eisenberg-noe-2001-debt-model-with-default-costs

November 20, 2021

```
----------------------------------------------------------

DEBT MODEL WITH DEFAULT COSTS

ALPHA = 0.1 and BETA = 0.9
Running Debt Model to find Greatest Clearing Vector in MANUAL mode with 3
nodes…

Scenario 5 - Firm B defaults in first round, Firm A in second round, MODE ==
'MANUAL', NUM_AGENTS = 3, NOMINAL_LIABILITY_MATRIX =
np.array([[0,2,9],[7,0,9],[3,1,0]]), OPERATING_CASHFLOW_BEFORE_SHOCK = [11, 8,
12], ALPHA = 0.1, BETA = 0.9
Shock value is 8

----------------------------------------------------------

AGENT LABELS

Agent labels ['A', 'B', 'C']

----------------------------------------------------------

NOMINAL LIABILITY MATRIX Data Frame
i.e. what node i expects (row) to pay node j (column)…

   A  B  C
A  0  2  9
B  7  0  9
C  3  1  0



Nominal liabilities for each node:
Liability of Node A to Node B is 2
Liability of Node A to Node C is 9
Liability of Node B to Node A is 7
Liability of Node B to Node C is 9
Liability of Node C to Node A is 3
Liability of Node C to Node B is 1
```

NOMINAL LIABILITY MATRIX TRANSPOSED Data Frame
i.e. what node j expects to receive from i…

	A	B	C
A	0	7	3
B	2	0	1
C	9	9	0

Node A expects to receive 7 from Node B
Node A expects to receive 3 from Node C
Node B expects to receive 2 from Node A
Node B expects to receive 1 from Node C
Node C expects to receive 9 from Node A
Node C expects to receive 9 from Node B

OPERATING CASH FLOW VECTOR

Exogenous cash flow for Node A: 3
Exogenous cash flow for Node B: 0
Exogenous cash flow for Node C: 4
[3, 0, 4]

CALCULATING RELATIVE LIABILITIES FOR EACH NODE

Node A

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0

- Total obligations for Node A
Total Obligation Vector updated in round 1 for Node A with value 11.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

- Relative Liabilities of Node A
Relative Liability of Node A to Node B is 0.18181818181818182
Relative Liability of Node A to Node C is 0.8181818181818182
Sum of Relative Liabilities for Node A is 1.0

Node B

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0

```
Liability of Node B to Node C (i.e. P_12) is 9.0

- Total obligations for Node B
Total Obligation Vector updated in round 1 for Node B with value 16.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

- Relative Liabilities of Node B
Relative Liability of Node B to Node A is 0.4375
Relative Liability of Node B to Node C is 0.5625
Sum of Relative Liabilities for Node B is 1.0

***Node C***

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0

- Total obligations for Node C
Total Obligation Vector updated in round 1 for Node C with value 4.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

- Relative Liabilities of Node C
Relative Liability of Node C to Node A is 0.75
Relative Liability of Node C to Node B is 0.25
Sum of Relative Liabilities for Node C is 1.0

-----------------------------------------------------

RELATIVE LIABILITY MATRIX Data Frame

        A         B         C
A  0.0000  0.181818  0.818182
B  0.4375  0.000000  0.562500
C  0.7500  0.250000  0.000000



-----------------------------------------------------

RELATIVE LIABILITY MATRIX Data Frame SANITY CHECK

        A         B         C  Relative Liability Total  CORRECT VALUE?
A  0.0000  0.181818  0.818182                       1.0            True
B  0.4375  0.000000  0.562500                       1.0            True
C  0.7500  0.250000  0.000000                       1.0            True



-----------------------------------------------------
```

```
RELATIVE LIABILITY MATRIX TRANSPOSED Data Frame
i.e. what node i (row) expects to receive from node j (column) in relative
terms…

          A       B     C
A  0.000000  0.4375  0.75
B  0.181818  0.0000  0.25
C  0.818182  0.5625  0.00


***Expected nominal payments in for Node A - both proportion and total amount***

Node A expects to receive proportion 0.4375 from Node B
Node A expects to receive proportion 0.75 from Node C
Total payments in to Node A is 10.0 in round 1.

***Expected nominal payments in for Node B - both proportion and total amount***

Node B expects to receive proportion 0.18181818181818182 from Node A
Node B expects to receive proportion 0.25 from Node C
Total payments in to Node B is 3.0 in round 1.

***Expected nominal payments in for Node C - both proportion and total amount***

Node C expects to receive proportion 0.8181818181818182 from Node A
Node C expects to receive proportion 0.5625 from Node B
Total payments in to Node C is 18.0 in round 1.

------------------------------------------------------------



------------------------------------------------------------

START OF ROUND 1

------------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 1

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

------------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 1
```

```
i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Total payments in to Node A is 10.0 in round 1.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0

- Total obligations for Node A
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0, 13.0]

 - Total Dollar Payment Vector for round 1 and Node A
Total Dollar Payment Vector for round 1 and Node A updated with value 11.0

***Node B***

- Total payments in for Node B
Total payments in to Node B is 3.0 in round 1.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0

- Total obligations for Node B
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0, 3.0]
Total payments in to Node B is 3.0 in round 1.
Total payments in to Node B is 3.0 in round 1.
Total payments in to Node B is 3.0 in round 1.
Round 1 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 3.0. Default loss for Node B is 0.2999999999999998

 - Total Dollar Payment Vector for round 1 and Node B
Total Dollar Payment Vector for round 1 and Node B updated with value 2.7

***Node C***

- Total payments in for Node C
Total payments in to Node C is 18.0 in round 1.
```

```
- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0

- Total obligations for Node C
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0, 22.0]

 - Total Dollar Payment Vector for round 1 and Node C
Total Dollar Payment Vector for round 1 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 1

Total payment by Node A (i.e. p_1): 11.0
Total payment by Node B (i.e. p_2): 2.7
Total payment by Node C (i.e. p_3): 4.0
[11.0, 2.7, 4.0]

------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 1

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Total payments in to Node A is 10.0 in round 1.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 11.0
Equity Vector for round 1 and Node A
Equity Vector for round 1 and Node A updated with value 2.0 i.e. total cash flow
13.0  minus total payments out (liabilities) 11.0.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Total payments in to Node B is 3.0 in round 1.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Equity Vector for round 1 and Node B
Equity Vector for round 1 and Node B updated with value 0.2999999999999998 i.e.
total cash flow 3.0  minus total payments out (liabilities) 2.7.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Total payments in to Node C is 18.0 in round 1.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 1 and Node C
Equity Vector for round 1 and Node C updated with value 18.0 i.e. total cash
flow 22.0  minus total payments out (liabilities) 4.0.
```

```
----------------------------------------------------------

EQUITY FOR EACH NODE - round 1

Equity for Node A: 2.0
Equity for Node B: 0.2999999999999998
Equity for Node C: 18.0
[2.0, 0.2999999999999998, 18.0]

----------------------------------------------------------

ROUND 1 DEFAULTERS

Node B has defaulted in round 1
{'A': False, 'B': True, 'C': False}
There are defaulters in this round (i.e. round 1), algorithm will proceed for
another round.

----------------------------------------------------------

END OF ROUND 1

----------------------------------------------------------

START OF ROUND 2

----------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 2

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

----------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 2

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
```

```
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 4.18125 in round 2.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0, 7.18125]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 4.18125 in round 2.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 4.18125 in round 2.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 4.18125 in round 2.
Round 2 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 7.18125. Default loss for Node A is 3.118125

 - Total Dollar Payment Vector for round 2 and Node A
Total Dollar Payment Vector for round 2 and Node A updated with value 4.063125

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 11.0
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 3.0 in round 2.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0, 3.0]
Relative Payment in to Node B from Node A is 0.18181818181818182
```

```
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 11.0
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 3.0 in round 2.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 11.0
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 3.0 in round 2.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 11.0
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 3.0 in round 2.
Round 2 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 3.0. Default loss for Node B is 0.2999999999999998

 - Total Dollar Payment Vector for round 2 and Node B
Total Dollar Payment Vector for round 2 and Node B updated with value 2.7

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 11.0
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Total payments in to Node C is 10.51875 in round 2.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0, 14.51875]

 - Total Dollar Payment Vector for round 2 and Node C
Total Dollar Payment Vector for round 2 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 2

Total payment by Node A (i.e. p_1): 4.063125
Total payment by Node B (i.e. p_2): 2.7
Total payment by Node C (i.e. p_3): 4.0
[4.063125, 2.7, 4.0]
```

```
-----------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 2

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 4.18125 in round 2.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Equity Vector for round 2 and Node A
Equity Vector for round 2 and Node A updated with value 3.118125 i.e. total cash
flow 7.18125  minus total payments out (liabilities) 4.063125.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 11.0
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 3.0 in round 2.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Equity Vector for round 2 and Node B
Equity Vector for round 2 and Node B updated with value 0.2999999999999998 i.e.
total cash flow 3.0  minus total payments out (liabilities) 2.7.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 11.0
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Total payments in to Node C is 10.51875 in round 2.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 2 and Node C
Equity Vector for round 2 and Node C updated with value 10.51875 i.e. total cash
flow 14.51875  minus total payments out (liabilities) 4.0.


-----------------------------------------------------

EQUITY FOR EACH NODE - round 2

Equity for Node A: 3.118125
Equity for Node B: 0.2999999999999998
Equity for Node C: 10.51875
```

```
[3.118125, 0.2999999999999998, 10.51875]

----------------------------------------------------------

ROUND 2 DEFAULTERS

Node A has defaulted in round 2
{'A': True, 'B': True, 'C': False}
There are defaulters in this round (i.e. round 2), algorithm will proceed for
another round.

----------------------------------------------------------

END OF ROUND 2

----------------------------------------------------------

START OF ROUND 3

----------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 3

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

----------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 3

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 4.18125 in round 3.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0
```

```
Payment out is min[payment out, total cash flow] i.e. min[11.0, 7.18125]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 4.18125 in round 3.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 4.18125 in round 3.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 4.18125 in round 3.
Round 3 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 7.18125. Default loss for Node A is 3.118125

 - Total Dollar Payment Vector for round 3 and Node A
Total Dollar Payment Vector for round 3 and Node A updated with value 4.063125

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.73875 in round 3.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0, 1.73875]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.73875 in round 3.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.73875 in round 3.
```

```
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.73875 in round 3.
Round 3 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.73875. Default loss for Node B is 0.173875

 - Total Dollar Payment Vector for round 3 and Node B
Total Dollar Payment Vector for round 3 and Node B updated with value 1.564875

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Total payments in to Node C is 4.843125000000001 in round 3.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0, 8.843125]

 - Total Dollar Payment Vector for round 3 and Node C
Total Dollar Payment Vector for round 3 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 3

Total payment by Node A (i.e. p_1): 4.063125
Total payment by Node B (i.e. p_2): 1.564875
Total payment by Node C (i.e. p_3): 4.0
[4.063125, 1.564875, 4.0]

------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 3

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Relative Payment in to Node A from Node C is 0.75
```

```
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 4.18125 in round 3.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Equity Vector for round 3 and Node A
Equity Vector for round 3 and Node A updated with value 3.118125 i.e. total cash
flow 7.18125  minus total payments out (liabilities) 4.063125.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.73875 in round 3.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Equity Vector for round 3 and Node B
Equity Vector for round 3 and Node B updated with value 0.173875 i.e. total cash
flow 1.73875  minus total payments out (liabilities) 1.564875.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 2.7
Total payments in to Node C is 4.843125000000001 in round 3.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 3 and Node C
Equity Vector for round 3 and Node C updated with value 4.843125000000001 i.e.
total cash flow 8.843125  minus total payments out (liabilities) 4.0.


-----------------------------------------------------

EQUITY FOR EACH NODE - round 3

Equity for Node A: 3.118125
Equity for Node B: 0.173875
Equity for Node C: 4.843125000000001
[3.118125, 0.173875, 4.843125000000001]

-----------------------------------------------------

ROUND 3 DEFAULTERS

Node A has defaulted in round 3
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 3) are
```

```
not identical, algorithm will proceed for another round.

-----------------------------------------------------

END OF ROUND 3

-----------------------------------------------------

START OF ROUND 4

-----------------------------------------------------

TOTAL OBLIGATION VECTOR - round 4

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

-----------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 4

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6846328125 in round 4.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0, 6.6846328125]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6846328125 in round 4.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
```

```
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6846328125 in round 4.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6846328125 in round 4.
Round 4 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.6846328125. Default loss for Node A is 3.0684632812500006

 - Total Dollar Payment Vector for round 4 and Node A
Total Dollar Payment Vector for round 4 and Node A updated with value
3.6161695312499997

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.73875 in round 4.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0, 1.73875]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.73875 in round 4.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.73875 in round 4.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.73875 in round 4.
Round 4 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.73875. Default loss for Node B is 0.173875
```

```
 - Total Dollar Payment Vector for round 4 and Node B
Total Dollar Payment Vector for round 4 and Node B updated with value 1.564875

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Total payments in to Node C is 4.2046171875 in round 4.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0, 8.2046171875]

 - Total Dollar Payment Vector for round 4 and Node C
Total Dollar Payment Vector for round 4 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 4

Total payment by Node A (i.e. p_1): 3.6161695312499997
Total payment by Node B (i.e. p_2): 1.564875
Total payment by Node C (i.e. p_3): 4.0
[3.6161695312499997, 1.564875, 4.0]

------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 4

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6846328125 in round 4.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Equity Vector for round 4 and Node A
Equity Vector for round 4 and Node A updated with value 3.0684632812500006 i.e.
total cash flow 6.6846328125  minus total payments out (liabilities)
3.6161695312499997.
```

```
***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.73875 in round 4.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Equity Vector for round 4 and Node B
Equity Vector for round 4 and Node B updated with value 0.173875 i.e. total cash
flow 1.73875  minus total payments out (liabilities) 1.564875.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 4.063125
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Total payments in to Node C is 4.2046171875 in round 4.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 4 and Node C
Equity Vector for round 4 and Node C updated with value 4.2046171875 i.e. total
cash flow 8.2046171875  minus total payments out (liabilities) 4.0.


----------------------------------------------------------

EQUITY FOR EACH NODE - round 4

Equity for Node A: 3.0684632812500006
Equity for Node B: 0.173875
Equity for Node C: 4.2046171875
[3.0684632812500006, 0.173875, 4.2046171875]

----------------------------------------------------------

ROUND 4 DEFAULTERS

Node A has defaulted in round 4
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 4) are
not identical, algorithm will proceed for another round.

----------------------------------------------------------

END OF ROUND 4
```

```
--------------------------------------------------------

START OF ROUND 5

--------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 5

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

--------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 5

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6846328125 in round 5.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0, 6.6846328125]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6846328125 in round 5.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6846328125 in round 5.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Relative Payment in to Node A from Node C is 0.75
```

```
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6846328125 in round 5.
Round 5 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.6846328125. Default loss for Node A is 3.0684632812500006

 - Total Dollar Payment Vector for round 5 and Node A
Total Dollar Payment Vector for round 5 and Node A updated with value
3.6161695312499997

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6574853693181817 in round 5.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.6574853693181817]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6574853693181817 in round 5.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6574853693181817 in round 5.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6574853693181817 in round 5.
Round 5 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.6574853693181817. Default loss for Node B is
0.16574853693181812
```

```
 - Total Dollar Payment Vector for round 5 and Node B
Total Dollar Payment Vector for round 5 and Node B updated with value
1.4917368323863636

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Total payments in to Node C is 3.838926349431818 in round 5.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.8389263494318175]

 - Total Dollar Payment Vector for round 5 and Node C
Total Dollar Payment Vector for round 5 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 5

Total payment by Node A (i.e. p_1): 3.6161695312499997
Total payment by Node B (i.e. p_2): 1.4917368323863636
Total payment by Node C (i.e. p_3): 4.0
[3.6161695312499997, 1.4917368323863636, 4.0]

------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 5

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6846328125 in round 5.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Equity Vector for round 5 and Node A
```

```
Equity Vector for round 5 and Node A updated with value 3.0684632812500006 i.e.
total cash flow 6.6846328125  minus total payments out (liabilities)
3.6161695312499997.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6574853693181817 in round 5.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4917368323863636
Equity Vector for round 5 and Node B
Equity Vector for round 5 and Node B updated with value 0.16574853693181812 i.e.
total cash flow 1.6574853693181817  minus total payments out (liabilities)
1.4917368323863636.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.564875
Total payments in to Node C is 3.838926349431818 in round 5.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 5 and Node C
Equity Vector for round 5 and Node C updated with value 3.8389263494318175 i.e.
total cash flow 7.8389263494318175  minus total payments out (liabilities) 4.0.


-----------------------------------------------------------

EQUITY FOR EACH NODE - round 5

Equity for Node A: 3.0684632812500006
Equity for Node B: 0.16574853693181812
Equity for Node C: 3.8389263494318175
[3.0684632812500006, 0.16574853693181812, 3.8389263494318175]

-----------------------------------------------------------

ROUND 5 DEFAULTERS

Node A has defaulted in round 5
{'A': True, 'B': True, 'C': False}
```

```
The payment vectors for the previous round and current round (i.e. round 5) are
not identical, algorithm will proceed for another round.

----------------------------------------------------------

END OF ROUND 5

----------------------------------------------------------

START OF ROUND 6

----------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 6

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

----------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 6

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4917368323863636
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.652634864169034 in round 6.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.652634864169034]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4917368323863636
Relative Payment in to Node A from Node C is 0.75
```

```
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.652634864169034 in round 6.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4917368323863636
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.652634864169034 in round 6.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4917368323863636
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.652634864169034 in round 6.
Round 6 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.652634864169034. Default loss for Node A is 3.065263486416903

 - Total Dollar Payment Vector for round 6 and Node A
Total Dollar Payment Vector for round 6 and Node A updated with value
3.587371377752131

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6574853693181817 in round 6.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.6574853693181817]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6574853693181817 in round 6.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Relative Payment in to Node B from Node C is 0.25
```

```
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6574853693181817 in round 6.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6574853693181817 in round 6.
Round 6 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.6574853693181817. Default loss for Node B is
0.16574853693181812

 - Total Dollar Payment Vector for round 6 and Node B
Total Dollar Payment Vector for round 6 and Node B updated with value
1.4917368323863636

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4917368323863636
Total payments in to Node C is 3.797786130149148 in round 6.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.797786130149148]

 - Total Dollar Payment Vector for round 6 and Node C
Total Dollar Payment Vector for round 6 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 6

Total payment by Node A (i.e. p_1): 3.587371377752131
Total payment by Node B (i.e. p_2): 1.4917368323863636
Total payment by Node C (i.e. p_3): 4.0
[3.587371377752131, 1.4917368323863636, 4.0]

------------------------------------------------------
```

```
UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 6

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4917368323863636
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.652634864169034 in round 6.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Equity Vector for round 6 and Node A
Equity Vector for round 6 and Node A updated with value 3.065263486416903 i.e.
total cash flow 6.652634864169034  minus total payments out (liabilities)
3.587371377752131.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6574853693181817 in round 6.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4917368323863636
Equity Vector for round 6 and Node B
Equity Vector for round 6 and Node B updated with value 0.16574853693181812 i.e.
total cash flow 1.6574853693181817  minus total payments out (liabilities)
1.4917368323863636.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.6161695312499997
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4917368323863636
Total payments in to Node C is 3.797786130149148 in round 6.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 6 and Node C
Equity Vector for round 6 and Node C updated with value 3.797786130149148 i.e.
total cash flow 7.797786130149148  minus total payments out (liabilities) 4.0.
```

```
----------------------------------------------------------

EQUITY FOR EACH NODE - round 6

Equity for Node A: 3.065263486416903
Equity for Node B: 0.16574853693181812
Equity for Node C: 3.797786130149148
[3.065263486416903, 0.16574853693181812, 3.797786130149148]

----------------------------------------------------------

ROUND 6 DEFAULTERS

Node A has defaulted in round 6
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 6) are
not identical, algorithm will proceed for another round.

----------------------------------------------------------

END OF ROUND 6

----------------------------------------------------------

START OF ROUND 7

----------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 7

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

----------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 7

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4917368323863636
```

Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.652634864169034 in round 7.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0, 6.652634864169034]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4917368323863636
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.652634864169034 in round 7.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4917368323863636
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.652634864169034 in round 7.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4917368323863636
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.652634864169034 in round 7.
Round 7 and Node A has defaulted due to nominal obligations 11.0 being greater than cash flow 6.652634864169034. Default loss for Node A is 3.065263486416903

- Total Dollar Payment Vector for round 7 and Node A
Total Dollar Payment Vector for round 7 and Node A updated with value 3.587371377752131

Node B

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 3.587371377752131
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6522493414094783 in round 7.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0

```
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.6522493414094783]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6522493414094783 in round 7.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6522493414094783 in round 7.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6522493414094783 in round 7.
Round 7 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.6522493414094783. Default loss for Node B is
0.16522493414094774

 - Total Dollar Payment Vector for round 7 and Node B
Total Dollar Payment Vector for round 7 and Node B updated with value
1.4870244072685306

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4917368323863636
Total payments in to Node C is 3.774224004559982 in round 7.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
```

```
7.774224004559982]

 - Total Dollar Payment Vector for round 7 and Node C
Total Dollar Payment Vector for round 7 and Node C updated with value 4.0

-------------------------------------------------------

TOTAL PAYMENT VECTOR - round 7

Total payment by Node A (i.e. p_1): 3.587371377752131
Total payment by Node B (i.e. p_2): 1.4870244072685306
Total payment by Node C (i.e. p_3): 4.0
[3.587371377752131, 1.4870244072685306, 4.0]

-------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 7

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4917368323863636
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.652634864169034 in round 7.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Equity Vector for round 7 and Node A
Equity Vector for round 7 and Node A updated with value 3.065263486416903 i.e.
total cash flow 6.652634864169034  minus total payments out (liabilities)
3.587371377752131.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6522493414094783 in round 7.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4870244072685306
Equity Vector for round 7 and Node B
Equity Vector for round 7 and Node B updated with value 0.16522493414094774 i.e.
total cash flow 1.6522493414094783  minus total payments out (liabilities)
1.4870244072685306.
```

```
***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4917368323863636
Total payments in to Node C is 3.774224004559982 in round 7.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 7 and Node C
Equity Vector for round 7 and Node C updated with value 3.774224004559982 i.e.
total cash flow 7.774224004559982  minus total payments out (liabilities) 4.0.


-----------------------------------------------------

EQUITY FOR EACH NODE - round 7

Equity for Node A: 3.065263486416903
Equity for Node B: 0.16522493414094774
Equity for Node C: 3.774224004559982
[3.065263486416903, 0.16522493414094774, 3.774224004559982]

-----------------------------------------------------

ROUND 7 DEFAULTERS

Node A has defaulted in round 7
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 7) are
not identical, algorithm will proceed for another round.

-----------------------------------------------------

END OF ROUND 7

-----------------------------------------------------

START OF ROUND 8

-----------------------------------------------------

TOTAL OBLIGATION VECTOR - round 8

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
```

Total nominal obligation for Node C (i.e. p_bar_3): 4.0

TOTAL PAYMENT MADE PER NODE - round 8

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for each node…

Node A

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4870244072685306
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6505731781799824 in round 8.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0, 6.650573178179982]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4870244072685306
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6505731781799824 in round 8.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4870244072685306
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6505731781799824 in round 8.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4870244072685306
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6505731781799824 in round 8.
Round 8 and Node A has defaulted due to nominal obligations 11.0 being greater than cash flow 6.650573178179982. Default loss for Node A is 3.065057317817998

- Total Dollar Payment Vector for round 8 and Node A

```
Total Dollar Payment Vector for round 8 and Node A updated with value
3.5855158603619843

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6522493414094783 in round 8.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.6522493414094783]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6522493414094783 in round 8.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6522493414094783 in round 8.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6522493414094783 in round 8.
Round 8 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.6522493414094783. Default loss for Node B is
0.16522493414094774

 - Total Dollar Payment Vector for round 8 and Node B
Total Dollar Payment Vector for round 8 and Node B updated with value
1.4870244072685306

***Node C***
```

```
- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4870244072685306
Total payments in to Node C is 3.771573265431201 in round 8.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.771573265431201]

 - Total Dollar Payment Vector for round 8 and Node C
Total Dollar Payment Vector for round 8 and Node C updated with value 4.0

-----------------------------------------------------

TOTAL PAYMENT VECTOR - round 8

Total payment by Node A (i.e. p_1): 3.5855158603619843
Total payment by Node B (i.e. p_2): 1.4870244072685306
Total payment by Node C (i.e. p_3): 4.0
[3.5855158603619843, 1.4870244072685306, 4.0]

-----------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 8

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4870244072685306
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6505731781799824 in round 8.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Equity Vector for round 8 and Node A
Equity Vector for round 8 and Node A updated with value 3.065057317817998 i.e.
total cash flow 6.650573178179982  minus total payments out (liabilities)
3.5855158603619843.
```

```
***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6522493414094783 in round 8.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4870244072685306
Equity Vector for round 8 and Node B
Equity Vector for round 8 and Node B updated with value 0.16522493414094774 i.e.
total cash flow 1.6522493414094783  minus total payments out (liabilities)
1.4870244072685306.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.587371377752131
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4870244072685306
Total payments in to Node C is 3.771573265431201 in round 8.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 8 and Node C
Equity Vector for round 8 and Node C updated with value 3.7715732654312006 i.e.
total cash flow 7.771573265431201  minus total payments out (liabilities) 4.0.


----------------------------------------------------------

EQUITY FOR EACH NODE - round 8

Equity for Node A: 3.065057317817998
Equity for Node B: 0.16522493414094774
Equity for Node C: 3.7715732654312006
[3.065057317817998, 0.16522493414094774, 3.7715732654312006]

----------------------------------------------------------

ROUND 8 DEFAULTERS

Node A has defaulted in round 8
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 8) are
not identical, algorithm will proceed for another round.
```

```
--------------------------------------------------------

END OF ROUND 8

--------------------------------------------------------

START OF ROUND 9

--------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 9

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

--------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 9

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4870244072685306
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6505731781799824 in round 9.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.650573178179982]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4870244072685306
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6505731781799824 in round 9.
Relative Payment in to Node A from Node B is 0.4375
```

```
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4870244072685306
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6505731781799824 in round 9.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4870244072685306
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6505731781799824 in round 9.
Round 9 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.650573178179982. Default loss for Node A is 3.065057317817998

 - Total Dollar Payment Vector for round 9 and Node A
Total Dollar Payment Vector for round 9 and Node A updated with value
3.5855158603619843

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.65191197461127 in round 9.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.65191197461127]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.65191197461127 in round 9.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.65191197461127 in round 9.
Relative Payment in to Node B from Node A is 0.18181818181818182
```

```
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.65191197461127 in round 9.
Round 9 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.65191197461127. Default loss for Node B is 0.16519119746112687

 - Total Dollar Payment Vector for round 9 and Node B
Total Dollar Payment Vector for round 9 and Node B updated with value
1.4867207771501432

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4870244072685306
Total payments in to Node C is 3.770055114839263 in round 9.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.770055114839263]

 - Total Dollar Payment Vector for round 9 and Node C
Total Dollar Payment Vector for round 9 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 9

Total payment by Node A (i.e. p_1): 3.5855158603619843
Total payment by Node B (i.e. p_2): 1.4867207771501432
Total payment by Node C (i.e. p_3): 4.0
[3.5855158603619843, 1.4867207771501432, 4.0]

------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 9

***Node A***
```

```
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4870244072685306
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6505731781799824 in round 9.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Equity Vector for round 9 and Node A
Equity Vector for round 9 and Node A updated with value 3.065057317817998 i.e.
total cash flow 6.650573178179982  minus total payments out (liabilities)
3.5855158603619843.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.65191197461127 in round 9.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867207771501432
Equity Vector for round 9 and Node B
Equity Vector for round 9 and Node B updated with value 0.16519119746112687 i.e.
total cash flow 1.65191197461127  minus total payments out (liabilities)
1.4867207771501432.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4870244072685306
Total payments in to Node C is 3.770055114839263 in round 9.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 9 and Node C
Equity Vector for round 9 and Node C updated with value 3.7700551148392627 i.e.
total cash flow 7.770055114839263  minus total payments out (liabilities) 4.0.


-----------------------------------------------------------

EQUITY FOR EACH NODE - round 9
```

```
Equity for Node A: 3.065057317817998
Equity for Node B: 0.16519119746112687
Equity for Node C: 3.7700551148392627
[3.065057317817998, 0.16519119746112687, 3.7700551148392627]

----------------------------------------------------------

ROUND 9 DEFAULTERS

Node A has defaulted in round 9
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 9) are
not identical, algorithm will proceed for another round.

----------------------------------------------------------

END OF ROUND 9

----------------------------------------------------------

START OF ROUND 10

----------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 10

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

----------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 10

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867207771501432
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504403400031875 in round 10.
```

```
- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.650440340003188]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867207771501432
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504403400031875 in round 10.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867207771501432
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504403400031875 in round 10.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867207771501432
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504403400031875 in round 10.
Round 10 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.650440340003188. Default loss for Node A is 3.0650440340003193

 - Total Dollar Payment Vector for round 10 and Node A
Total Dollar Payment Vector for round 10 and Node A updated with value
3.5853963060028686

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.65191197461127 in round 10.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
```

```
1.65191197461127]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.65191197461127 in round 10.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.65191197461127 in round 10.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.65191197461127 in round 10.
Round 10 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.65191197461127. Default loss for Node B is 0.16519119746112687

 - Total Dollar Payment Vector for round 10 and Node B
Total Dollar Payment Vector for round 10 and Node B updated with value
1.4867207771501432

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867207771501432
Total payments in to Node C is 3.76988432289767 in round 10.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.769884322897671]

 - Total Dollar Payment Vector for round 10 and Node C
Total Dollar Payment Vector for round 10 and Node C updated with value 4.0
```

```
--------------------------------------------------------

TOTAL PAYMENT VECTOR - round 10

Total payment by Node A (i.e. p_1): 3.5853963060028686
Total payment by Node B (i.e. p_2): 1.4867207771501432
Total payment by Node C (i.e. p_3): 4.0
[3.5853963060028686, 1.4867207771501432, 4.0]

--------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 10

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867207771501432
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504403400031875 in round 10.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Equity Vector for round 10 and Node A
Equity Vector for round 10 and Node A updated with value 3.0650440340003193 i.e.
total cash flow 6.650440340003188  minus total payments out (liabilities)
3.5853963060028686.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.65191197461127 in round 10.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867207771501432
Equity Vector for round 10 and Node B
Equity Vector for round 10 and Node B updated with value 0.16519119746112687
i.e. total cash flow 1.65191197461127  minus total payments out (liabilities)
1.4867207771501432.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5855158603619843
```

```
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867207771501432
Total payments in to Node C is 3.76988432289767 in round 10.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 10 and Node C
Equity Vector for round 10 and Node C updated with value 3.7698843228976706 i.e.
total cash flow 7.769884322897671  minus total payments out (liabilities) 4.0.


----------------------------------------------------------

EQUITY FOR EACH NODE - round 10

Equity for Node A: 3.0650440340003193
Equity for Node B: 0.16519119746112687
Equity for Node C: 3.7698843228976706
[3.0650440340003193, 0.16519119746112687, 3.7698843228976706]

----------------------------------------------------------

ROUND 10 DEFAULTERS

Node A has defaulted in round 10
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 10) are
not identical, algorithm will proceed for another round.

----------------------------------------------------------

END OF ROUND 10

----------------------------------------------------------

START OF ROUND 11

----------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 11

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

----------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 11
```

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for each node…

Node A

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4867207771501432
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504403400031875 in round 11.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0, 6.650440340003188]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4867207771501432
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504403400031875 in round 11.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4867207771501432
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504403400031875 in round 11.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4867207771501432
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504403400031875 in round 11.
Round 11 and Node A has defaulted due to nominal obligations 11.0 being greater than cash flow 6.650440340003188. Default loss for Node A is 3.0650440340003193

- Total Dollar Payment Vector for round 11 and Node A
Total Dollar Payment Vector for round 11 and Node A updated with value 3.5853963060028686

Node B

```
- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651890237455067 in round 11.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.651890237455067]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651890237455067 in round 11.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651890237455067 in round 11.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651890237455067 in round 11.
Round 11 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.651890237455067. Default loss for Node B is 0.1651890237455067

 - Total Dollar Payment Vector for round 11 and Node B
Total Dollar Payment Vector for round 11 and Node B updated with value
1.4867012137095603

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
```

```
1.4867207771501432
Total payments in to Node C is 3.769786505694757 in round 11.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.769786505694757]

 - Total Dollar Payment Vector for round 11 and Node C
Total Dollar Payment Vector for round 11 and Node C updated with value 4.0

-----------------------------------------------------

TOTAL PAYMENT VECTOR - round 11

Total payment by Node A (i.e. p_1): 3.5853963060028686
Total payment by Node B (i.e. p_2): 1.4867012137095603
Total payment by Node C (i.e. p_3): 4.0
[3.5853963060028686, 1.4867012137095603, 4.0]

-----------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 11

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867207771501432
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504403400031875 in round 11.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Equity Vector for round 11 and Node A
Equity Vector for round 11 and Node A updated with value 3.0650440340003193 i.e.
total cash flow 6.650440340003188  minus total payments out (liabilities)
3.5853963060028686.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Relative Payment in to Node B from Node C is 0.25
```

```
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651890237455067 in round 11.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Equity Vector for round 11 and Node B
Equity Vector for round 11 and Node B updated with value 0.1651890237455067 i.e.
total cash flow 1.651890237455067  minus total payments out (liabilities)
1.4867012137095603.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867207771501432
Total payments in to Node C is 3.769786505694757 in round 11.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 11 and Node C
Equity Vector for round 11 and Node C updated with value 3.769786505694757 i.e.
total cash flow 7.769786505694757  minus total payments out (liabilities) 4.0.


------------------------------------------------------

EQUITY FOR EACH NODE - round 11

Equity for Node A: 3.0650440340003193
Equity for Node B: 0.1651890237455067
Equity for Node C: 3.769786505694757
[3.0650440340003193, 0.1651890237455067, 3.769786505694757]

------------------------------------------------------

ROUND 11 DEFAULTERS

Node A has defaulted in round 11
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 11) are
not identical, algorithm will proceed for another round.

------------------------------------------------------

END OF ROUND 11

------------------------------------------------------
```

```
START OF ROUND 12

----------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 12

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

----------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 12

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504317809979328 in round 12.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.650431780997932]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504317809979328 in round 12.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504317809979328 in round 12.
Relative Payment in to Node A from Node B is 0.4375
```

Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504317809979328 in round 12.
Round 12 and Node A has defaulted due to nominal obligations 11.0 being greater than cash flow 6.650431780997932. Default loss for Node A is 3.065043178099793

- Total Dollar Payment Vector for round 12 and Node A
Total Dollar Payment Vector for round 12 and Node A updated with value
3.5853886028981394

Node B

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651890237455067 in round 12.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.651890237455067]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651890237455067 in round 12.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651890237455067 in round 12.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651890237455067 in round 12.
Round 12 and Node B has defaulted due to nominal obligations 16.0 being greater

```
than cash flow 1.651890237455067. Default loss for Node B is 0.1651890237455067

 - Total Dollar Payment Vector for round 12 and Node B
Total Dollar Payment Vector for round 12 and Node B updated with value
1.4867012137095603

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Total payments in to Node C is 3.769775501259429 in round 12.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0, 7.76977550125943]

 - Total Dollar Payment Vector for round 12 and Node C
Total Dollar Payment Vector for round 12 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 12

Total payment by Node A (i.e. p_1): 3.5853886028981394
Total payment by Node B (i.e. p_2): 1.4867012137095603
Total payment by Node C (i.e. p_3): 4.0
[3.5853886028981394, 1.4867012137095603, 4.0]

------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 12

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504317809979328 in round 12.
```

```
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853886028981394
Equity Vector for round 12 and Node A
Equity Vector for round 12 and Node A updated with value 3.065043178099793 i.e.
total cash flow 6.650431780997932  minus total payments out (liabilities)
3.5853886028981394.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651890237455067 in round 12.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Equity Vector for round 12 and Node B
Equity Vector for round 12 and Node B updated with value 0.1651890237455067 i.e.
total cash flow 1.651890237455067  minus total payments out (liabilities)
1.4867012137095603.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853963060028686
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Total payments in to Node C is 3.769775501259429 in round 12.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 12 and Node C
Equity Vector for round 12 and Node C updated with value 3.7697755012594296 i.e.
total cash flow 7.76977550125943  minus total payments out (liabilities) 4.0.


-------------------------------------------------------

EQUITY FOR EACH NODE - round 12

Equity for Node A: 3.065043178099793
Equity for Node B: 0.1651890237455067
Equity for Node C: 3.7697755012594296
[3.065043178099793, 0.1651890237455067, 3.7697755012594296]

-------------------------------------------------------
```

```
ROUND 12 DEFAULTERS

Node A has defaulted in round 12
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 12) are
not identical, algorithm will proceed for another round.

-----------------------------------------------------

END OF ROUND 12

-----------------------------------------------------

START OF ROUND 13

-----------------------------------------------------

TOTAL OBLIGATION VECTOR - round 13

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

-----------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 13

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504317809979328 in round 13.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.650431780997932]
```

```
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504317809979328 in round 13.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504317809979328 in round 13.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504317809979328 in round 13.
Round 13 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.650431780997932. Default loss for Node A is 3.065043178099793

 - Total Dollar Payment Vector for round 13 and Node A
Total Dollar Payment Vector for round 13 and Node A updated with value
3.5853886028981394

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853886028981394
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518888368905709 in round 13.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.6518888368905709]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853886028981394
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518888368905709 in round 13.
```

```
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853886028981394
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518888368905709 in round 13.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853886028981394
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518888368905709 in round 13.
Round 13 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.6518888368905709. Default loss for Node B is
0.16518888368905715

 - Total Dollar Payment Vector for round 13 and Node B
Total Dollar Payment Vector for round 13 and Node B updated with value
1.4866999532015137

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853886028981394
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Total payments in to Node C is 3.7697691987191964 in round 13.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.769769198719196]

 - Total Dollar Payment Vector for round 13 and Node C
Total Dollar Payment Vector for round 13 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 13

Total payment by Node A (i.e. p_1): 3.5853886028981394
Total payment by Node B (i.e. p_2): 1.4866999532015137
```

```
Total payment by Node C (i.e. p_3): 4.0
[3.5853886028981394, 1.4866999532015137, 4.0]

-------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 13

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504317809979328 in round 13.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853886028981394
Equity Vector for round 13 and Node A
Equity Vector for round 13 and Node A updated with value 3.065043178099793 i.e.
total cash flow 6.650431780997932  minus total payments out (liabilities)
3.5853886028981394.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853886028981394
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518888368905709 in round 13.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866999532015137
Equity Vector for round 13 and Node B
Equity Vector for round 13 and Node B updated with value 0.16518888368905715
i.e. total cash flow 1.6518888368905709  minus total payments out (liabilities)
1.4866999532015137.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853886028981394
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4867012137095603
Total payments in to Node C is 3.7697691987191964 in round 13.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 13 and Node C
```

```
Equity Vector for round 13 and Node C updated with value 3.769769198719196 i.e.
total cash flow 7.769769198719196  minus total payments out (liabilities) 4.0.


----------------------------------------------------------

EQUITY FOR EACH NODE - round 13

Equity for Node A: 3.065043178099793
Equity for Node B: 0.16518888368905715
Equity for Node C: 3.769769198719196
[3.065043178099793, 0.16518888368905715, 3.769769198719196]

----------------------------------------------------------

ROUND 13 DEFAULTERS

Node A has defaulted in round 13
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 13) are
not identical, algorithm will proceed for another round.

----------------------------------------------------------

END OF ROUND 13

----------------------------------------------------------

START OF ROUND 14

----------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 14

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

----------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 14

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***
```

```
- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866999532015137
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504312295256622 in round 14.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.650431229525662]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866999532015137
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504312295256622 in round 14.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866999532015137
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504312295256622 in round 14.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866999532015137
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504312295256622 in round 14.
Round 14 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.650431229525662. Default loss for Node A is 3.0650431229525656

 - Total Dollar Payment Vector for round 14 and Node A
Total Dollar Payment Vector for round 14 and Node A updated with value
3.585388106573096

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853886028981394
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
```

Total payments in to Node B is 1.6518888368905709 in round 14.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0, 1.6518888368905709]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 3.5853886028981394
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518888368905709 in round 14.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 3.5853886028981394
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518888368905709 in round 14.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 3.5853886028981394
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518888368905709 in round 14.
Round 14 and Node B has defaulted due to nominal obligations 16.0 being greater than cash flow 1.6518888368905709. Default loss for Node B is 0.16518888368905715

- Total Dollar Payment Vector for round 14 and Node B
Total Dollar Payment Vector for round 14 and Node B updated with value 1.4866999532015137

Node C

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 3.5853886028981394
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866999532015137
Total payments in to Node C is 3.76976848968342 in round 14.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0

```
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0, 7.76976848968342]

 - Total Dollar Payment Vector for round 14 and Node C
Total Dollar Payment Vector for round 14 and Node C updated with value 4.0

----------------------------------------------------------

TOTAL PAYMENT VECTOR - round 14

Total payment by Node A (i.e. p_1): 3.585388106573096
Total payment by Node B (i.e. p_2): 1.4866999532015137
Total payment by Node C (i.e. p_3): 4.0
[3.585388106573096, 1.4866999532015137, 4.0]

----------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 14

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866999532015137
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504312295256622 in round 14.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Equity Vector for round 14 and Node A
Equity Vector for round 14 and Node A updated with value 3.0650431229525656 i.e.
total cash flow 6.650431229525662  minus total payments out (liabilities)
3.585388106573096.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853886028981394
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518888368905709 in round 14.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866999532015137
Equity Vector for round 14 and Node B
Equity Vector for round 14 and Node B updated with value 0.16518888368905715
```

```
i.e. total cash flow 1.6518888368905709  minus total payments out (liabilities)
1.4866999532015137.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853886028981394
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866999532015137
Total payments in to Node C is 3.76976848968342 in round 14.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 14 and Node C
Equity Vector for round 14 and Node C updated with value 3.76976848968342 i.e.
total cash flow 7.76976848968342  minus total payments out (liabilities) 4.0.


----------------------------------------------------------

EQUITY FOR EACH NODE - round 14

Equity for Node A: 3.0650431229525656
Equity for Node B: 0.16518888368905715
Equity for Node C: 3.76976848968342
[3.0650431229525656, 0.16518888368905715, 3.76976848968342]

----------------------------------------------------------

ROUND 14 DEFAULTERS

Node A has defaulted in round 14
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 14) are
not identical, algorithm will proceed for another round.

----------------------------------------------------------

END OF ROUND 14

----------------------------------------------------------

START OF ROUND 15

----------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 15
```

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

TOTAL PAYMENT MADE PER NODE - round 15

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for each node…

Node A

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866999532015137
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504312295256622 in round 15.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0, 6.650431229525662]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866999532015137
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504312295256622 in round 15.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866999532015137
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504312295256622 in round 15.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866999532015137
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504312295256622 in round 15.
Round 15 and Node A has defaulted due to nominal obligations 11.0 being greater

```
than cash flow 6.650431229525662. Default loss for Node A is 3.0650431229525656

 - Total Dollar Payment Vector for round 15 and Node A
Total Dollar Payment Vector for round 15 and Node A updated with value
3.585388106573096

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888746649654 in round 15.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.651888746649654]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888746649654 in round 15.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888746649654 in round 15.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888746649654 in round 15.
Round 15 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.651888746649654. Default loss for Node B is 0.16518887466496546

 - Total Dollar Payment Vector for round 15 and Node B
Total Dollar Payment Vector for round 15 and Node B updated with value
1.4866998719846884
```

```
***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866999532015137
Total payments in to Node C is 3.7697680835992937 in round 15.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.769768083599294]

 - Total Dollar Payment Vector for round 15 and Node C
Total Dollar Payment Vector for round 15 and Node C updated with value 4.0

-----------------------------------------------------

TOTAL PAYMENT VECTOR - round 15

Total payment by Node A (i.e. p_1): 3.585388106573096
Total payment by Node B (i.e. p_2): 1.4866998719846884
Total payment by Node C (i.e. p_3): 4.0
[3.585388106573096, 1.4866998719846884, 4.0]

-----------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 15

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866999532015137
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504312295256622 in round 15.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Equity Vector for round 15 and Node A
Equity Vector for round 15 and Node A updated with value 3.0650431229525656 i.e.
total cash flow 6.650431229525662  minus total payments out (liabilities)
```

```
3.585388106573096.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888746649654 in round 15.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998719846884
Equity Vector for round 15 and Node B
Equity Vector for round 15 and Node B updated with value 0.16518887466496546
i.e. total cash flow 1.651888746649654  minus total payments out (liabilities)
1.4866998719846884.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866999532015137
Total payments in to Node C is 3.7697680835992937 in round 15.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 15 and Node C
Equity Vector for round 15 and Node C updated with value 3.7697680835992937 i.e.
total cash flow 7.769768083599294  minus total payments out (liabilities) 4.0.


-----------------------------------------------------

EQUITY FOR EACH NODE - round 15

Equity for Node A: 3.0650431229525656
Equity for Node B: 0.16518887466496546
Equity for Node C: 3.7697680835992937
[3.0650431229525656, 0.16518887466496546, 3.7697680835992937]

-----------------------------------------------------

ROUND 15 DEFAULTERS

Node A has defaulted in round 15
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 15) are
```

```
not identical, algorithm will proceed for another round.

-----------------------------------------------------

END OF ROUND 15

-----------------------------------------------------

START OF ROUND 16

-----------------------------------------------------

TOTAL OBLIGATION VECTOR - round 16

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

-----------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 16

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998719846884
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431193993301 in round 16.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.650431193993301]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998719846884
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
```

```
Total payments in to Node A is 3.650431193993301 in round 16.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998719846884
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431193993301 in round 16.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998719846884
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431193993301 in round 16.
Round 16 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.650431193993301. Default loss for Node A is 3.0650431193993297

 - Total Dollar Payment Vector for round 16 and Node A
Total Dollar Payment Vector for round 16 and Node A updated with value
3.585388074593971

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888746649654 in round 16.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.651888746649654]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888746649654 in round 16.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
```

```
Total payments in to Node B is 1.651888746649654 in round 16.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888746649654 in round 16.
Round 16 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.651888746649654. Default loss for Node B is 0.16518887466496546

 - Total Dollar Payment Vector for round 16 and Node B
Total Dollar Payment Vector for round 16 and Node B updated with value
1.4866998719846884

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998719846884
Total payments in to Node C is 3.7697680379148295 in round 16.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.7697680379148295]

 - Total Dollar Payment Vector for round 16 and Node C
Total Dollar Payment Vector for round 16 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 16

Total payment by Node A (i.e. p_1): 3.585388074593971
Total payment by Node B (i.e. p_2): 1.4866998719846884
Total payment by Node C (i.e. p_3): 4.0
[3.585388074593971, 1.4866998719846884, 4.0]

------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 16
```

```
***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998719846884
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431193993301 in round 16.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388074593971
Equity Vector for round 16 and Node A
Equity Vector for round 16 and Node A updated with value 3.0650431193993297 i.e.
total cash flow 6.650431193993301  minus total payments out (liabilities)
3.585388074593971.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888746649654 in round 16.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998719846884
Equity Vector for round 16 and Node B
Equity Vector for round 16 and Node B updated with value 0.16518887466496546
i.e. total cash flow 1.651888746649654  minus total payments out (liabilities)
1.4866998719846884.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388106573096
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998719846884
Total payments in to Node C is 3.7697680379148295 in round 16.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 16 and Node C
Equity Vector for round 16 and Node C updated with value 3.7697680379148295 i.e.
total cash flow 7.7697680379148295  minus total payments out (liabilities) 4.0.


-------------------------------------------------------
```

```
EQUITY FOR EACH NODE - round 16

Equity for Node A: 3.0650431193993297
Equity for Node B: 0.16518887466496546
Equity for Node C: 3.7697680379148295
[3.0650431193993297, 0.16518887466496546, 3.7697680379148295]

---------------------------------------------------------

ROUND 16 DEFAULTERS

Node A has defaulted in round 16
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 16) are
not identical, algorithm will proceed for another round.

---------------------------------------------------------

END OF ROUND 16

---------------------------------------------------------

START OF ROUND 17

---------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 17

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

---------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 17

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998719846884
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
```

Total payments in to Node A is 3.650431193993301 in round 17.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0, 6.650431193993301]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998719846884
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431193993301 in round 17.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998719846884
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431193993301 in round 17.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998719846884
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431193993301 in round 17.
Round 17 and Node A has defaulted due to nominal obligations 11.0 being greater than cash flow 6.650431193993301. Default loss for Node A is 3.0650431193993297

- Total Dollar Payment Vector for round 17 and Node A
Total Dollar Payment Vector for round 17 and Node A updated with value 3.585388074593971

Node B

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 3.585388074593971
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887408352674 in round 17.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0, 1.6518887408352674]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 3.585388074593971
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887408352674 in round 17.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 3.585388074593971
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887408352674 in round 17.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 3.585388074593971
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887408352674 in round 17.
Round 17 and Node B has defaulted due to nominal obligations 16.0 being greater than cash flow 1.6518887408352674. Default loss for Node B is 0.16518887408352678

- Total Dollar Payment Vector for round 17 and Node B
Total Dollar Payment Vector for round 17 and Node B updated with value 1.4866998667517406

Node C

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 3.585388074593971
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998719846884
Total payments in to Node C is 3.7697680117500907 in round 17.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0, 7.769768011750091]

```
 - Total Dollar Payment Vector for round 17 and Node C
Total Dollar Payment Vector for round 17 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 17

Total payment by Node A (i.e. p_1): 3.585388074593971
Total payment by Node B (i.e. p_2): 1.4866998667517406
Total payment by Node C (i.e. p_3): 4.0
[3.585388074593971, 1.4866998667517406, 4.0]

------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 17

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998719846884
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431193993301 in round 17.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388074593971
Equity Vector for round 17 and Node A
Equity Vector for round 17 and Node A updated with value 3.0650431193993297 i.e.
total cash flow 6.650431193993301  minus total payments out (liabilities)
3.585388074593971.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388074593971
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887408352674 in round 17.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998667517406
Equity Vector for round 17 and Node B
Equity Vector for round 17 and Node B updated with value 0.16518887408352678
i.e. total cash flow 1.6518887408352674  minus total payments out (liabilities)
1.4866998667517406.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
```

```
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388074593971
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998719846884
Total payments in to Node C is 3.7697680117500907 in round 17.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 17 and Node C
Equity Vector for round 17 and Node C updated with value 3.7697680117500907 i.e.
total cash flow 7.769768011750091  minus total payments out (liabilities) 4.0.


------------------------------------------------------

EQUITY FOR EACH NODE - round 17

Equity for Node A: 3.0650431193993297
Equity for Node B: 0.16518887408352678
Equity for Node C: 3.7697680117500907
[3.0650431193993297, 0.16518887408352678, 3.7697680117500907]

------------------------------------------------------

ROUND 17 DEFAULTERS

Node A has defaulted in round 17
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 17) are
not identical, algorithm will proceed for another round.

------------------------------------------------------

END OF ROUND 17

------------------------------------------------------

START OF ROUND 18

------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 18

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0
```

