and Uncertainties

The Plan invests in various investment securities, in particular through its investment funds. Investment funds are exposed to various risks such as interest rate, market and credit risks. Due to the level of risk associated with certain investment funds, it is at least reasonably possible that changes in the values of investment funds will occur in the near term and that such changes could materially affect Participants' account balances and the amounts reported in the Statements of Net Assets Available for Plan Benefits.

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

3. Fair Value Measurement

At December 31, 2022 and 2021, Plan investments are classified and disclosed in one of the following categories based on market price observability. Market price observability is impacted by a number of factors, including the type of investment and the characteristics specific to the investment. Investments with readily available quoted prices or for which fair value can be measured from actively quoted prices generally will have a higher degree of market price observability and a lesser degree of judgment used in measuring fair value:

Level I – Quoted prices are available in active markets as of the reporting date. The type of investments which would generally be included in Level I include registered investment and money market funds, collective investment trusts, listed equities, certain bonds and other exchange-traded investments.

Level II – Pricing inputs are other than quoted prices in active markets, which are either directly or indirectly observable as of the reporting date, and fair value is determined through the use of models or quotations received from brokers and other external pricing vendors.

Level III – Pricing inputs are unobservable for the investment and include situations where there is little, if any, market activity for the investment. The inputs into the determination of fair value require significant management judgment or estimation.

The following table summarizes the Plan's portfolio investments that were accounted for at fair value by level within the fair value hierarchy:

Total investments at fair value at December 31, 2022:

	Level I	Level II	Level III	Total
Registered investment funds	\$ 389,202,484	\$ -	\$ -	\$ 389,202,484
Registered money market fund	17,287,799	-	-	17,287,799
Collective investment trust	569,495	-	-	569,495
Total registered investments	<u>\$ 407,059,778</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 407,059,778</u>

Total investments at fair value at December 31, 2021:

	Level I	Level II	Level III	Total
Registered investment funds	\$ 438,261,796	\$ -	\$ -	\$ 438,261,796
Registered money market fund	14,750,931	-	-	14,750,931
Collective investment trust	556,888	-	-	556,888
Total registered investments	<u>\$ 453,569,615</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 453,569,615</u>

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

4. Forfeitures

During 2022 and 2021, forfeited non-vested amounts totaled \$923,344 and \$1,042,827, respectively. Total forfeitures of \$1,551,592 and \$424,825 in 2022 and 2021, respectively, were used to offset employer contributions and, in 2022, Plan administrative expenses, other than those paid directly by the Plan Sponsor. Forfeitures of \$79,234 and \$707,482 still remained to offset future employer contributions at December 31, 2022 and 2021, respectively.

5. Related-Party Transactions

Certain Plan investments are shares of mutual funds or money market funds managed by the Trustee. These transactions qualify as permitted party-in-interest transactions; however, they are exempt from prohibited transactions under ERISA.

In the normal course of business certain officers and employees of the Plan Sponsor (who may also be Participants in the Plan) perform administrative services related to the Plan's operation, recordkeeping and financial reporting. The Plan Sponsor pays these individuals' salaries and also pays for a portion of other administrative expenses on the Plan's behalf.

The foregoing transactions are not deemed prohibited party-in-interest transactions, because they are covered by statutory and administrative exemptions from the Code and ERISA's rules on prohibited transactions.

6. Tax Status

The Plan adopted an IRS pre-approved volume submitter defined contribution plan ("Volume Submitter Plan"), effective February 1, 2016, which was superseded by an updated pre-approved Plan effective March 10, 2022. The aforementioned Volume Submitter Plans have received an advisory letter from the IRS dated March 31, 2014 and an opinion letter from the IRS dated June 30, 2020, stating that the form of the plan is qualified under Section 401 of the Code and, therefore, the related trust is tax-exempt. The plan administrator has determined that it is eligible to, and has chosen to, rely on the current IRS pre-approved plan opinion. Once qualified, the Plan is required to operate in conformity with the Code to maintain its qualified status. The plan administrator believes the Plan is being operated in compliance with the applicable requirements of the Code and, therefore, believes the Plan is qualified and the related trust is tax-exempt.

US GAAP requires plan management to evaluate tax positions taken by the Plan and recognize a tax liability if the Plan has taken an uncertain position that more likely than not would not be sustained upon examination by the IRS. Plan management has analyzed the tax positions taken by the Plan, and has concluded that there are no uncertain positions taken or expected to be taken. The Plan is subject to routine audits by taxing jurisdictions; however, there are currently no audits for any tax periods in progress.

Two Sigma 401(k) Plan

Notes to Financial Statements (continued)

7. Subsequent Events

The Plan Sponsor has evaluated subsequent events through August 24, 2023, the date the financial statements were available to be issued. There are no subsequent events which require disclosure, other than those described below.

Supplemental Schedule

Two Sigma 401(k) Plan
 EIN #13-4181471 Plan #001
 Schedule H, Line 4(i) – Schedule of Assets (Held at End of Year)
 December 31, 2022

Identity of Issue, Borrower, Lessor or Similar Party	Shares	Fair Value
Registered Investment Funds		
Fidelity 500 Index Fund*	771,253	\$ 102,669,245
Fidelity Freedom Index 2050 Fund - Institutional Premium Class*	2,996,486	59,090,711
Fidelity Freedom Index 2040 Fund - Institutional Premium Class*	1,684,887	31,945,465
Fidelity Freedom Index 2060 Fund - Institutional Premium Class*	1,915,802	26,323,119
Fidelity Select Technology Portfolio*	1,139,502	20,328,711
Fidelity Extended Market Index Fund*	311,353	19,621,474
Conestoga Small Cap Fund Investors Class	272,009	16,366,809
Fidelity U.S. Bond Index Fund*	1,478,351	15,049,611
Fidelity Global ex U.S. Index Fund*	1,055,994	13,252,727
T. Rowe Price Blue Chip Growth Fund	101,016	10,497,552
Fidelity Balanced Fund - Class K*	450,689	10,329,788
Fidelity Freedom Index 2030 Fund - Institutional Premium Class*	559,849	9,405,466
T. Rowe Price Equity Income Fund	247,612	8,087,010
Fidelity Natural Resources Fund*	180,434	7,011,683
Fidelity Pacific Basin Fund*	243,782	6,682,067
Fidelity Real Estate Investment Portfolio*	166,051	6,198,666
BlackRock Inflation Protected Bond Fund BlackRock Shares	518,845	4,980,911
Fidelity Emerging Markets Index Fund*	514,420	4,850,985
Invesco EQV Emerging Markets All Cap R6	151,684	4,691,573
PIMCO High Yield Fund Institutional Class	540,781	4,061,264
Fidelity Europe*	117,827	3,619,653
T. Rowe Price Small Cap Value Fund	64,310	3,074,041
Fidelity Freedom Index 2020 Fund - Institutional Premium Class*	57,553	811,500
Fidelity Freedom Index Income Fund - Investor Class*	23,097	252,453
		389,202,484
Collective Investment Trust		
Wilmington Trust CIT Small Cap Value Fund II Fee Class I1	39,194	569,495
Registered Money Market Fund		
Fidelity Government Money Market Fund*	17,287,799	17,287,799
Notes Receivable From Participants		
Notes receivable from Participants (varying maturity dates between 2023 and 2032 and interest rates of 5.00%-5.75%)*		1,819,891
		\$ 408,879,669

*Permitted party-in-interest.

Note: Cost information is not required for participant directed investments. All investments are participant directed, and therefore cost information is not included.