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

2018

This Form is Open to Public Inspection

Part I Annual Report Identification Information

For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018

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.)
- [X] 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:
- [X] Form 5558
- [ ] automatic extension
- [ ] the DFVC program
- [ ] special extension (enter description)

Part II Basic Plan Information—enter all requested information

1a Name of plan
D. E. SHAW & CO. 401(K) PLAN

1b Three-digit plan number (PN) ▶ 001

1c Effective date of plan 01/01/1990

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)

D. E. SHAW & CO., L.P.

1166 AVENUE OF THE AMERICAS
9TH FLOOR
NEW YORK, NY 10036

2b Employer Identification Number (EIN)
13-3695715

2c Plan Sponsor's telephone number
212-478-0000

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.	08/09/2019	JENNIFER BLITSTEIN
	Signature of plan administrator	Date	Enter name of individual signing as plan administrator
SIGN HERE	Filed with authorized/valid electronic signature.	08/06/2019	YOAV CITRON
	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

3a	Plan administrator's name and address [X] 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**	1231
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	**6a(1)**	729
a(2)	Total number of active participants at the end of the plan year	**6a(2)**	783
b	Retired or separated participants receiving benefits	**6b**	1
c	Other retired or separated participants entitled to future benefits	**6c**	527
d	Subtotal. Add lines **6a(2)**, **6b**, and **6c**	**6d**	1311
e	Deceased participants whose beneficiaries are receiving or are entitled to receive benefits.	**6e**	0
f	Total. Add lines **6d** and **6e**.	**6f**	1311
g	Number of participants with account balances as of the end of the plan year (only defined contribution plans complete this item)	**6g**	1301
h	Number of participants who terminated employment during the plan year with accrued benefits that were less than 100% vested	**6h**	49
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 3D 3H

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)		**9b** Plan benefit arrangement (check all that apply)	
(1)	[ ] Insurance	**(1)**	[ ] Insurance
(2)	[ ] Code section 412(e)(3) insurance contracts	**(2)**	[ ] Code section 412(e)(3) insurance contracts
(3)	[X] Trust	**(3)**	[X] Trust
(4)	[ ] General assets of the sponsor	**(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)** [X] **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)** [X] **H** (Financial Information)
- **(2)** [ ] **I** (Financial Information – Small Plan)
- **(3)** [ ] **A** (Insurance Information)
- **(4)** [X] **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 2018 Form M-1 annual report. If the plan was not required to file the 2018 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)	Service Provider Information	OMB No. 1210-0110
Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	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.**	**2018** **This Form is Open to Public Inspection.**

For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018

A Name of plan
D. E. SHAW & CO. 401(K) PLAN

B Three-digit plan number (PN) ▶ 001

C Plan sponsor's name as shown on line 2a of Form 5500
D. E. SHAW & CO., L.P.

D Employer Identification Number (EIN)
13-3695715

Part I Service Provider Information (see instructions)

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

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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)

THE VANGUARD GROUP, INC.

23-1945930

(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?
15 25 37 52	NONE	1490	Yes [X] No [ ]	Yes [X] 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 [ ]

(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 [ ]

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)

(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 ☐

(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 ☐

(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
(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.	

(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.	

(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

(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

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 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

2018

This Form is Open to Public Inspection

For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018

A Name of plan
D. E. SHAW & CO. 401(K) PLAN

B Three-digit plan number (PN) ▶ 001

C Plan sponsor's name as shown on line 2a of Form 5500
D. E. SHAW & CO., L.P.

D Employer Identification Number (EIN)
13-3695715

Part I Asset and Liability Statement

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) Beginning of Year	(b) End of Year
a Total noninterest-bearing cash	1a		
b Receivables (less allowance for doubtful accounts):			
(1) Employer contributions	1b(1)	0	295876
(2) Participant contributions	1b(2)		
(3) Other	1b(3)		
c General investments:			
(1) Interest-bearing cash (include money market accounts & certificates of deposit)	1c(1)		
(2) U.S. Government securities	1c(2)		
(3) Corporate debt instruments (other than employer securities):			
(A) Preferred	1c(3)(A)		
(B) All other	1c(3)(B)		
(4) Corporate stocks (other than employer securities):			
(A) Preferred	1c(4)(A)		
(B) Common	1c(4)(B)		
(5) Partnership/joint venture interests	1c(5)		
(6) Real estate (other than employer real property)	1c(6)		
(7) Loans (other than to participants)	1c(7)		
(8) Participant loans	1c(8)	983598	943593
(9) Value of interest in common/collective trusts	1c(9)		
(10) Value of interest in pooled separate accounts	1c(10)		
(11) Value of interest in master trust investment accounts	1c(11)		
(12) Value of interest in 103-12 investment entities	1c(12)		
(13) Value of interest in registered investment companies (e.g., mutual funds)	1c(13)	264111169	264528833
(14) Value of funds held in insurance company general account (unallocated contracts)	1c(14)		
(15) Other	1c(15)		