TOTAL PAYMENT MADE PER NODE - round 18

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for each node…

Node A

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998667517406
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311917038867 in round 18.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0, 6.650431191703887]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998667517406
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311917038867 in round 18.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998667517406
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311917038867 in round 18.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998667517406
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311917038867 in round 18.
Round 18 and Node A has defaulted due to nominal obligations 11.0 being greater than cash flow 6.650431191703887. Default loss for Node A is 3.0650431191703884

 - Total Dollar Payment Vector for round 18 and Node A
Total Dollar Payment Vector for round 18 and Node A updated with value 3.5853880725334983

Node B

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388074593971
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887408352674 in round 18.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.6518887408352674]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388074593971
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887408352674 in round 18.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388074593971
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887408352674 in round 18.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388074593971
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887408352674 in round 18.
Round 18 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.6518887408352674. Default loss for Node B is
0.16518887408352678

- Total Dollar Payment Vector for round 18 and Node B
Total Dollar Payment Vector for round 18 and Node B updated with value
1.4866998667517406

Node C

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182

```
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388074593971
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998667517406
Total payments in to Node C is 3.7697680088065577 in round 18.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.769768008806558]

 - Total Dollar Payment Vector for round 18 and Node C
Total Dollar Payment Vector for round 18 and Node C updated with value 4.0

----------------------------------------------------------

TOTAL PAYMENT VECTOR - round 18

Total payment by Node A (i.e. p_1): 3.5853880725334983
Total payment by Node B (i.e. p_2): 1.4866998667517406
Total payment by Node C (i.e. p_3): 4.0
[3.5853880725334983, 1.4866998667517406, 4.0]

----------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 18

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998667517406
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311917038867 in round 18.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Equity Vector for round 18 and Node A
Equity Vector for round 18 and Node A updated with value 3.0650431191703884 i.e.
total cash flow 6.650431191703887  minus total payments out (liabilities)
3.5853880725334983.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
```

```
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388074593971
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887408352674 in round 18.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998667517406
Equity Vector for round 18 and Node B
Equity Vector for round 18 and Node B updated with value 0.16518887408352678
i.e. total cash flow 1.6518887408352674  minus total payments out (liabilities)
1.4866998667517406.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388074593971
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998667517406
Total payments in to Node C is 3.7697680088065577 in round 18.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 18 and Node C
Equity Vector for round 18 and Node C updated with value 3.769768008806558 i.e.
total cash flow 7.769768008806558  minus total payments out (liabilities) 4.0.


----------------------------------------------------------

EQUITY FOR EACH NODE - round 18

Equity for Node A: 3.0650431191703884
Equity for Node B: 0.16518887408352678
Equity for Node C: 3.769768008806558
[3.0650431191703884, 0.16518887408352678, 3.769768008806558]

----------------------------------------------------------

ROUND 18 DEFAULTERS

Node A has defaulted in round 18
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 18) are
not identical, algorithm will proceed for another round.

----------------------------------------------------------
```

END OF ROUND 18

START OF ROUND 19

TOTAL OBLIGATION VECTOR - round 19

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

TOTAL PAYMENT MADE PER NODE - round 19

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for each node…

Node A

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998667517406
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311917038867 in round 19.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0, 6.650431191703887]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998667517406
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311917038867 in round 19.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998667517406

```
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311917038867 in round 19.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998667517406
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311917038867 in round 19.
Round 19 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.650431191703887. Default loss for Node A is 3.0650431191703884

 - Total Dollar Payment Vector for round 19 and Node A
Total Dollar Payment Vector for round 19 and Node A updated with value
3.5853880725334983

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740460636 in round 19.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.651888740460636]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740460636 in round 19.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740460636 in round 19.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
```

```
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740460636 in round 19.
Round 19 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.651888740460636. Default loss for Node B is 0.16518887404606364

 - Total Dollar Payment Vector for round 19 and Node B
Total Dollar Payment Vector for round 19 and Node B updated with value
1.4866998664145723

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998667517406
Total payments in to Node C is 3.7697680071207165 in round 19.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.7697680071207165]

 - Total Dollar Payment Vector for round 19 and Node C
Total Dollar Payment Vector for round 19 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 19

Total payment by Node A (i.e. p_1): 3.5853880725334983
Total payment by Node B (i.e. p_2): 1.4866998664145723
Total payment by Node C (i.e. p_3): 4.0
[3.5853880725334983, 1.4866998664145723, 4.0]

------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 19

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
```

```
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998667517406
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311917038867 in round 19.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Equity Vector for round 19 and Node A
Equity Vector for round 19 and Node A updated with value 3.0650431191703884 i.e.
total cash flow 6.650431191703887  minus total payments out (liabilities)
3.5853880725334983.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740460636 in round 19.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Equity Vector for round 19 and Node B
Equity Vector for round 19 and Node B updated with value 0.16518887404606364
i.e. total cash flow 1.651888740460636  minus total payments out (liabilities)
1.4866998664145723.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998667517406
Total payments in to Node C is 3.7697680071207165 in round 19.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 19 and Node C
Equity Vector for round 19 and Node C updated with value 3.7697680071207165 i.e.
total cash flow 7.7697680071207165  minus total payments out (liabilities) 4.0.


-------------------------------------------------------

EQUITY FOR EACH NODE - round 19

Equity for Node A: 3.0650431191703884
Equity for Node B: 0.16518887404606364
```

```
Equity for Node C: 3.7697680071207165
[3.0650431191703884, 0.16518887404606364, 3.7697680071207165]

---------------------------------------------------------

ROUND 19 DEFAULTERS

Node A has defaulted in round 19
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 19) are
not identical, algorithm will proceed for another round.

---------------------------------------------------------

END OF ROUND 19

---------------------------------------------------------

START OF ROUND 20

---------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 20

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

---------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 20

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915563754 in round 20.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
```

```
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.650431191556375]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915563754 in round 20.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915563754 in round 20.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915563754 in round 20.
Round 20 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.650431191556375. Default loss for Node A is 3.0650431191556375

 - Total Dollar Payment Vector for round 20 and Node A
Total Dollar Payment Vector for round 20 and Node A updated with value
3.585388072400738

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740460636 in round 20.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.651888740460636]
Relative Payment in to Node B from Node A is 0.18181818181818182
```

```
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740460636 in round 20.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740460636 in round 20.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740460636 in round 20.
Round 20 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.651888740460636. Default loss for Node B is 0.16518887404606364

 - Total Dollar Payment Vector for round 20 and Node B
Total Dollar Payment Vector for round 20 and Node B updated with value
1.4866998664145723

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Total payments in to Node C is 3.7697680069310593 in round 20.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.769768006931059]

 - Total Dollar Payment Vector for round 20 and Node C
Total Dollar Payment Vector for round 20 and Node C updated with value 4.0

-----------------------------------------------------------
```

```
TOTAL PAYMENT VECTOR - round 20

Total payment by Node A (i.e. p_1): 3.585388072400738
Total payment by Node B (i.e. p_2): 1.4866998664145723
Total payment by Node C (i.e. p_3): 4.0
[3.585388072400738, 1.4866998664145723, 4.0]

-----------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 20

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915563754 in round 20.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072400738
Equity Vector for round 20 and Node A
Equity Vector for round 20 and Node A updated with value 3.0650431191556375 i.e.
total cash flow 6.650431191556375  minus total payments out (liabilities)
3.585388072400738.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740460636 in round 20.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Equity Vector for round 20 and Node B
Equity Vector for round 20 and Node B updated with value 0.16518887404606364
i.e. total cash flow 1.651888740460636  minus total payments out (liabilities)
1.4866998664145723.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880725334983
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
```

```
1.4866998664145723
Total payments in to Node C is 3.7697680069310593 in round 20.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 20 and Node C
Equity Vector for round 20 and Node C updated with value 3.7697680069310593 i.e.
total cash flow 7.769768006931059  minus total payments out (liabilities) 4.0.


-----------------------------------------------------

EQUITY FOR EACH NODE - round 20

Equity for Node A: 3.0650431191556375
Equity for Node B: 0.16518887404606364
Equity for Node C: 3.7697680069310593
[3.0650431191556375, 0.16518887404606364, 3.7697680069310593]

-----------------------------------------------------

ROUND 20 DEFAULTERS

Node A has defaulted in round 20
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 20) are
not identical, algorithm will proceed for another round.

-----------------------------------------------------

END OF ROUND 20

-----------------------------------------------------

START OF ROUND 21

-----------------------------------------------------

TOTAL OBLIGATION VECTOR - round 21

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

-----------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 21

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
```

```
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915563754 in round 21.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.650431191556375]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915563754 in round 21.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915563754 in round 21.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915563754 in round 21.
Round 21 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.650431191556375. Default loss for Node A is 3.0650431191556375

 - Total Dollar Payment Vector for round 21 and Node A
Total Dollar Payment Vector for round 21 and Node A updated with value
3.585388072400738

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
```

Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072400738
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740436498 in round 21.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.651888740436498]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072400738
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740436498 in round 21.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072400738
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740436498 in round 21.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072400738
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740436498 in round 21.
Round 21 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.651888740436498. Default loss for Node B is 0.1651888740436498

- Total Dollar Payment Vector for round 21 and Node B
Total Dollar Payment Vector for round 21 and Node B updated with value
1.4866998663928481

Node C

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072400738
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Total payments in to Node C is 3.7697680068224373 in round 21.

```
- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.769768006822437]

 - Total Dollar Payment Vector for round 21 and Node C
Total Dollar Payment Vector for round 21 and Node C updated with value 4.0

-----------------------------------------------------

TOTAL PAYMENT VECTOR - round 21

Total payment by Node A (i.e. p_1): 3.585388072400738
Total payment by Node B (i.e. p_2): 1.4866998663928481
Total payment by Node C (i.e. p_3): 4.0
[3.585388072400738, 1.4866998663928481, 4.0]

-----------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 21

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915563754 in round 21.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072400738
Equity Vector for round 21 and Node A
Equity Vector for round 21 and Node A updated with value 3.0650431191556375 i.e.
total cash flow 6.650431191556375  minus total payments out (liabilities)
3.585388072400738.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072400738
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740436498 in round 21.
```

```
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Equity Vector for round 21 and Node B
Equity Vector for round 21 and Node B updated with value 0.1651888740436498 i.e.
total cash flow 1.651888740436498  minus total payments out (liabilities)
1.4866998663928481.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072400738
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998664145723
Total payments in to Node C is 3.7697680068224373 in round 21.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 21 and Node C
Equity Vector for round 21 and Node C updated with value 3.769768006822437 i.e.
total cash flow 7.769768006822437  minus total payments out (liabilities) 4.0.


----------------------------------------------------------

EQUITY FOR EACH NODE - round 21

Equity for Node A: 3.0650431191556375
Equity for Node B: 0.1651888740436498
Equity for Node C: 3.769768006822437
[3.0650431191556375, 0.1651888740436498, 3.769768006822437]

----------------------------------------------------------

ROUND 21 DEFAULTERS

Node A has defaulted in round 21
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 21) are
not identical, algorithm will proceed for another round.

----------------------------------------------------------

END OF ROUND 21

----------------------------------------------------------

START OF ROUND 22
```

```
--------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 22

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

--------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 22

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546871 in round 22.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.650431191546871]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546871 in round 22.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546871 in round 22.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
```

Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546871 in round 22.
Round 22 and Node A has defaulted due to nominal obligations 11.0 being greater than cash flow 6.650431191546871. Default loss for Node A is 3.065043119154687

- Total Dollar Payment Vector for round 22 and Node A
Total Dollar Payment Vector for round 22 and Node A updated with value 3.585388072392184

Node B

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 3.585388072400738
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740436498 in round 22.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0, 1.651888740436498]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 3.585388072400738
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740436498 in round 22.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 3.585388072400738
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740436498 in round 22.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is 3.585388072400738
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740436498 in round 22.
Round 22 and Node B has defaulted due to nominal obligations 16.0 being greater than cash flow 1.651888740436498. Default loss for Node B is 0.1651888740436498

```
 - Total Dollar Payment Vector for round 22 and Node B
Total Dollar Payment Vector for round 22 and Node B updated with value
1.4866998663928481

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072400738
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Total payments in to Node C is 3.7697680068102173 in round 22.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.769768006810217]

 - Total Dollar Payment Vector for round 22 and Node C
Total Dollar Payment Vector for round 22 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 22

Total payment by Node A (i.e. p_1): 3.585388072392184
Total payment by Node B (i.e. p_2): 1.4866998663928481
Total payment by Node C (i.e. p_3): 4.0
[3.585388072392184, 1.4866998663928481, 4.0]

------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 22

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546871 in round 22.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
```

```
3.585388072392184
Equity Vector for round 22 and Node A
Equity Vector for round 22 and Node A updated with value 3.065043119154687 i.e.
total cash flow 6.650431191546871  minus total payments out (liabilities)
3.585388072392184.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072400738
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740436498 in round 22.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Equity Vector for round 22 and Node B
Equity Vector for round 22 and Node B updated with value 0.1651888740436498 i.e.
total cash flow 1.651888740436498  minus total payments out (liabilities)
1.4866998663928481.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072400738
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Total payments in to Node C is 3.7697680068102173 in round 22.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 22 and Node C
Equity Vector for round 22 and Node C updated with value 3.7697680068102173 i.e.
total cash flow 7.769768006810217  minus total payments out (liabilities) 4.0.


-------------------------------------------------------

EQUITY FOR EACH NODE - round 22

Equity for Node A: 3.065043119154687
Equity for Node B: 0.1651888740436498
Equity for Node C: 3.7697680068102173
[3.065043119154687, 0.1651888740436498, 3.7697680068102173]

-------------------------------------------------------

ROUND 22 DEFAULTERS
```

```
Node A has defaulted in round 22
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 22) are
not identical, algorithm will proceed for another round.

-----------------------------------------------------

END OF ROUND 22

-----------------------------------------------------

START OF ROUND 23

-----------------------------------------------------

TOTAL OBLIGATION VECTOR - round 23

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

-----------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 23

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546871 in round 23.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.650431191546871]
Relative Payment in to Node A from Node B is 0.4375
```

```
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546871 in round 23.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546871 in round 23.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546871 in round 23.
Round 23 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.650431191546871. Default loss for Node A is 3.065043119154687

 - Total Dollar Payment Vector for round 23 and Node A
Total Dollar Payment Vector for round 23 and Node A updated with value
3.585388072392184

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404349425 in round 23.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.6518887404349425]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404349425 in round 23.
Relative Payment in to Node B from Node A is 0.18181818181818182
```

```
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404349425 in round 23.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404349425 in round 23.
Round 23 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.6518887404349425. Default loss for Node B is
0.16518887404349414

 - Total Dollar Payment Vector for round 23 and Node B
Total Dollar Payment Vector for round 23 and Node B updated with value
1.4866998663914484

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Total payments in to Node C is 3.7697680068032184 in round 23.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.769768006803218]

 - Total Dollar Payment Vector for round 23 and Node C
Total Dollar Payment Vector for round 23 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 23

Total payment by Node A (i.e. p_1): 3.585388072392184
Total payment by Node B (i.e. p_2): 1.4866998663914484
Total payment by Node C (i.e. p_3): 4.0
```

[3.585388072392184, 1.4866998663914484, 4.0]

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 23

Node A
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546871 in round 23.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Equity Vector for round 23 and Node A
Equity Vector for round 23 and Node A updated with value 3.065043119154687 i.e.
total cash flow 6.650431191546871 minus total payments out (liabilities)
3.585388072392184.

Node B
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404349425 in round 23.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663914484
Equity Vector for round 23 and Node B
Equity Vector for round 23 and Node B updated with value 0.16518887404349414
i.e. total cash flow 1.6518887404349425 minus total payments out (liabilities)
1.4866998663914484.