			(a) Beginning of Year	(b) End of Year
1d	Employer-related investments:			
	(1) Employer securities	1d(1)		
	(2) Employer real property	1d(2)		
e	Buildings and other property used in plan operation	1e		
f	Total assets (add all amounts in lines 1a through 1e)	1f	265094767	265768302
	Liabilities			
g	Benefit claims payable	1g		
h	Operating payables	1h		
i	Acquisition indebtedness	1i		
j	Other liabilities	1j		
k	Total liabilities (add all amounts in lines 1g through1j)	1k	0	0
	Net Assets			
l	Net assets (subtract line 1k from line 1f)	1l	265094767	265768302

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)	6107970	
	(B) Participants	2a(1)(B)	17356556	
	(C) Others (including rollovers)	2a(1)(C)	2121258	
	(2) Noncash contributions	2a(2)		
	(3) Total contributions. Add lines **2a(1)(A), (B), (C),** and line **2a(2)**	2a(3)		25585784
b	**Earnings on investments:**			
	(1) Interest:			
	(A) Interest-bearing cash (including money market accounts and certificates of deposit)	2b(1)(A)		
	(B) U.S. Government securities	2b(1)(B)		
	(C) Corporate debt instruments	2b(1)(C)		
	(D) Loans (other than to participants)	2b(1)(D)		
	(E) Participant loans	2b(1)(E)	39616	
	(F) Other	2b(1)(F)		
	(G) Total interest. Add lines **2b(1)(A)** through **(F)**	2b(1)(G)		39616
	(2) Dividends: **(A)** Preferred stock	2b(2)(A)		
	(B) Common stock	2b(2)(B)		
	(C) Registered investment company shares (e.g. mutual funds)	2b(2)(C)	6404123	
	(D) Total dividends. Add lines **2b(2)(A)**, **(B)**, and **(C)**	2b(2)(D)		6404123
	(3) Rents	2b(3)		
	(4) Net gain (loss) on sale of assets: **(A)** Aggregate proceeds	2b(4)(A)		
	(B) Aggregate carrying amount (see instructions)	2b(4)(B)		
	(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)		
	(B) Other	2b(5)(B)		
	(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)		
(7) Net investment gain (loss) from pooled separate accounts	2b(7)		
(8) Net investment gain (loss) from master trust investment accounts	2b(8)		
(9) Net investment gain (loss) from 103-12 investment entities	2b(9)		
(10) Net investment gain (loss) from registered investment companies (e.g., mutual funds)	2b(10)		-25507819
c Other income	2c		
d Total income. Add all **income** amounts in column (b) and enter total	2d		6521704
Expenses			
e Benefit payment and payments to provide benefits:			
(1) Directly to participants or beneficiaries, including direct rollovers	2e(1)	5822699	
(2) To insurance carriers for the provision of benefits	2e(2)		
(3) Other	2e(3)	8883	
(4) Total benefit payments. Add lines **2e(1)** through **(3)**	2e(4)		5831582
f Corrective distributions (see instructions)	2f		15737
g Certain deemed distributions of participant loans (see instructions)	2g		
h Interest expense	2h		
i Administrative expenses: (1) Professional fees	2i(1)		
(2) Contract administrator fees	2i(2)		
(3) Investment advisory and management fees	2i(3)		
(4) Other	2i(4)	850	
(5) Total administrative expenses. Add lines **2i(1)** through **(4)**	2i(5)		850
j Total expenses. Add all **expense** amounts in column (b) and enter total	2j		5848169
Net Income and Reconciliation			
k Net income (loss). Subtract line **2j** from line **2d**	2k		673535
l Transfers of assets:			
(1) To this plan	2l(1)		
(2) From this plan	2l(2)		

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) ☐ Unqualified **(2)** ☐ Qualified **(3)** ☒ Disclaimer **(4)** ☐ Adverse

b Did the accountant perform a limited scope audit pursuant to 29 CFR 2520.103-8 and/or 103-12(d)? ☒ Yes ☐ No

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:

		Yes	No	Amount
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.)	4a		X	
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	

			Yes	No	Amount
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?	4e	X		100000000
f	Did the plan have a loss, whether or not reimbursed by the plan's fidelity bond, that was caused by fraud or dishonesty?	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.)	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			

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 If the plan is a defined benefit plan, is it covered under the PBGC insurance program (See ERISA section 4021.)? ..... ☐ Yes ☐ No ☐ Not determined
If "Yes" is checked, enter the My PAA confirmation number from the PBGC premium filing for this plan year_____. (See instructions.)

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

2018

This Form is Open to Public Inspection.

For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018

A Name of plan
D. E. SHAW & CO. 401(K) PLAN

B Three-digit plan number (PN) ▶ 001

C Plan sponsor's name as shown on line 2a of Form 5500
D. E. SHAW & CO., L.P.

D Employer Identification Number (EIN)
13-3695715

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): 23-2186884

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**

Part V Additional Information for Multiemployer Defined Benefit Pension Plans

13 Enter the following information for each employer that contributed more than 5% of total contributions to the plan during the plan year (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 participants on whose behalf no contributions were made by an employer as an employer of the participant for:

a The current year	**14a**	
b The plan year immediately preceding the current plan year	**14b**	
c The second preceding plan year	**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):

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Report of Independent Auditors

To D. E. Shaw & Co., L.P.:

Report on the Financial Statements

We were engaged to audit the accompanying financial statements of the D. E. Shaw & Co. 401(k) Plan, which comprise the statements of net assets available for benefits as of December 31, 2018 and 2017, and the related statement of changes in net assets available for benefits for the year ended December 31, 2018, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in conformity with U.S. generally accepted accounting principles; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free of material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on conducting the audits in accordance with auditing standards generally accepted in the United States. Because of the matter described in the Basis for Disclaimer of Opinion paragraph, however, we were not able to obtain sufficient appropriate audit evidence to provide a basis for an audit opinion.

Basis for Disclaimer of Opinion

As permitted by 29 CFR 2520.103-8 of the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974, the plan administrator instructed us not to perform, and we did not perform, any auditing procedures with respect to the certified investment information described in Note 9, except for comparing such information with the related information included in the financial statements. We have been informed by the plan administrator that the entity that certified the investment information meets the requirements of 29 CFR 2520.103-8. The plan administrator has obtained certifications as of December 31, 2018 and 2017, and for the year ended December 31, 2018, stating that the investment information provided to the plan administrator is complete and accurate.

Disclaimer of Opinion on Financial Statements

Because of the significance of the matter described in the Basis for Disclaimer of Opinion paragraph, we have not been able to obtain sufficient appropriate audit evidence to provide a basis for an audit opinion. Accordingly, we do not express an opinion on these financial statements.

Disclaimer of Opinion on Supplemental Schedule

The accompanying supplemental schedule of assets (held at end of year) as of December 31, 2018, 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 the Employee Retirement Income Security Act of 1974. Because of the significance of the matter described in the Basis for Disclaimer of Opinion paragraph, we do not express an opinion on the supplemental schedule referred to above.

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Report on Compliance of Form and Content with Department of Labor's Rules and Regulations

The form and content of the information included in the financial statements and supplemental schedule, other than that derived from the certified investment information, have been audited by us in accordance with auditing standards generally accepted in the United States and, in our opinion, are presented in compliance with the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974.

Ernst & Young LLP

July 29, 2019

A member firm of Ernst & Young Global Limited

D. E. Shaw & Co. 401(k) Plan (EIN: 13-3695715 PN: 001)

Schedule of Assets (Held at End of Year)
Schedule H, Line 4i

December 31, 2018

Description of Plan Investments	*Shares*	*Fair Value*
Vanguard Institutional Index Fund	292,288	$ 66,510,184
Vanguard Mid-Cap Index Fund Institutional Shares	721,928	27,274,453
Vanguard Total International Stock Index Fund Institutional Shares	211,138	21,422,020
Vanguard Small-Cap Index Fund Institutional Shares	286,573	18,117,161
Vanguard Total Bond Market Index Fund Institutional Shares	1,606,082	16,783,561
Vanguard Institutional Target Retirement 2050 Fund	680,743	14,595,134
Vanguard Institutional Target Retirement 2045 Fund	679,975	14,558,270
Vanguard Treasury Money Market Fund	10,260,834	10,260,834
Vanguard Institutional Target Retirement 2040 Fund	458,372	9,795,415
Vanguard Institutional Target Retirement 2035 Fund	407,513	8,680,025
Vanguard REIT Index Fund Institutional Shares	527,302	8,626,655
Vanguard Institutional Target Retirement 2055 Fund	366,406	7,877,727
Vanguard Total Stock Market Index Fund Admiral Shares	122,451	7,602,953
Vanguard Institutional Target Retirement 2030 Fund	278,335	5,911,846
Vanguard Inflation-Protected Securities Fund Admiral Shares	179,211	4,387,080
Vanguard Institutional Target Retirement 2025 Fund	204,275	4,324,498
Vanguard High Dividend Yield Index Fund Investor Shares	107,063	3,306,095
Vanguard Institutional Target Retirement 2060 Fund	112,693	2,422,907
Vanguard Emerging Markets Stock Index Fund Admiral Shares	75,061	2,383,942
Vanguard Developed Markets Index Fund Admiral Shares	179,127	2,142,361
Vanguard Institutional Target Retirement Income Fund	103,777	2,128,473
Vanguard Institutional Target Retirement 2020 Fund	91,820	1,930,975
Vanguard Short-Term Federal Fund Admiral Shares	115,394	1,217,411
Vanguard Long-Term Treasury Index Fund Admiral Shares	34,889	875,726
Vanguard Intermediate-Term Treasury Index Fund Admiral Shares	40,537	868,309
Vanguard Institutional Target Retirement 2015 Fund	22,267	459,593
Vanguard Institutional Target Retirement 2065 Fund	3,318	65,225
Total Plan Investments *(see Notes below)*		**264,528,833**
Loans to Participants (interest rate of 4.25%-6.25%, maturity dates ranging from April 2019 to September 2028)		**943,593**
Total Plan Investments and Loans to Participants		**$ 265,472,426**