Node C
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663928481
Total payments in to Node C is 3.7697680068032184 in round 23.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 23 and Node C
Equity Vector for round 23 and Node C updated with value 3.7697680068032184 i.e.

```
total cash flow 7.769768006803218  minus total payments out (liabilities) 4.0.


----------------------------------------------------------

EQUITY FOR EACH NODE - round 23

Equity for Node A: 3.065043119154687
Equity for Node B: 0.16518887404349414
Equity for Node C: 3.7697680068032184
[3.065043119154687, 0.16518887404349414, 3.7697680068032184]

----------------------------------------------------------

ROUND 23 DEFAULTERS

Node A has defaulted in round 23
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 23) are
not identical, algorithm will proceed for another round.

----------------------------------------------------------

END OF ROUND 23

----------------------------------------------------------

START OF ROUND 24

----------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 24

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

----------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 24

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
```

Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663914484
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462586 in round 24.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.650431191546259]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663914484
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462586 in round 24.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663914484
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462586 in round 24.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663914484
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462586 in round 24.
Round 24 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.650431191546259. Default loss for Node A is 3.065043119154626

- Total Dollar Payment Vector for round 24 and Node A
Total Dollar Payment Vector for round 24 and Node A updated with value
3.585388072391633

Node B

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404349425 in round 24.

```
- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.6518887404349425]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404349425 in round 24.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404349425 in round 24.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404349425 in round 24.
Round 24 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.6518887404349425. Default loss for Node B is
0.16518887404349414

 - Total Dollar Payment Vector for round 24 and Node B
Total Dollar Payment Vector for round 24 and Node B updated with value
1.4866998663914484

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663914484
Total payments in to Node C is 3.7697680068024315 in round 24.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
```

```
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.7697680068024315]

 - Total Dollar Payment Vector for round 24 and Node C
Total Dollar Payment Vector for round 24 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 24

Total payment by Node A (i.e. p_1): 3.585388072391633
Total payment by Node B (i.e. p_2): 1.4866998663914484
Total payment by Node C (i.e. p_3): 4.0
[3.585388072391633, 1.4866998663914484, 4.0]

------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 24

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663914484
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462586 in round 24.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Equity Vector for round 24 and Node A
Equity Vector for round 24 and Node A updated with value 3.065043119154626 i.e.
total cash flow 6.650431191546259  minus total payments out (liabilities)
3.585388072391633.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404349425 in round 24.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663914484
Equity Vector for round 24 and Node B
Equity Vector for round 24 and Node B updated with value 0.16518887404349414
```

```
i.e. total cash flow 1.6518887404349425  minus total payments out (liabilities)
1.4866998663914484.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072392184
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663914484
Total payments in to Node C is 3.7697680068024315 in round 24.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 24 and Node C
Equity Vector for round 24 and Node C updated with value 3.7697680068024315 i.e.
total cash flow 7.7697680068024315  minus total payments out (liabilities) 4.0.


------------------------------------------------------

EQUITY FOR EACH NODE - round 24

Equity for Node A: 3.065043119154626
Equity for Node B: 0.16518887404349414
Equity for Node C: 3.7697680068024315
[3.065043119154626, 0.16518887404349414, 3.7697680068024315]

------------------------------------------------------

ROUND 24 DEFAULTERS

Node A has defaulted in round 24
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 24) are
not identical, algorithm will proceed for another round.

------------------------------------------------------

END OF ROUND 24

------------------------------------------------------

START OF ROUND 25

------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 25
```

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

TOTAL PAYMENT MADE PER NODE - round 25

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for each node…

Node A

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998663914484
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462586 in round 25.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0, 6.650431191546259]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998663914484
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462586 in round 25.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998663914484
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462586 in round 25.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998663914484
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462586 in round 25.
Round 25 and Node A has defaulted due to nominal obligations 11.0 being greater

```
than cash flow 6.650431191546259. Default loss for Node A is 3.065043119154626

 - Total Dollar Payment Vector for round 25 and Node A
Total Dollar Payment Vector for round 25 and Node A updated with value
3.585388072391633

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348424 in round 25.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.6518887404348424]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348424 in round 25.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348424 in round 25.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348424 in round 25.
Round 25 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.6518887404348424. Default loss for Node B is
0.16518887404348415

 - Total Dollar Payment Vector for round 25 and Node B
Total Dollar Payment Vector for round 25 and Node B updated with value
1.4866998663913582
```

```
***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663914484
Total payments in to Node C is 3.7697680068019803 in round 25.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0, 7.76976800680198]

 - Total Dollar Payment Vector for round 25 and Node C
Total Dollar Payment Vector for round 25 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 25

Total payment by Node A (i.e. p_1): 3.585388072391633
Total payment by Node B (i.e. p_2): 1.4866998663913582
Total payment by Node C (i.e. p_3): 4.0
[3.585388072391633, 1.4866998663913582, 4.0]

------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 25

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663914484
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462586 in round 25.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Equity Vector for round 25 and Node A
Equity Vector for round 25 and Node A updated with value 3.065043119154626 i.e.
total cash flow 6.650431191546259  minus total payments out (liabilities)
```

```
3.585388072391633.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348424 in round 25.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Equity Vector for round 25 and Node B
Equity Vector for round 25 and Node B updated with value 0.16518887404348415
i.e. total cash flow 1.6518887404348424  minus total payments out (liabilities)
1.4866998663913582.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663914484
Total payments in to Node C is 3.7697680068019803 in round 25.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 25 and Node C
Equity Vector for round 25 and Node C updated with value 3.7697680068019803 i.e.
total cash flow 7.76976800680198  minus total payments out (liabilities) 4.0.


-----------------------------------------------------

EQUITY FOR EACH NODE - round 25

Equity for Node A: 3.065043119154626
Equity for Node B: 0.16518887404348415
Equity for Node C: 3.7697680068019803
[3.065043119154626, 0.16518887404348415, 3.7697680068019803]

-----------------------------------------------------

ROUND 25 DEFAULTERS

Node A has defaulted in round 25
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 25) are
```

```
not identical, algorithm will proceed for another round.

-----------------------------------------------------

END OF ROUND 25

-----------------------------------------------------

START OF ROUND 26

-----------------------------------------------------

TOTAL OBLIGATION VECTOR - round 26

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

-----------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 26

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546219 in round 26.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.650431191546219]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
```

```
Total payments in to Node A is 3.650431191546219 in round 26.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546219 in round 26.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546219 in round 26.
Round 26 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.650431191546219. Default loss for Node A is 3.0650431191546215

 - Total Dollar Payment Vector for round 26 and Node A
Total Dollar Payment Vector for round 26 and Node A updated with value
3.5853880723915976

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348424 in round 26.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.6518887404348424]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348424 in round 26.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
```

```
Total payments in to Node B is 1.6518887404348424 in round 26.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348424 in round 26.
Round 26 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.6518887404348424. Default loss for Node B is
0.16518887404348415

 - Total Dollar Payment Vector for round 26 and Node B
Total Dollar Payment Vector for round 26 and Node B updated with value
1.4866998663913582

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Total payments in to Node C is 3.7697680068019297 in round 26.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0, 7.76976800680193]

 - Total Dollar Payment Vector for round 26 and Node C
Total Dollar Payment Vector for round 26 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 26

Total payment by Node A (i.e. p_1): 3.5853880723915976
Total payment by Node B (i.e. p_2): 1.4866998663913582
Total payment by Node C (i.e. p_3): 4.0
[3.5853880723915976, 1.4866998663913582, 4.0]

------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 26
```

```
***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546219 in round 26.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
Equity Vector for round 26 and Node A
Equity Vector for round 26 and Node A updated with value 3.0650431191546215 i.e.
total cash flow 6.650431191546219  minus total payments out (liabilities)
3.5853880723915976.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348424 in round 26.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Equity Vector for round 26 and Node B
Equity Vector for round 26 and Node B updated with value 0.16518887404348415
i.e. total cash flow 1.6518887404348424  minus total payments out (liabilities)
1.4866998663913582.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391633
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Total payments in to Node C is 3.7697680068019297 in round 26.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 26 and Node C
Equity Vector for round 26 and Node C updated with value 3.7697680068019297 i.e.
total cash flow 7.76976800680193  minus total payments out (liabilities) 4.0.


-------------------------------------------------------
```

```
EQUITY FOR EACH NODE - round 26

Equity for Node A: 3.0650431191546215
Equity for Node B: 0.16518887404348415
Equity for Node C: 3.7697680068019297
[3.0650431191546215, 0.16518887404348415, 3.7697680068019297]

----------------------------------------------------------

ROUND 26 DEFAULTERS

Node A has defaulted in round 26
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 26) are
not identical, algorithm will proceed for another round.

----------------------------------------------------------

END OF ROUND 26

----------------------------------------------------------

START OF ROUND 27

----------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 27

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

----------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 27

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
```

```
Total payments in to Node A is 3.650431191546219 in round 27.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.650431191546219]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546219 in round 27.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546219 in round 27.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546219 in round 27.
Round 27 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.650431191546219. Default loss for Node A is 3.0650431191546215

 - Total Dollar Payment Vector for round 27 and Node A
Total Dollar Payment Vector for round 27 and Node A updated with value
3.5853880723915976

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740434836 in round 27.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0
```

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.651888740434836]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740434836 in round 27.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740434836 in round 27.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740434836 in round 27.
Round 27 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.651888740434836. Default loss for Node B is 0.16518887404348348

 - Total Dollar Payment Vector for round 27 and Node B
Total Dollar Payment Vector for round 27 and Node B updated with value
1.4866998663913524

Node C

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Total payments in to Node C is 3.769768006801901 in round 27.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0, 7.7697680068019]

 - Total Dollar Payment Vector for round 27 and Node C
Total Dollar Payment Vector for round 27 and Node C updated with value 4.0

```
----------------------------------------------------------

TOTAL PAYMENT VECTOR - round 27

Total payment by Node A (i.e. p_1): 3.5853880723915976
Total payment by Node B (i.e. p_2): 1.4866998663913524
Total payment by Node C (i.e. p_3): 4.0
[3.5853880723915976, 1.4866998663913524, 4.0]

----------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 27

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.650431191546219 in round 27.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
Equity Vector for round 27 and Node A
Equity Vector for round 27 and Node A updated with value 3.0650431191546215 i.e.
total cash flow 6.650431191546219  minus total payments out (liabilities)
3.5853880723915976.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740434836 in round 27.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913524
Equity Vector for round 27 and Node B
Equity Vector for round 27 and Node B updated with value 0.16518887404348348
i.e. total cash flow 1.651888740434836  minus total payments out (liabilities)
1.4866998663913524.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
```

```
3.5853880723915976
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913582
Total payments in to Node C is 3.769768006801901 in round 27.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 27 and Node C
Equity Vector for round 27 and Node C updated with value 3.7697680068019004 i.e.
total cash flow 7.7697680068019  minus total payments out (liabilities) 4.0.


------------------------------------------------------

EQUITY FOR EACH NODE - round 27

Equity for Node A: 3.0650431191546215
Equity for Node B: 0.16518887404348348
Equity for Node C: 3.7697680068019004
[3.0650431191546215, 0.16518887404348348, 3.7697680068019004]

------------------------------------------------------

ROUND 27 DEFAULTERS

Node A has defaulted in round 27
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 27) are
not identical, algorithm will proceed for another round.

------------------------------------------------------

END OF ROUND 27

------------------------------------------------------

START OF ROUND 28

------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 28

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

------------------------------------------------------
```

TOTAL PAYMENT MADE PER NODE - round 28

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for each node…

Node A

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998663913524
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 28.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0, 6.650431191546216]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998663913524
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 28.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998663913524
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 28.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998663913524
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 28.
Round 28 and Node A has defaulted due to nominal obligations 11.0 being greater than cash flow 6.650431191546216. Default loss for Node A is 3.0650431191546215

- Total Dollar Payment Vector for round 28 and Node A
Total Dollar Payment Vector for round 28 and Node A updated with value 3.585388072391595

Node B

```
- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740434836 in round 28.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.651888740434836]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740434836 in round 28.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740434836 in round 28.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740434836 in round 28.
Round 28 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.651888740434836. Default loss for Node B is 0.16518887404348348

 - Total Dollar Payment Vector for round 28 and Node B
Total Dollar Payment Vector for round 28 and Node B updated with value
1.4866998663913524

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
Relative Payment in to Node C from Node B is 0.5625
```

```
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913524
Total payments in to Node C is 3.7697680068018977 in round 28.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.769768006801898]

 - Total Dollar Payment Vector for round 28 and Node C
Total Dollar Payment Vector for round 28 and Node C updated with value 4.0

----------------------------------------------------------

TOTAL PAYMENT VECTOR - round 28

Total payment by Node A (i.e. p_1): 3.585388072391595
Total payment by Node B (i.e. p_2): 1.4866998663913524
Total payment by Node C (i.e. p_3): 4.0
[3.585388072391595, 1.4866998663913524, 4.0]

----------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 28

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913524
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 28.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Equity Vector for round 28 and Node A
Equity Vector for round 28 and Node A updated with value 3.0650431191546215 i.e.
total cash flow 6.650431191546216  minus total payments out (liabilities)
3.585388072391595.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
```

```
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.651888740434836 in round 28.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913524
Equity Vector for round 28 and Node B
Equity Vector for round 28 and Node B updated with value 0.16518887404348348
i.e. total cash flow 1.651888740434836  minus total payments out (liabilities)
1.4866998663913524.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.5853880723915976
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913524
Total payments in to Node C is 3.7697680068018977 in round 28.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 28 and Node C
Equity Vector for round 28 and Node C updated with value 3.7697680068018977 i.e.
total cash flow 7.769768006801898  minus total payments out (liabilities) 4.0.


------------------------------------------------------

EQUITY FOR EACH NODE - round 28

Equity for Node A: 3.0650431191546215
Equity for Node B: 0.16518887404348348
Equity for Node C: 3.7697680068018977
[3.0650431191546215, 0.16518887404348348, 3.7697680068018977]

------------------------------------------------------

ROUND 28 DEFAULTERS

Node A has defaulted in round 28
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 28) are
not identical, algorithm will proceed for another round.

------------------------------------------------------

END OF ROUND 28

------------------------------------------------------
```

START OF ROUND 29

TOTAL OBLIGATION VECTOR - round 29

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

TOTAL PAYMENT MADE PER NODE - round 29

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for each node…

Node A

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998663913524
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 29.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0

Payment out is min[payment out, total cash flow] i.e. min[11.0, 6.650431191546216]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998663913524
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 29.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is 1.4866998663913524
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 29.

Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913524
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 29.
Round 29 and Node A has defaulted due to nominal obligations 11.0 being greater than cash flow 6.650431191546216. Default loss for Node A is 3.0650431191546215

- Total Dollar Payment Vector for round 29 and Node A
Total Dollar Payment Vector for round 29 and Node A updated with value
3.585388072391595

Node B

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348355 in round 29.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.6518887404348355]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348355 in round 29.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348355 in round 29.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348355 in round 29.

```
Round 29 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.6518887404348355. Default loss for Node B is
0.16518887404348348

 - Total Dollar Payment Vector for round 29 and Node B
Total Dollar Payment Vector for round 29 and Node B updated with value
1.486699866391352

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913524
Total payments in to Node C is 3.7697680068018955 in round 29.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.769768006801895]

 - Total Dollar Payment Vector for round 29 and Node C
Total Dollar Payment Vector for round 29 and Node C updated with value 4.0

------------------------------------------------------

TOTAL PAYMENT VECTOR - round 29

Total payment by Node A (i.e. p_1): 3.585388072391595
Total payment by Node B (i.e. p_2): 1.486699866391352
Total payment by Node C (i.e. p_3): 4.0
[3.585388072391595, 1.486699866391352, 4.0]

------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 29

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913524
```

```
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 29.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Equity Vector for round 29 and Node A
Equity Vector for round 29 and Node A updated with value 3.0650431191546215 i.e.
total cash flow 6.650431191546216  minus total payments out (liabilities)
3.585388072391595.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348355 in round 29.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
Equity Vector for round 29 and Node B
Equity Vector for round 29 and Node B updated with value 0.16518887404348348
i.e. total cash flow 1.6518887404348355  minus total payments out (liabilities)
1.486699866391352.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.4866998663913524
Total payments in to Node C is 3.7697680068018955 in round 29.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 29 and Node C
Equity Vector for round 29 and Node C updated with value 3.769768006801895 i.e.
total cash flow 7.769768006801895  minus total payments out (liabilities) 4.0.


----------------------------------------------------------

EQUITY FOR EACH NODE - round 29

Equity for Node A: 3.0650431191546215
Equity for Node B: 0.16518887404348348
Equity for Node C: 3.769768006801895
[3.0650431191546215, 0.16518887404348348, 3.769768006801895]
```

```
----------------------------------------------------------

ROUND 29 DEFAULTERS

Node A has defaulted in round 29
{'A': True, 'B': True, 'C': False}
The payment vectors for the previous round and current round (i.e. round 29) are
not identical, algorithm will proceed for another round.

----------------------------------------------------------

END OF ROUND 29

----------------------------------------------------------

START OF ROUND 30

----------------------------------------------------------

TOTAL OBLIGATION VECTOR - round 30

i.e. total nominal obligations for each node i.e. p_bar_i…
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total nominal obligation for Node C (i.e. p_bar_3): 4.0

----------------------------------------------------------

TOTAL PAYMENT MADE PER NODE - round 30

i.e. min[nominal obligations, cashflow (payments in + exogenous cash flow)] for
each node…

***Node A***

- Total payments in for Node A
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 30.

- Liabilities for Node A
Liability of Node A to Node B (i.e. P_01) is 2.0
Liability of Node A to Node C (i.e. P_02) is 9.0
Total nominal liabilities for Node A (i.e. p_bar_1) is 11.0
```

```
Payment out is min[payment out, total cash flow] i.e. min[11.0,
6.650431191546216]
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 30.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 30.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 30.
Round 30 and Node A has defaulted due to nominal obligations 11.0 being greater
than cash flow 6.650431191546216. Default loss for Node A is 3.0650431191546215

 - Total Dollar Payment Vector for round 30 and Node A
Total Dollar Payment Vector for round 30 and Node A updated with value
3.585388072391595

***Node B***

- Total payments in for Node B
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348355 in round 30.

- Liabilities for Node B
Liability of Node B to Node A (i.e. P_10) is 7.0
Liability of Node B to Node C (i.e. P_12) is 9.0
Total nominal liabilities for Node B (i.e. p_bar_2) is 16.0

Payment out is min[payment out, total cash flow] i.e. min[16.0,
1.6518887404348355]
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
```

```
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348355 in round 30.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348355 in round 30.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348355 in round 30.
Round 30 and Node B has defaulted due to nominal obligations 16.0 being greater
than cash flow 1.6518887404348355. Default loss for Node B is
0.16518887404348348

 - Total Dollar Payment Vector for round 30 and Node B
Total Dollar Payment Vector for round 30 and Node B updated with value
1.486699866391352

***Node C***

- Total payments in for Node C
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
Total payments in to Node C is 3.769768006801895 in round 30.

- Liabilities for Node C
Liability of Node C to Node A (i.e. P_20) is 3.0
Liability of Node C to Node B (i.e. P_21) is 1.0
Total nominal liabilities for Node C (i.e. p_bar_3) is 4.0

Payment out is min[payment out, total cash flow] i.e. min[4.0,
7.769768006801895]

 - Total Dollar Payment Vector for round 30 and Node C
Total Dollar Payment Vector for round 30 and Node C updated with value 4.0

--------------------------------------------------------

TOTAL PAYMENT VECTOR - round 30
```