Notes:
1. The Plan Investments above qualify as party-in-interest transactions.
2. Cost information is not required because Plan Investments are participant directed.

D. E. Shaw & Co. 401(k) Plan (EIN: 13-3695715 PN: 001)

Financial Statements and Supplemental Schedule

December 31, 2018 and 2017 and Year Ended December 31, 2018

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Supplemental Schedule: Schedule of Assets (Held at End of Year)	14

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Report of Independent Auditors

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The accompanying supplemental schedule of assets (held at end of year) as of December 31, 2018, 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 the Employee Retirement Income Security Act of 1974. Because of the significance of the matter described in the Basis for Disclaimer of Opinion paragraph, we do not express an opinion on the supplemental schedule referred to above.

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Report on Compliance of Form and Content with Department of Labor's Rules and Regulations

The form and content of the information included in the financial statements and supplemental schedule, other than that derived from the certified investment information, have been audited by us in accordance with auditing standards generally accepted in the United States and, in our opinion, are presented in compliance with the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974.

Ernst & Young LLP

July 29, 2019

A member firm of Ernst & Young Global Limited

Statements of Net Assets Available for Benefits

December 31, 2018 and 2017

	December 31, 2018	December 31, 2017
Plan Investments at fair value:		
Mutual fund investments	$ 264,528,833	$ 264,111,169
Employer contributions receivable	295,876	-
Notes receivable from participants	943,593	983,598
Net Assets Available for Benefits	$ **265,768,302**	$ **265,094,767**

The accompanying notes are an integral part of these statements.

Statement of Changes in Net Assets Available for Benefits

Year Ended December 31, 2018

Additions		
Net depreciation in the fair value of mutual fund investments	$ (25,507,819)	
Participants' contributions	17,356,556	
Employers' contributions, net of forfeitures	6,107,970	
Rollover contributions	2,121,258	
Dividend income	6,404,123	
Interest on notes receivable	39,616	
Total Additions		$ **6,521,704**
Deductions		
Distributions and withdrawals	5,832,432	
Corrective distributions	15,737	
Total Deductions		**5,848,169**
Net Increase		**673,535**
Net Assets Available for Benefits:		
Beginning of Year		**265,094,767**
End of Year		$ **265,768,302**

The accompanying notes are an integral part of this statement.

Notes to Financial Statements

December 31, 2018 and 2017

1. Description of the Plan

The following description of the D. E. Shaw & Co. 401(k) Plan (the "Plan") provides only general information. Participants should refer to the Plan document for a more complete description of the Plan's provisions.

a. General

The Plan, which became effective January 1, 1990, is a defined contribution plan which covers all eligible employees or partners of D. E. Shaw & Co., L.P.; D. E. Shaw Research, LLC; D. E. Shaw & Co., Inc.; D. E. Shaw & Co. II, Inc.; D. E. Shaw & Co., L.L.C.; D. E. Shaw Technology Development, LLC; D. E. Shaw International Operations, L.L.C.; D. E. Shaw Staff, LLC; D. E. Shaw International Development, L.L.C; D. E. Shaw Renewable Investments, L.L.C.; Arcesium LLC; and DESRI Project Management Services, L.L.C. (together the "Plan Companies") who are age twenty-one or older. There is no service requirement to join the Plan. The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974, as amended ("ERISA"). D. E. Shaw & Co., L.P. (the "Plan Administrator" and the "Plan Sponsor") is both the administrator and the sponsor of the Plan.

b. Contributions

Participants can contribute up to 60 percent of their compensation, as defined, to the Plan. Participant contributions were limited to $18,500 of pre-tax and Roth 401(k) contributions in 2018. Participants who have attained age 50 before the end of the Plan year were eligible to make catch-up contributions up to $6,000. Catch-up contributions are not eligible for employer-matching. A participant may, with consent of the Plan Administrator, make a rollover contribution from a previously qualified plan. The Plan Companies contribute up to 50 percent of compensation that a participant contributes to the Plan. Such matching contribution is limited to the lesser of (i) 50 percent of the participant's contribution or (ii) 12 percent of such participant's eligible compensation for the plan year in 2018. As of December 31, 2018 and 2017, aggregate contributions receivable was approximately $295,876 and $0, respectively.