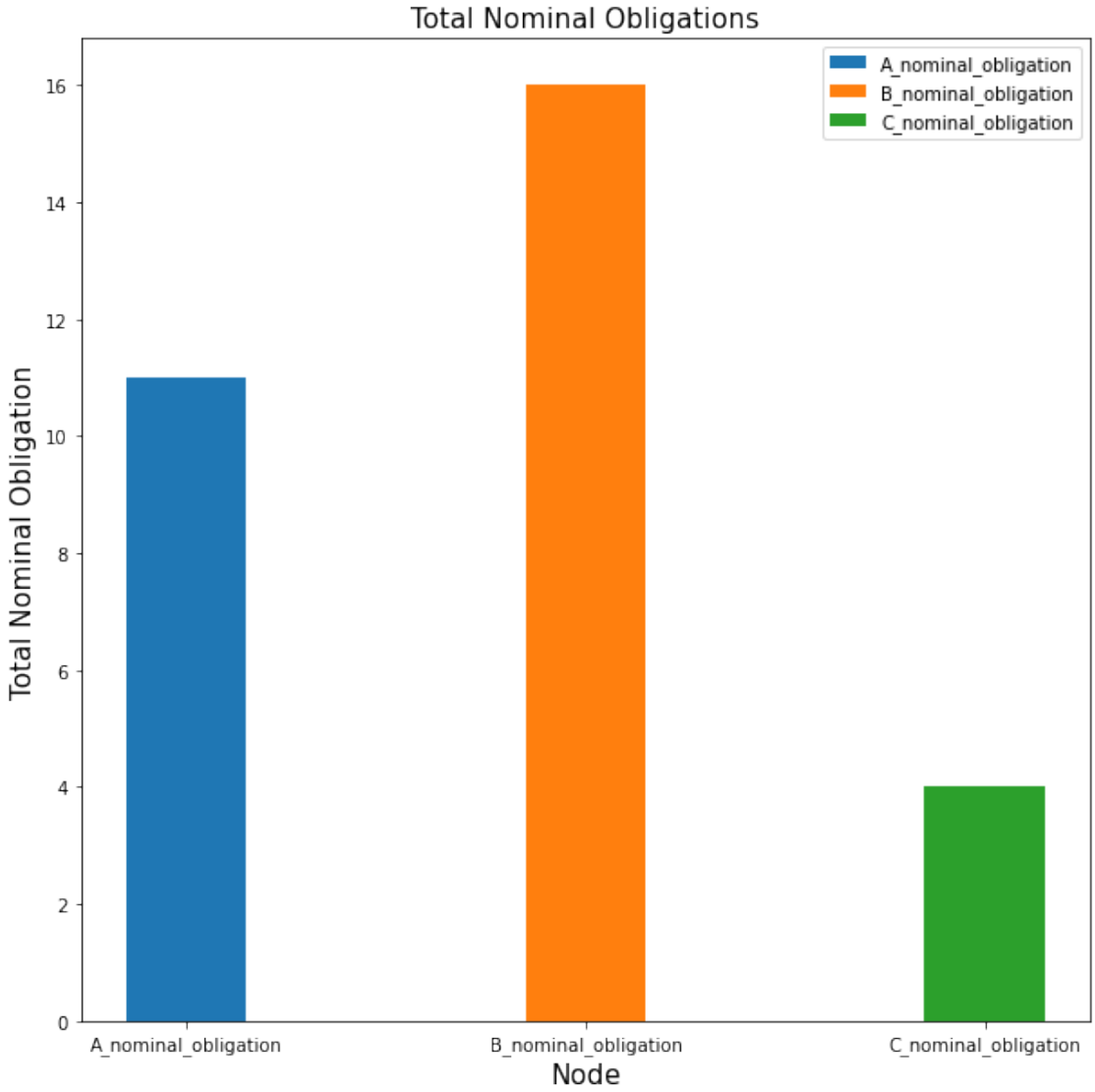
```
Total payment by Node A (i.e. p_1): 3.585388072391595
Total payment by Node B (i.e. p_2): 1.486699866391352
Total payment by Node C (i.e. p_3): 4.0
[3.585388072391595, 1.486699866391352, 4.0]

---------------------------------------------------------

UPDATE EQUITY (i.e. BOOK VALUE) FOR EACH NODE - round 30

***Node A***
Total operating cash flow (exogenous assets) 3.0.
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 30.
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Equity Vector for round 30 and Node A
Equity Vector for round 30 and Node A updated with value 3.0650431191546215 i.e.
total cash flow 6.650431191546216  minus total payments out (liabilities)
3.585388072391595.

***Node B***
Total operating cash flow (exogenous assets) 0.0.
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348355 in round 30.
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
Equity Vector for round 30 and Node B
Equity Vector for round 30 and Node B updated with value 0.16518887404348348
i.e. total cash flow 1.6518887404348355  minus total payments out (liabilities)
1.486699866391352.

***Node C***
Total operating cash flow (exogenous assets) 4.0.
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
```

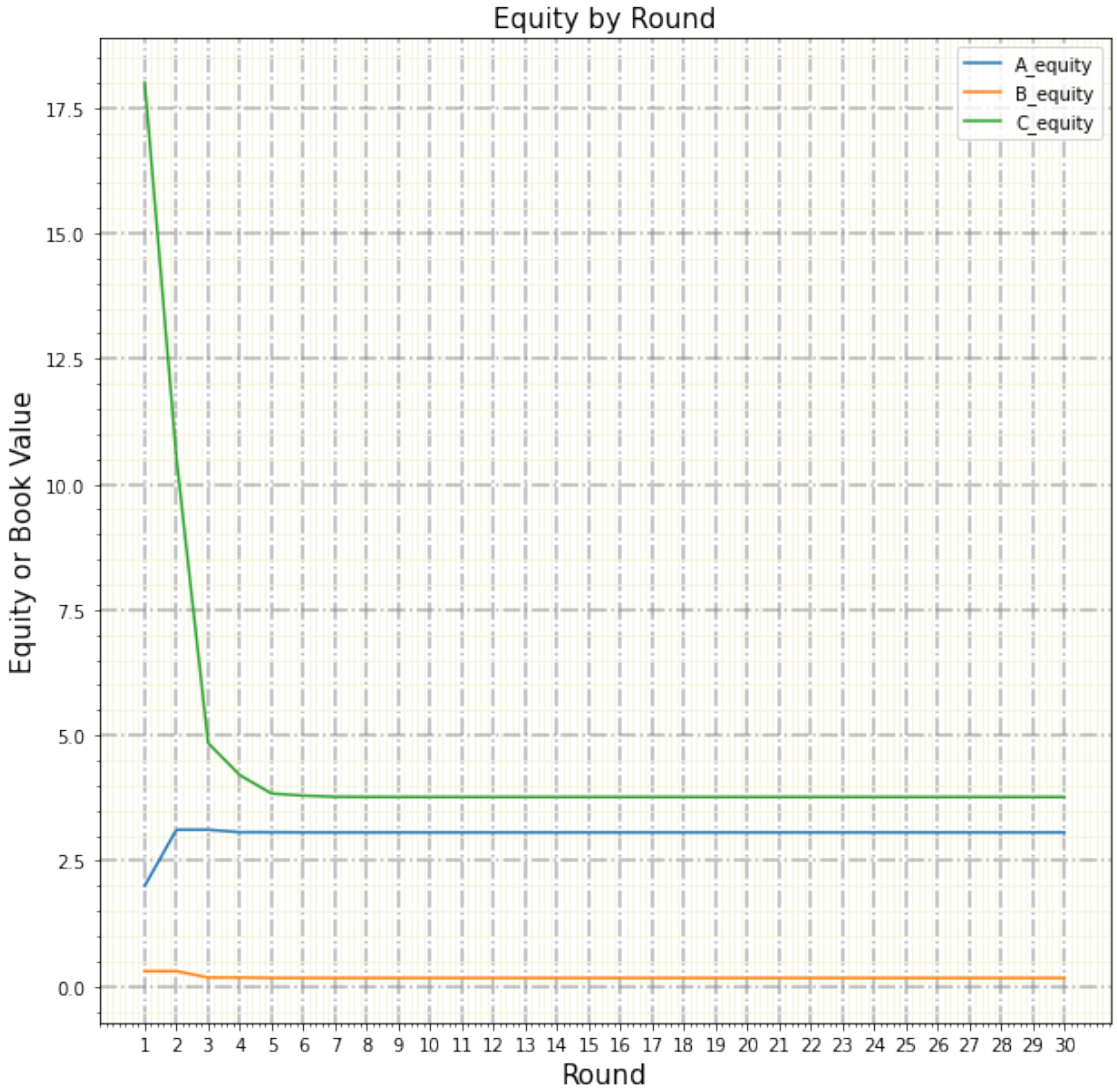
```
Total payments in to Node C is 3.769768006801895 in round 30.
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Equity Vector for round 30 and Node C
Equity Vector for round 30 and Node C updated with value 3.769768006801895 i.e.
total cash flow 7.769768006801895  minus total payments out (liabilities) 4.0.


------------------------------------------------------

EQUITY FOR EACH NODE - round 30

Equity for Node A: 3.0650431191546215
Equity for Node B: 0.16518887404348348
Equity for Node C: 3.769768006801895
[3.0650431191546215, 0.16518887404348348, 3.769768006801895]

------------------------------------------------------

ROUND 30 DEFAULTERS

Node A has defaulted in round 30
{'A': True, 'B': True, 'C': False}
There are defaulters from earlier rounds but no new defaulters in the current
round, algorithm will not proceed for another round.

***Checking limited liability and absolute priority for Node A***

Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 30.

- Limited liability is met. Node A made a payment of 3.585388072391595 in round
30 which is less than or equal to the cash flow (payments in + exogenous cash)
of 6.650431191546216.
Total nominal obligation for Node A (i.e. p_bar_1): 11.0
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node A from Node B is 0.4375
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
Relative Payment in to Node A from Node C is 0.75
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node A is 3.6504311915462164 in round 30.
```

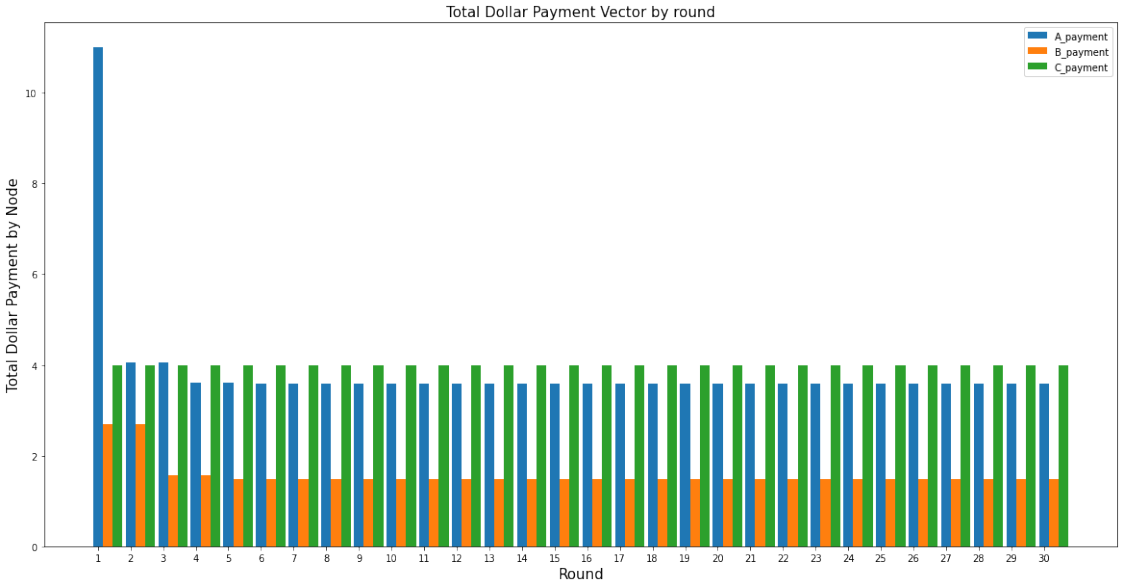
```
 -Checking absolute priority for Node A in round 30. Nominal obligations is 11.0
and Dollar payments is 3.585388072391595
Dollar payments less than nominal obligations. Now checking if all value is paid
to creditors, i.e. Total cash flow for Node A
All value i.e. cash flow available to Node A is 6.650431191546216
-Absolute priority is satisfied for Node A

- Absolute priority is met by Node A in round 30 i.e. either obligations are
paid in full or all available cash flow (i.e. sum of the payments received by
the node plus the exogenous operating cash flow) is paid to creditors. Nominal
obligations were 11.0,  Dollar payment was 3.585388072391595 and Total cash flow
was 6.650431191546216

Node A in round 30 passes candidate clearing vector payment entry checks.

***Checking limited liability and absolute priority for Node B***

Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348355 in round 30.

- Limited liability is met. Node B made a payment of 1.486699866391352 in round
30 which is less than or equal to the cash flow (payments in + exogenous cash)
of 1.6518887404348355.
Total nominal obligation for Node B (i.e. p_bar_2): 16.0
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
Relative Payment in to Node B from Node A is 0.18181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node B from Node C is 0.25
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Total payments in to Node B is 1.6518887404348355 in round 30.

 -Checking absolute priority for Node B in round 30. Nominal obligations is 16.0
and Dollar payments is 1.486699866391352
Dollar payments less than nominal obligations. Now checking if all value is paid
to creditors, i.e. Total cash flow for Node B
All value i.e. cash flow available to Node B is 1.6518887404348355
-Absolute priority is satisfied for Node B

- Absolute priority is met by Node B in round 30 i.e. either obligations are
```

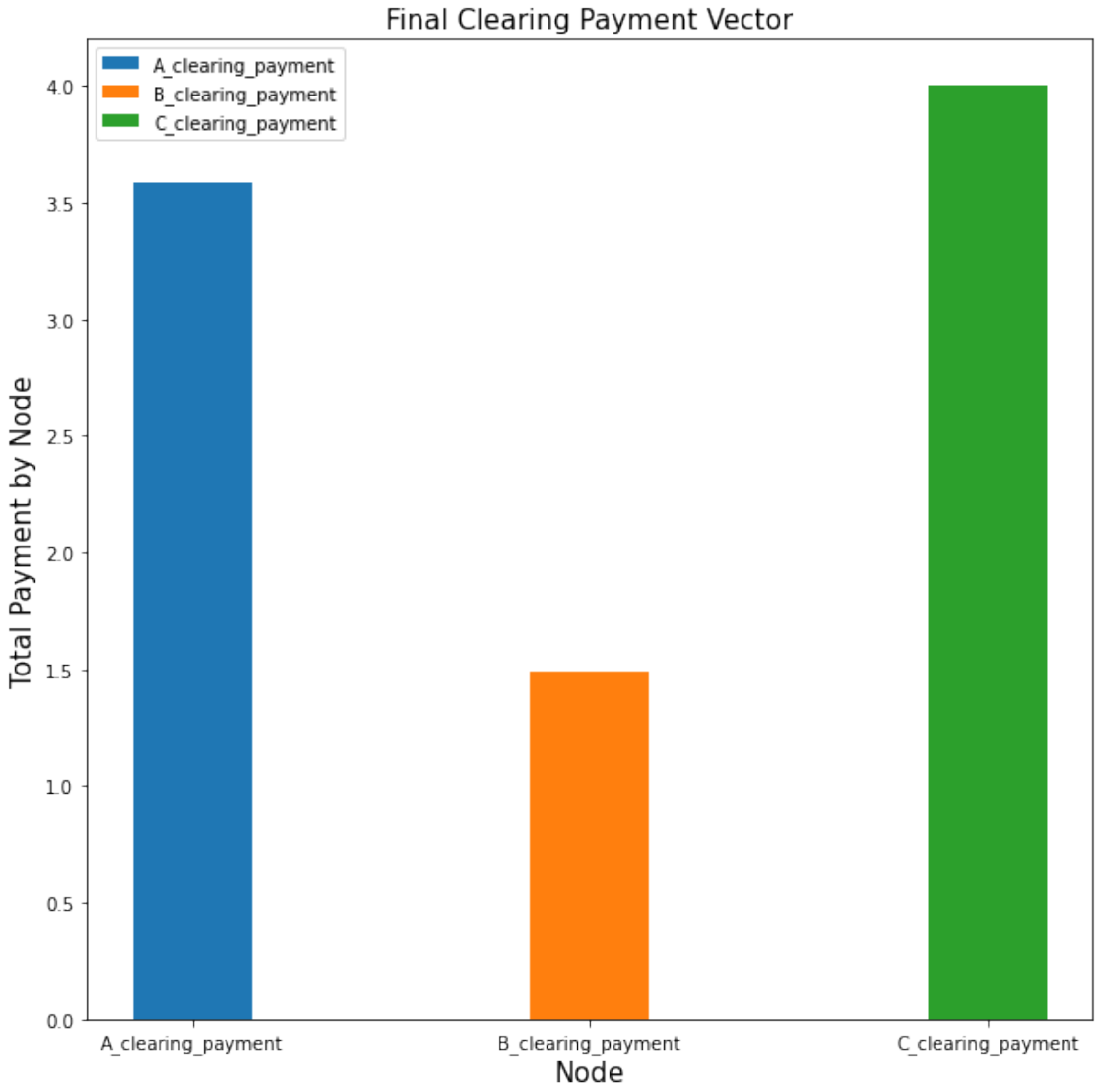
```
paid in full or all available cash flow (i.e. sum of the payments received by
the node plus the exogenous operating cash flow) is paid to creditors. Nominal
obligations were 16.0,  Dollar payment was 1.486699866391352 and Total cash flow
was 1.6518887404348355

Node B in round 30 passes candidate clearing vector payment entry checks.

***Checking limited liability and absolute priority for Node C***

Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
Total payments in to Node C is 3.769768006801895 in round 30.

- Limited liability is met. Node C made a payment of 4.0 in round 30 which is
less than or equal to the cash flow (payments in + exogenous cash) of
7.769768006801895.
Total nominal obligation for Node C (i.e. p_bar_3): 4.0
Total dollar payment (i.e. liabilities) by Node C (i.e. p_3) is 4.0
Relative Payment in to Node C from Node A is 0.8181818181818182
Total dollar payment (i.e. liabilities) by Node A (i.e. p_1) is
3.585388072391595
Relative Payment in to Node C from Node B is 0.5625
Total dollar payment (i.e. liabilities) by Node B (i.e. p_2) is
1.486699866391352
Total payments in to Node C is 3.769768006801895 in round 30.

 -Checking absolute priority for Node C in round 30. Nominal obligations is 4.0
and Dollar payments is 4.0
-Absolute priority is satisfied for Node C

- Absolute priority is met by Node C in round 30 i.e. either obligations are
paid in full or all available cash flow (i.e. sum of the payments received by
the node plus the exogenous operating cash flow) is paid to creditors. Nominal
obligations were 4.0,  Dollar payment was 4.0 and Total cash flow was
7.769768006801895

Node C in round 30 passes candidate clearing vector payment entry checks.

--------------------------------------------------------

CLEARING_PAYMENT_VECTOR

Clearing payment vector found in round 30.
```

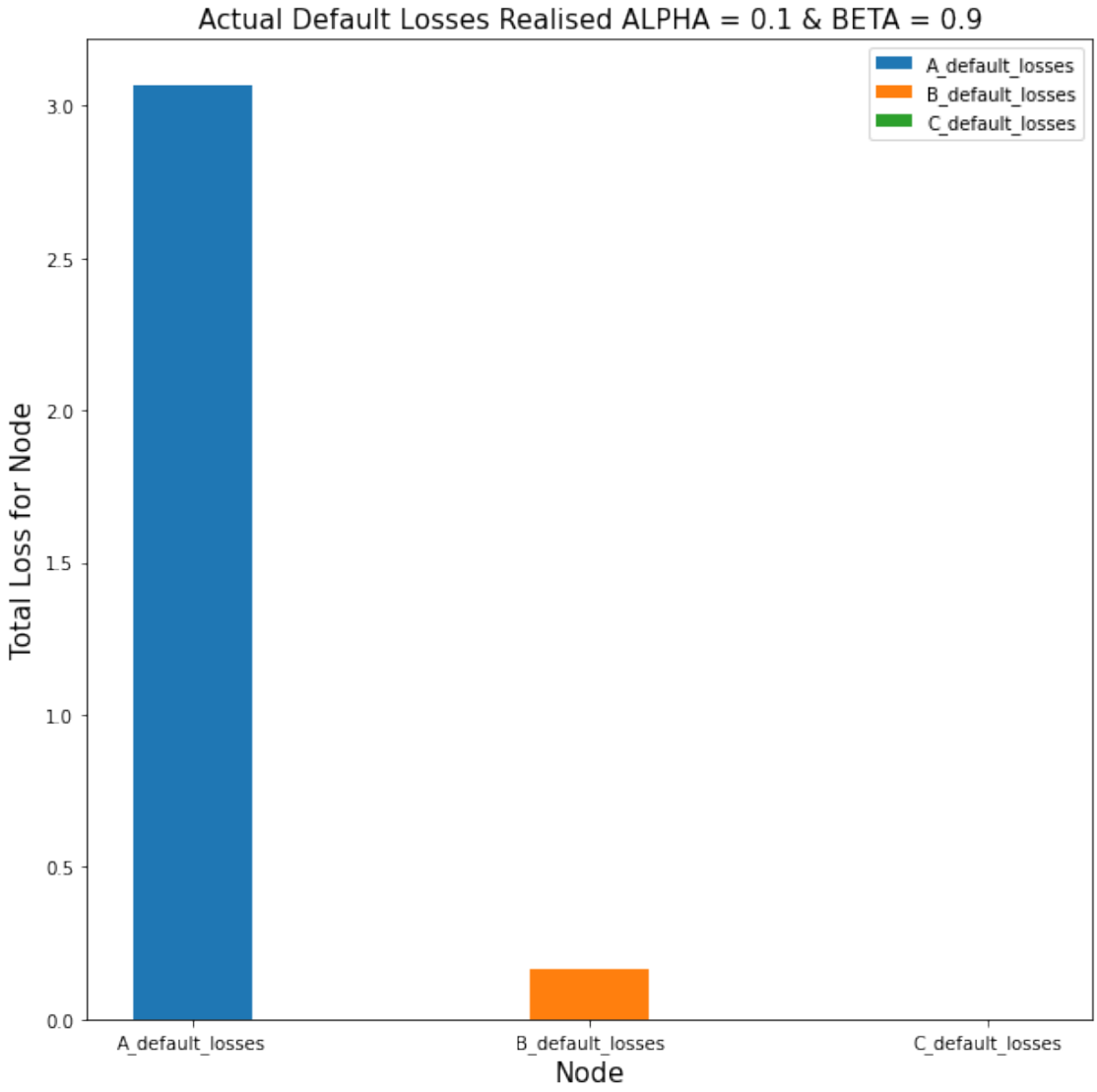
```
[3.585388072391595, 1.486699866391352, 4.0]
Node A pays: 3.585388072391595
Node B pays: 1.486699866391352
Node C pays: 4.0
Default loss incurred by Node A is: 3.0650431191546215
Default loss incurred by Node B is: 0.16518887404348348
Default loss incurred by Node C is: 0

------------------------------------------------------------

END OF ROUND 30
- Systemic Risk: Node B has defaulted in round 1. The number of prior default
waves is 0. There are 3 nodes in the system (0 of which have defaulted i.e. []).
- Systemic Risk: Node A has defaulted in round 2. The number of prior default
waves is 1. There are 3 nodes in the system (1 of which have defaulted i.e.
['B']).
- Systemic Risk: Node C has not defaulted after 30 rounds. There are 3 nodes in
the  system (2 of which have defaulted i.e. ['B', 'A']).


------------------------------------------------------------


Scenario 5 - Firm B defaults in first round, Firm A in second round, MODE ==
'MANUAL', NUM_AGENTS = 3, NOMINAL_LIABILITY_MATRIX =
np.array([[0,2,9],[7,0,9],[3,1,0]]), OPERATING_CASHFLOW_BEFORE_SHOCK = [11, 8,
12], ALPHA = 0.1, BETA = 0.9

------------------------------------------------------------
```


Total Nominal Obligations
A_nominal_obligation
B_nominal_obligation
C_nominal_obligation
Total Nominal Obligation
0
2
4
6
8
10
12
14
16
A_nominal_obligation
B_nominal_obligation
C_nominal_obligation
Node

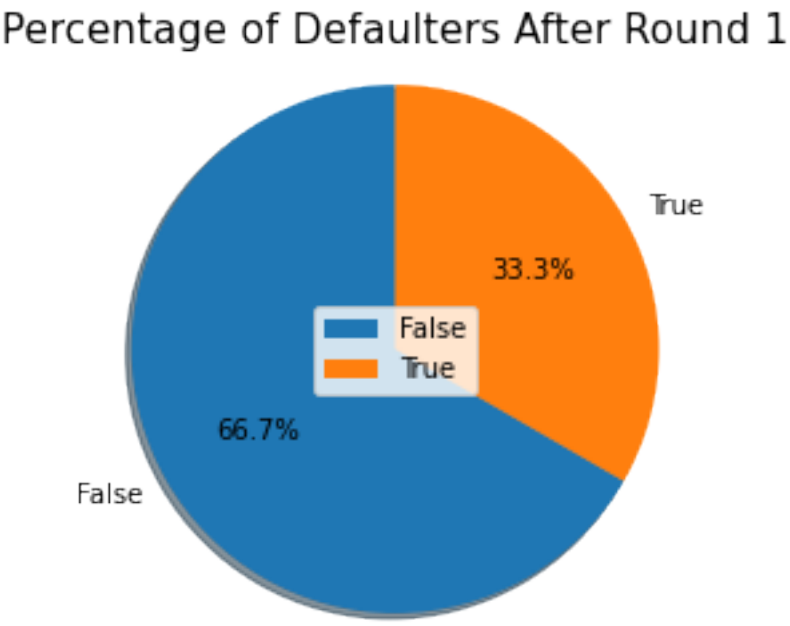

Equity by Round
A_equity
B_equity
C_equity
Equity or Book Value
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Round


Total Dollar Payment Vector by round
A_payment
B_payment
C_payment
Total Dollar Payment by Node
Round
0
2
4
6
8
10
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30

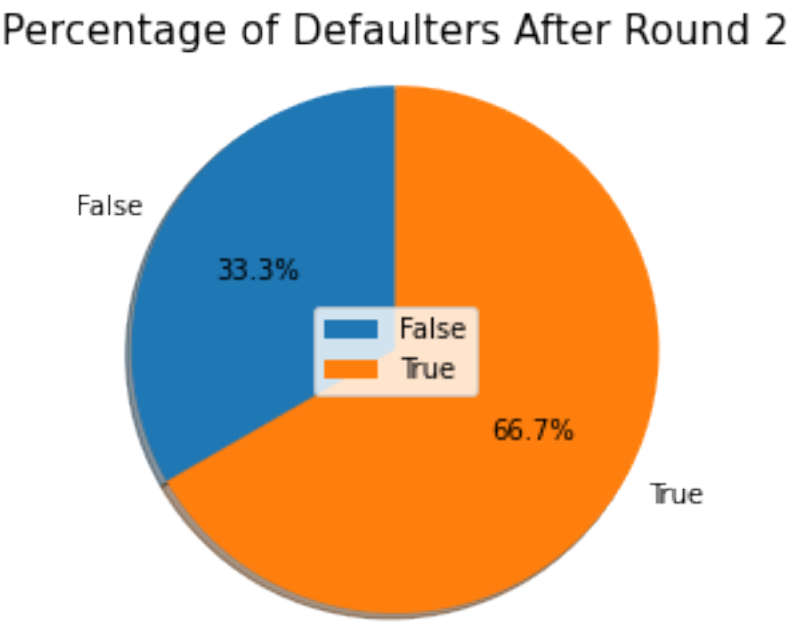

Final Clearing Payment Vector
A_clearing_payment
B_clearing_payment
C_clearing_payment
Total Payment by Node
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
A_clearing_payment
B_clearing_payment
C_clearing_payment
Node



ALPHA and BETA are the fraction of exogenous assets (outside financial network) and endogenous assets (inside financial network i.e. interbank obligations) that are realised on liquidation in the event of default. The two fractions may conceivably be different; we would typically expect that ALPHA would be low,because the bank would be having to sell off its loan portfolio, probably at a knock-down price or fire sale. In contrast, BETA might be much closer to 1, because an obligation from a solvent bank would probably be paid in full (though perhaps with some negotiated discount to compensate for the inconvenience of early repayment).

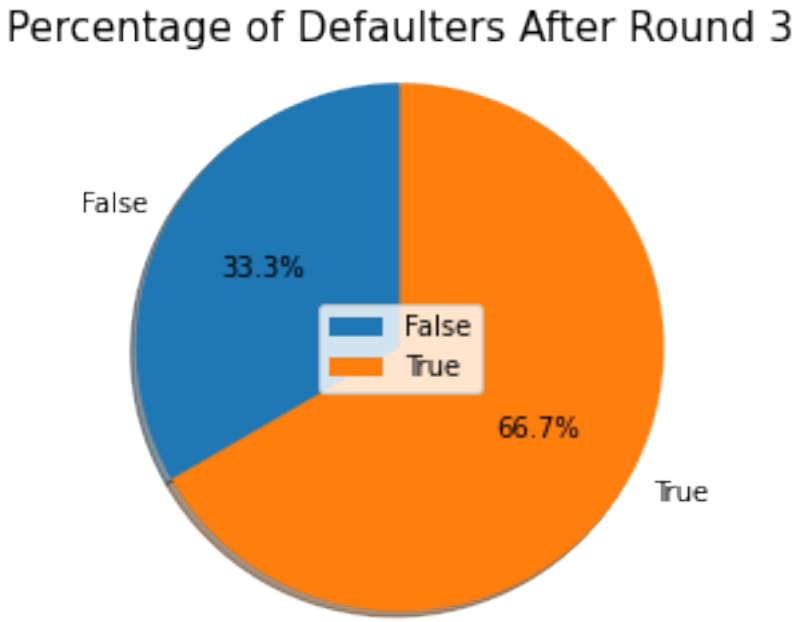



```
Node A has NOT defaulted in round 1
Node B has defaulted in round 1
Node C has NOT defaulted in round 1
```

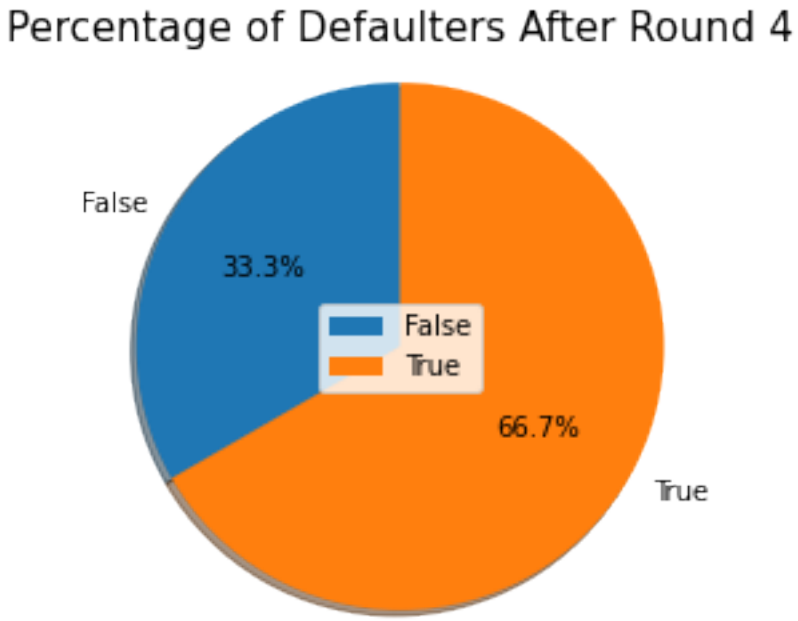



```
Node A has defaulted in round 2
```