The Plan Administrator will automatically contribute six percent of a new employee's eligible compensation into the Plan unless the employee has affirmatively elected not to participate in these automatic contributions or has affirmatively elected to contribute a different amount. These contributions will be treated as pre-tax deferrals and will automatically be deducted from the employee's eligible compensation and contributed to the Plan on the employee's behalf. This amount will be increased each year by one percent up to a maximum of 12 percent. The automatic increase will occur during the first payroll in March. Once an employee does make an election to contribute to the Plan, the Plan Administrator will no longer make the automatic contribution of the employee's compensation into the Plan.

With the consent of the Plan Administrator, the Plan allows participants to contribute after-tax compensation up to $27,250 in addition to the amounts listed above. This after-tax contribution is not eligible for employer-matching.

1. Description of the Plan (Continued)

c. Funding

The Plan Administrator submits the employers' matching contributions with the participants' contributions on a per pay-period basis.

d. Vesting

Participants are always fully vested in their employee contributions and the respective investment income, and gains and losses thereon. Employer contributions to participants' accounts under the Plan are vested ratably in 25 percent installments over four years. Generally, if a participant's employment with the Plan Companies terminates and the participant is less than 100 percent vested, he or she will forfeit the non-vested portion.

e. Forfeitures

For the year ended December 31, 2018, employer contributions were reduced by approximately $205,000 from forfeitures applied. As of December 31, 2018, approximately $42,000 was available to reduce employer contributions or Plan-related administrative expenses within the next twelve months following the Plan's year-end.

f. Participant Accounts

Each participant's account is credited (debited) with the participant's and the employer's contributions and the respective investment gains (losses) thereon. Allocations of gains (losses) are based on participant account balances. The benefit to which a participant is entitled is the benefit that can be provided from the participant's account.

g. Trusteeship

The trustee and Plan recordkeeper is Vanguard Fiduciary Trust Company ("Vanguard"). The Plan's investments are held by Vanguard under a trust agreement.

h. Investment Options

Participants may direct employer and employee contributions in any of the mutual fund investment options (the "Plan Investments") presented in Note 3. Participants can invest in funds in increments of one percent. Participants may change their designation of investment options on a daily basis.

i. Notes Receivable from Participants

Generally, participants may borrow from their participant accounts a minimum of $1,000 and a maximum which cannot exceed the lesser of $50,000 or 50 percent of their vested account balance.

1. Description of the Plan (Continued)

i. Notes Receivable from Participants (Continued)

Loan terms cannot exceed five years unless the loan is for the purchase of the participant's principal residence, in which case the loan terms can extend to ten years. The loans are secured by the balance in the participant's account and bear interest at the prime lending rate in effect on the day the loan is approved, plus one percent. Principal and interest are paid ratably through payroll deductions. There were 44 loans outstanding on December 31, 2018 and 42 outstanding on December 31, 2017. If a participant with a loan outstanding ceases to be an employee, the loan will be considered in default and the participant's individual account will be reduced by the outstanding amount of the loan before their final distribution from the Plan.

j. Payment of Benefits

On termination of service due to disability, retirement, or termination of employment, a participant may make an affirmative distribution election to receive a lump sum distribution equal to the vested value of the participant's account. In the event of death, the participant's beneficiary will receive the distribution upon making an affirmative distribution election.

If a participant's vested account balance is less than $1,000 on termination of service, the participant will receive a lump-sum distribution as soon as practicable after the participant's termination of employment, without the requirement of any affirmative distribution election.

If a participant's vested account balance is more than $1,000 and less than $5,000 on termination of service, and after receiving all required notices, the participant does not make an affirmative distribution election, the distribution will be automatically rolled over by the Plan to an Individual Retirement Account with Vanguard as soon as practicable after the participant's termination of service. If a participant's vested account balance is more than $5,000 on termination of service, and after receiving all required notices, the participant does not make an affirmative distribution election, the participant's funds will be left in the Plan until the participant makes an affirmative distribution election.

Upon attaining age 59 1/2, a participant may request a withdrawal of all or a portion of his or her vested account balance once a year.

A participant who suffers a financial hardship may request a withdrawal of all or a portion of their participant contributions. A financial hardship, as defined by the Plan, is limited to 1) expenses related to tuition for the participant or dependents of the participant; 2) expenses related to the purchase of a principal residence (excluding mortgage payments); 3) medical expenses; 4) expenses related to the need to prevent eviction from a principal residence; 5) funeral expenses for the parents, spouse, or dependents of the participant; or 6) expenses to repair the principal residence that would qualify for a casualty loss deduction. The participant must have obtained all loans and withdrawals available under the Plan before a hardship withdrawal is approved. A participant

1. Description of the Plan (Continued)

j. Payment of Benefits (Continued)

who takes a hardship withdrawal is not eligible to contribute to the Plan for six months following the withdrawal.

k. Expenses

Expenses associated with the administration of the Plan may be paid for by the Plan or the Plan Sponsor, as permitted by the terms of the Plan.

l. In-Plan Roth Rollover Option

The Plan allows participants to roll over any amount of a participants' vested account balance (including pre-tax contributions, after-tax contributions, employer contributions, and earnings on those contributions) into a Roth account held within the Plan.

2. Summary of Accounting Policies

a. Basis of Presentation, Management Estimates, and Assumptions

The Plan's financial statements are prepared in accordance with U.S generally accepted accounting principles ("U.S. GAAP"), which require management to use its judgment in making certain estimates. Such estimates may differ from the amounts ultimately realized due to uncertainties inherent in any such process, and the differences may be material.

b. Investments

The Plan determines the fair value of its assets and liabilities based on the fair value hierarchy established in Financial Accounting Standards Board ("FASB") Accounting Standards Codification 820 ("Fair Value Measurement"), which requires the Plan to maximize the use of relevant observable inputs and minimize the use of unobservable inputs when measuring the fair value of its assets and liabilities. Observable inputs are inputs that are developed using market data, such as publicly available information about actual events or transactions, and reflect the assumptions market participants would use when pricing an asset or liability. Unobservable inputs are inputs for which market data are not available and that are developed using the best information available about the assumptions market participants would use when pricing an asset or liability. The hierarchy gives the highest priority to observable inputs (i.e., Level 1 measurements) and the lowest priority to unobservable inputs (i.e., Level 3 measurements). The three levels of the fair value hierarchy are described below:

2. Summary of Accounting Policies (Continued)

b. Investments (Continued)

Level 1—Financial instruments valued using unadjusted, quoted market prices in active markets for identical assets or liabilities.

Level 2—Financial instruments valued using observable inputs other than Level 1 inputs, such as quoted market prices for similar assets or liabilities, quoted market prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3—Financial instruments valued using unobservable inputs that are significant to the determination of the fair value of the assets or liabilities.

Mutual fund investments consist of shares of registered investment companies. The shares of registered investment companies are valued at the last reported net asset value on the last business day of the Plan year based on quoted market prices. Purchases and sales of securities are recorded on a trade date basis. The cost of securities sold is based on average cost.

Investment gains (losses) are credited (debited) to participant accounts daily. Net appreciation (depreciation) includes the Plan's net gains (losses) on investments bought and sold as well as held during the year. Interest income is recorded on an accrual basis. Dividends are recorded on the ex-dividend date.

Benefits are recorded when paid.

c. Notes Receivable from Participants

Notes receivable from participants represent participant loans that are recorded at their unpaid principal balance plus any accrued and unpaid interest. Interest income on notes receivable from participants is recorded when it is earned.

Related fees are recorded as administrative expenses and are expensed when they are incurred. No allowance for credit losses has been recorded as of December 31, 2018 or 2017. If a participant ceases to make loan repayments and the Plan Administrator deems the participant loan to be a distribution, the participant loan balance is reduced and a benefit payment is recorded.

3. Investments

Plan Investments disclosed in the accompanying financial statements as of December 31, 2018 and 2017 and the supplemental schedule as of December 31, 2018, and net depreciation in fair value of Plan Investments for the year ended December 31, 2018, was obtained or derived from information

3. Investments (Continued)

provided to the Plan Administrator and certified as complete and accurate by Vanguard.

The fair values of the Plan Investments as of December 31, 2018 are as follows:

Mutual Fund Investments:		
Vanguard Institutional Index Fund Institutional Shares	$	66,510,184
Vanguard Mid-Cap Index Fund Institutional Shares		27,274,453
Vanguard Total International Stock Index Fund Institutional Shares		21,422,020
Vanguard Small-Cap Index Fund Institutional Shares		18,117,161
Vanguard Total Bond Market Index Fund Institutional Shares		16,783,561
Vanguard Institutional Target Retirement 2050 Fund		14,595,134
Vanguard Institutional Target Retirement 2045 Fund		14,558,270
Vanguard Treasury Money Market Fund		10,260,834
Vanguard Institutional Target Retirement 2040 Fund		9,795,415
Vanguard Institutional Target Retirement 2035 Fund		8,680,025
Vanguard REIT Index Fund Institutional Shares		8,626,655
Vanguard Institutional Target Retirement 2055 Fund		7,877,727
Vanguard Total Stock Market Index Fund Admiral Shares		7,602,953
Vanguard Institutional Target Retirement 2030 Fund		5,911,846
Vanguard Inflation-Protected Securities Fund: Adm Shares		4,387,080
Vanguard Institutional Target Retirement 2025 Fund		4,324,498
Vanguard High Dividend Yield Index Fund Investor Shares		3,306,095
Vanguard Institutional Target Retirement 2060 Fund		2,422,907
Vanguard Emerging Markets Stock Index Fund Admiral Shares		2,383,942
Vanguard Developed Markets Index Fund Admiral Shares		2,142,361
Vanguard Institutional Target Retirement Income Fund		2,128,473
Vanguard Institutional Target Retirement 2020 Fund		1,930,975
Vanguard Short-Term Federal Fund Admiral Shares		1,217,411
Vanguard Long-Term Treasury Index Fund Admiral Shares		875,726
Vanguard Intermediate-Term Treasury Index Fund Admiral Shares		868,309
Vanguard Institutional Target Retirement 2015 Fund		459,593
Vanguard Institutional Target Retirement 2065 Fund		65,225
	$	**264,528,833**

3. Investments (Continued)

The fair values of the Plan Investments as of December 31, 2017 were as follows:

Mutual Fund Investments:		
Vanguard Institutional Index Fund Institutional Shares	$	67,801,570
Vanguard Mid-Cap Index Fund Institutional Shares		29,834,302
Vanguard Total International Stock Index Fund Institutional Shares		24,442,831
Vanguard Small-Cap Index Fund Institutional Shares		19,519,599
Vanguard Total Bond Market Index Fund Institutional Shares		16,087,243
Vanguard Institutional Target Retirement 2050 Fund		13,987,821
Vanguard Institutional Target Retirement 2045 Fund		13,629,026
Vanguard REIT Index Fund Institutional Shares		9,955,744
Vanguard Treasury Money Market Fund		9,746,419
Vanguard Institutional Target Retirement 2040 Fund		9,169,833
Vanguard Institutional Target Retirement 2035 Fund		8,769,649
Vanguard Institutional Target Retirement 2055 Fund		6,613,940
Vanguard Institutional Target Retirement 2030 Fund		6,523,918
Vanguard Total Stock Market Index Fund Admiral Shares		6,182,859
Vanguard Inflation-Protected Securities Fund Admiral Shares		4,286,175
Vanguard High Dividend Yield Index Fund Investor Shares		3,236,994
Vanguard Institutional Target Retirement 2025 Fund		2,749,805
Vanguard Institutional Target Retirement Income Fund		2,062,199
Vanguard Institutional Target Retirement 2020 Fund		1,990,038
Vanguard Emerging Markets Stock Index Fund Admiral Shares		1,785,292
Vanguard Developed Markets Index Fund Admiral Shares		1,667,591
Vanguard Institutional Target Retirement 2060 Fund		1,466,495
Vanguard Intermediate-Term Treasury Index Fund Admiral Shares		804,041
Vanguard Institutional Target Retirement 2015 Fund		626,604
Vanguard Short-Term Federal Fund Admiral Shares		588,469
Vanguard Long-Term Treasury Index Fund Admiral Shares		582,614
Vanguard Dividend Growth Fund		98
	$	**264,111,169**

4. Related Party Transactions

As of December 31, 2018 and 2017, the Plan Investments were managed by Vanguard. Vanguard is the trustee of the Plan and, as such, these transactions qualified as party-in-interest transactions. Fees paid by the Plan to

4. Related Party Transactions (Continued)

Vanguard amounted to approximately $850 for the year ended December 31, 2018 and are included under distributions and withdrawals on the statement of changes in net assets available for benefits.

5. Plan Termination

Although they have not expressed any intent to do so, the Plan Companies have the right under the Plan to discontinue their matching contributions at any time and to terminate the Plan subject to the provisions of ERISA. In the event of a Plan termination, participants will become 100 percent vested in their accounts, including the matching contributions by the respective Plan Company.

6. Tax Status

The underlying prototype plan has received an opinion letter from the Internal Revenue Service ("IRS") dated May 28, 2014 stating that the written form of the underlying prototype document is qualified under Section 401 of the Internal Revenue Code (the "Code"). Any employer adopting this form of the plan will be considered to have a plan qualified under Section 401 of the Code, and therefore, the related trust is tax exempt. 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 that the Plan is qualified and the related trust is tax exempt.

The Plan Administrator accounts for the effect of any uncertain tax positions in its financial statements. The Plan Administrator measures such tax positions against the more-likely-than-not threshold, based on whether those positions would be expected to be sustained if examined by the IRS. With respect to any tax positions that do not meet the more-likely-than-not threshold, the Plan records a corresponding liability in the financial statements, though no liabilities or expenses, including interest and penalties, were deemed necessary for recording during the year. The Plan may be subject to examination by taxing authorities in jurisdictions where the Plan Administrator conducts operations; however, there are currently no audits for any tax periods in progress.

7. Fair Value Measurement

The Plan's assets recorded at fair value have been categorized based upon a fair value hierarchy in accordance with Fair Value Measurement as previously discussed in Note 2. As of December 31, 2018 and 2017, the Plan assets consisted of mutual fund investments that are categorized as Level 1.

8. Risks and Uncertainties

The Plan invests in various investment securities. Investment securities are exposed to various risks such as interest rate, market volatility, and credit risks. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the

8. Risks and Uncertainties (Continued)

near term and that such changes could materially affect participants' account balances and the amounts reported in the statements of net assets available for benefits.

9. Information Certified by the Trustee

The following information included in the financial statements and supplemental schedule have been certified by Vanguard in accordance with 29 CFR 2520.103-8 of the Department of Labor's rules and regulations for reporting and disclosure under ERISA:

- Investments as of December 31, 2018 and 2017
- Investment income for the year ended December 31, 2018
- Net appreciation/(depreciation) in the fair value of Plan Investments for the year ended December 31, 2018
- Schedule of Assets (Held at End of Year) as of December 31, 2018
- Notes receivable from participants as of December 31, 2018

10. Subsequent Events

The Plan has evaluated events subsequent to December 31, 2018 through July 29, 2019, the date the financial statements were available to be issued, and there was nothing material to disclose.

Supplemental Schedule

D. E. Shaw & Co. 401(k) Plan (EIN: 13-3695715 PN: 001)

Schedule of Assets (Held at End of Year)
Schedule H, Line 4i

December 31, 2018

Description of Plan Investments	*Shares*	*Fair Value*
Vanguard Institutional Index Fund	292,288	$ 66,510,184
Vanguard Mid-Cap Index Fund Institutional Shares	721,928	27,274,453
Vanguard Total International Stock Index Fund Institutional Shares	211,138	21,422,020
Vanguard Small-Cap Index Fund Institutional Shares	286,573	18,117,161
Vanguard Total Bond Market Index Fund Institutional Shares	1,606,082	16,783,561
Vanguard Institutional Target Retirement 2050 Fund	680,743	14,595,134
Vanguard Institutional Target Retirement 2045 Fund	679,975	14,558,270
Vanguard Treasury Money Market Fund	10,260,834	10,260,834
Vanguard Institutional Target Retirement 2040 Fund	458,372	9,795,415
Vanguard Institutional Target Retirement 2035 Fund	407,513	8,680,025
Vanguard REIT Index Fund Institutional Shares	527,302	8,626,655
Vanguard Institutional Target Retirement 2055 Fund	366,406	7,877,727
Vanguard Total Stock Market Index Fund Admiral Shares	122,451	7,602,953
Vanguard Institutional Target Retirement 2030 Fund	278,335	5,911,846
Vanguard Inflation-Protected Securities Fund Admiral Shares	179,211	4,387,080
Vanguard Institutional Target Retirement 2025 Fund	204,275	4,324,498
Vanguard High Dividend Yield Index Fund Investor Shares	107,063	3,306,095
Vanguard Institutional Target Retirement 2060 Fund	112,693	2,422,907
Vanguard Emerging Markets Stock Index Fund Admiral Shares	75,061	2,383,942
Vanguard Developed Markets Index Fund Admiral Shares	179,127	2,142,361
Vanguard Institutional Target Retirement Income Fund	103,777	2,128,473
Vanguard Institutional Target Retirement 2020 Fund	91,820	1,930,975
Vanguard Short-Term Federal Fund Admiral Shares	115,394	1,217,411
Vanguard Long-Term Treasury Index Fund Admiral Shares	34,889	875,726
Vanguard Intermediate-Term Treasury Index Fund Admiral Shares	40,537	868,309
Vanguard Institutional Target Retirement 2015 Fund	22,267	459,593
Vanguard Institutional Target Retirement 2065 Fund	3,318	65,225
Total Plan Investments *(see Notes below)*		**264,528,833**
Loans to Participants (interest rate of 4.25%-6.25%, maturity dates ranging from April 2019 to September 2028)		**943,593**
Total Plan Investments and Loans to Participants		**$ 265,472,426**

Notes:
1. The Plan Investments above qualify as party-in-interest transactions.
2. Cost information is not required because Plan Investments are participant directed.