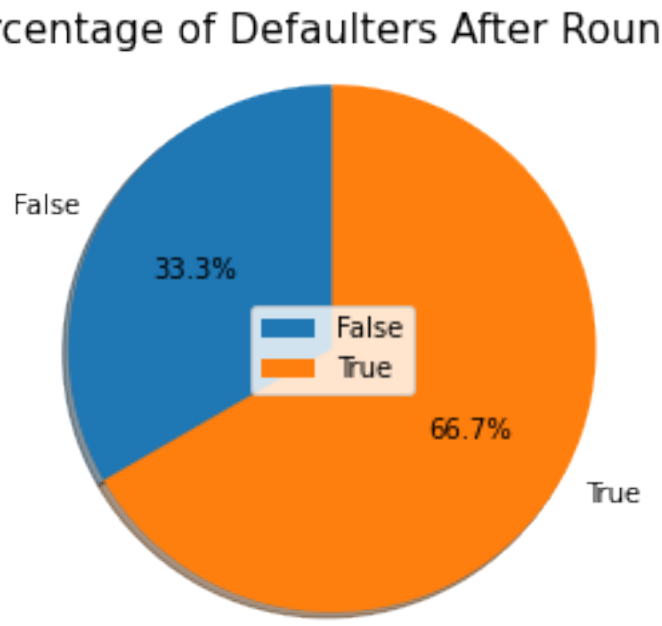
```
Node B has defaulted in round 2
Node C has NOT defaulted in round 2
```



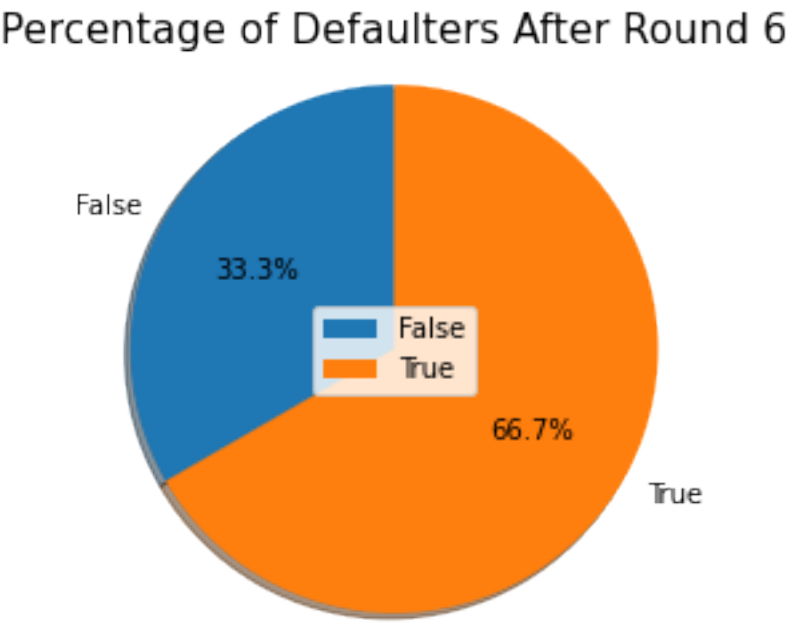

```
Node A has defaulted in round 3
Node B has defaulted in round 3
Node C has NOT defaulted in round 3
```



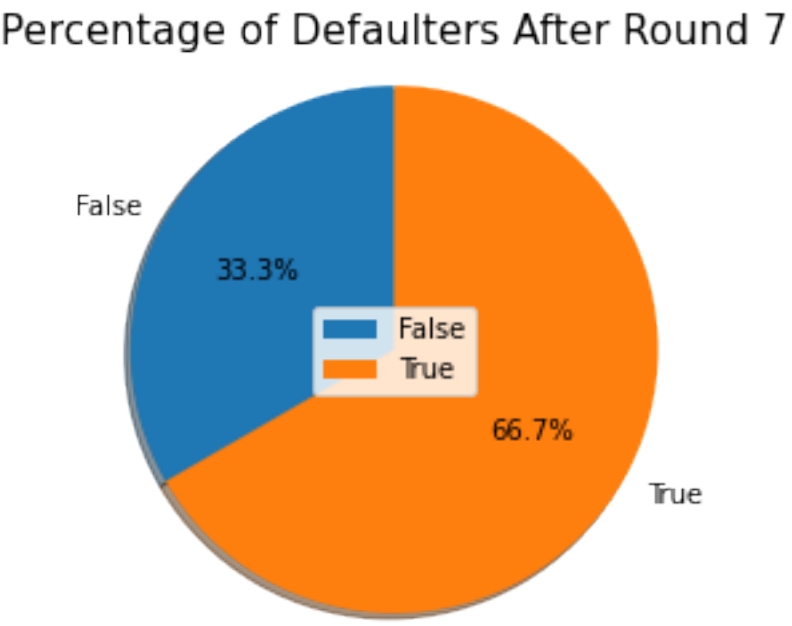
```
Node A has defaulted in round 4
Node B has defaulted in round 4
Node C has NOT defaulted in round 4
```




```
Node A has defaulted in round 5
Node B has defaulted in round 5
Node C has NOT defaulted in round 5
```

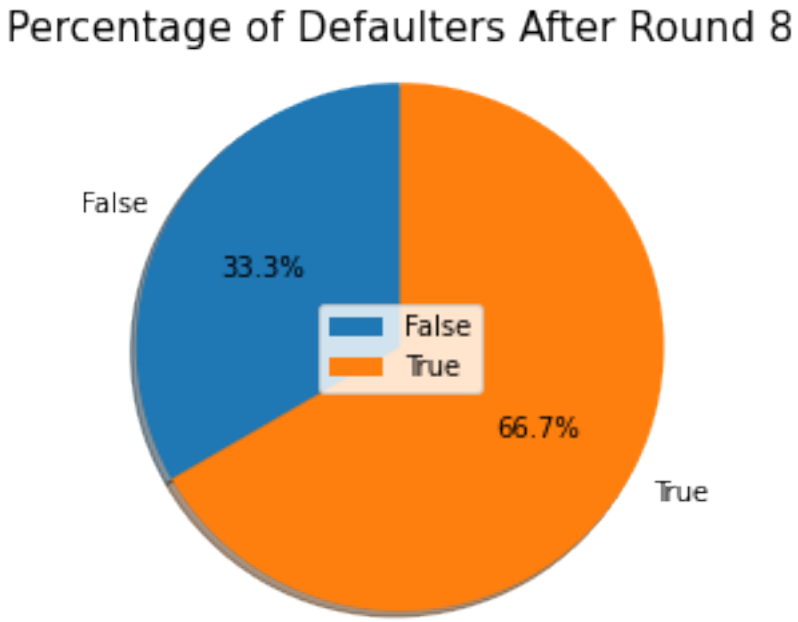



```
Node A has defaulted in round 6
Node B has defaulted in round 6
Node C has NOT defaulted in round 6
```

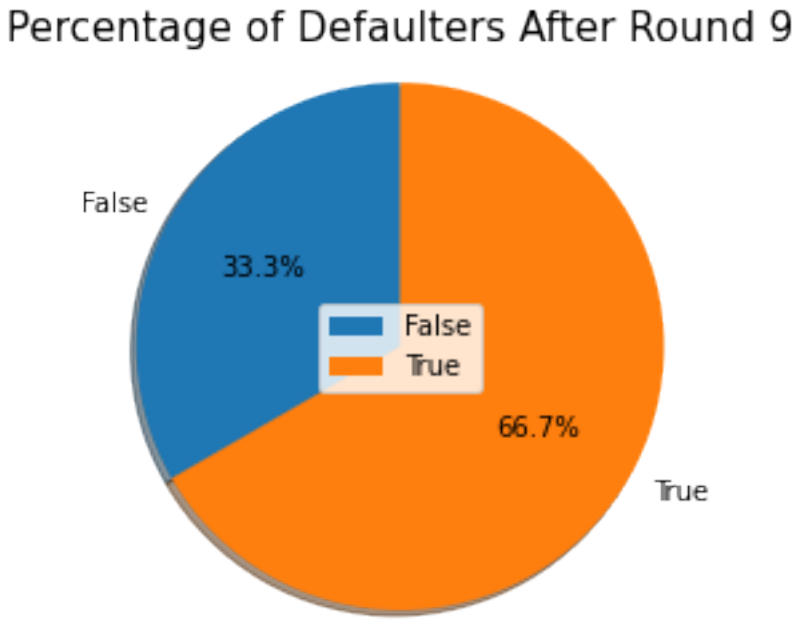



```
Node A has defaulted in round 7
```

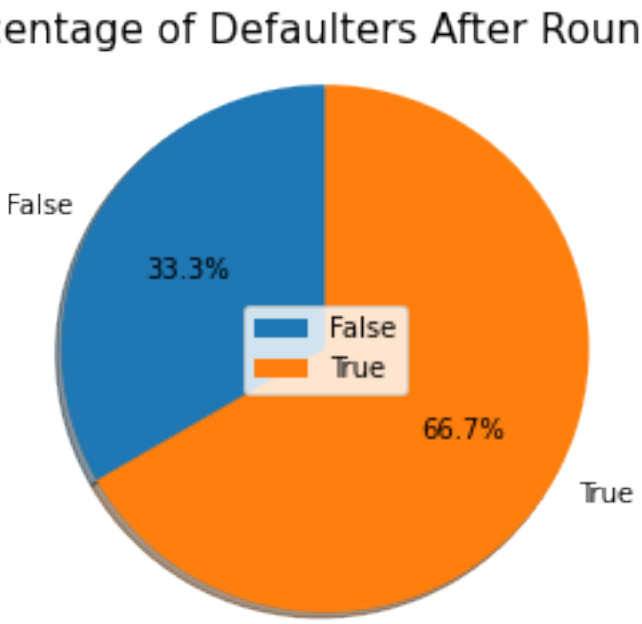
```
Node B has defaulted in round 7
Node C has NOT defaulted in round 7
```



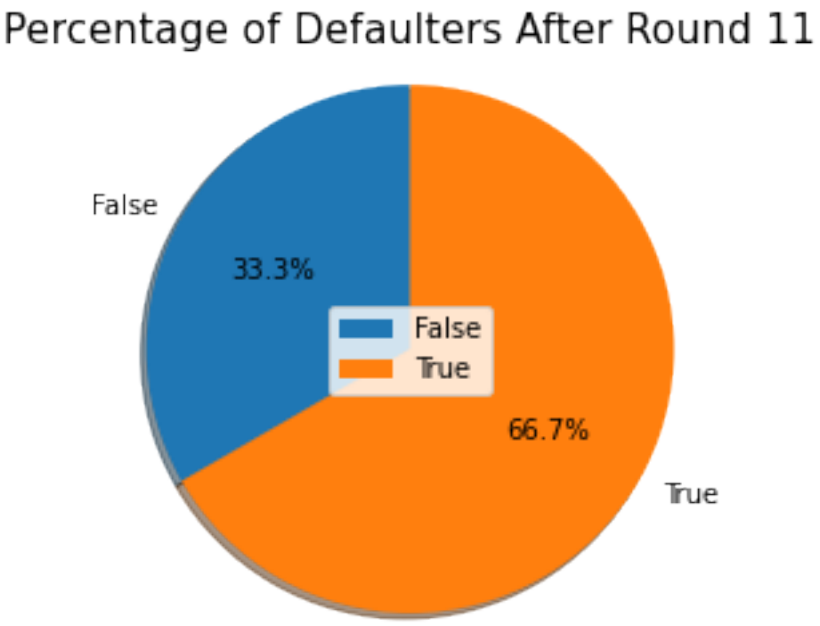

```
Node A has defaulted in round 8
Node B has defaulted in round 8
Node C has NOT defaulted in round 8
```



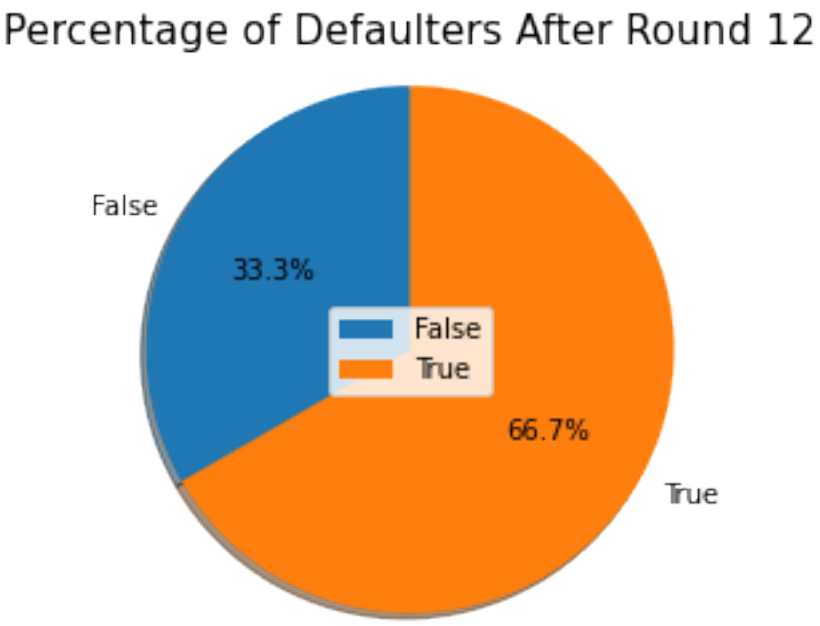
```
Node A has defaulted in round 9
Node B has defaulted in round 9
Node C has NOT defaulted in round 9
```




```
Node A has defaulted in round 10
Node B has defaulted in round 10
Node C has NOT defaulted in round 10
```

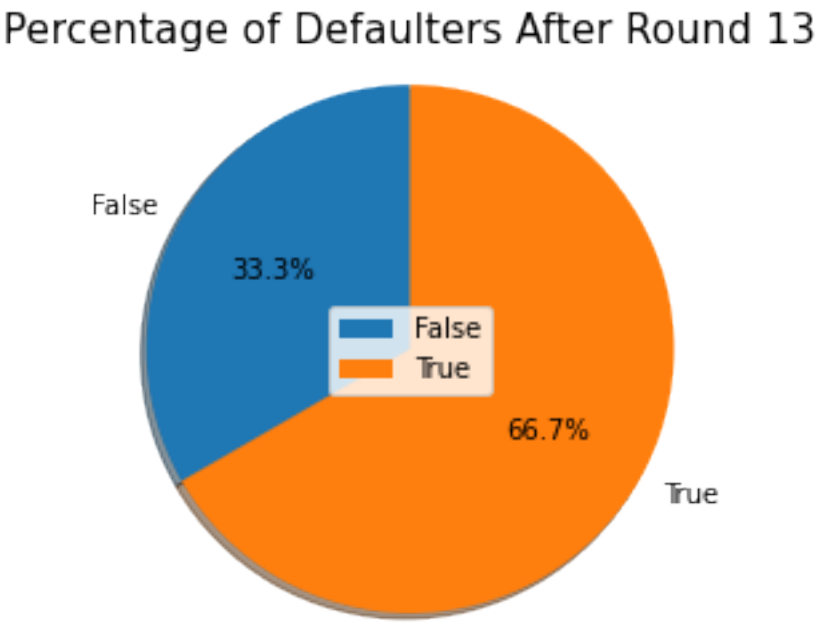



```
Node A has defaulted in round 11
Node B has defaulted in round 11
Node C has NOT defaulted in round 11
```

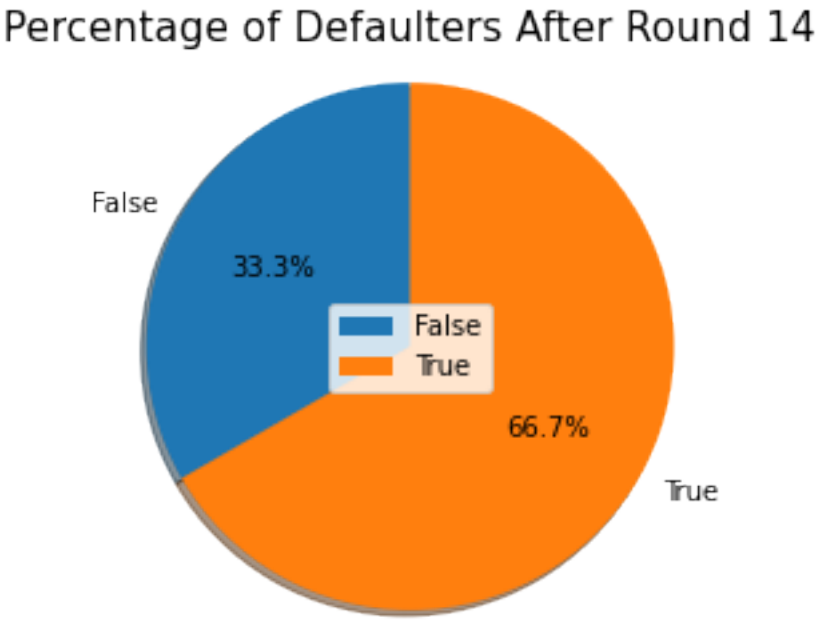



```
Node A has defaulted in round 12
```

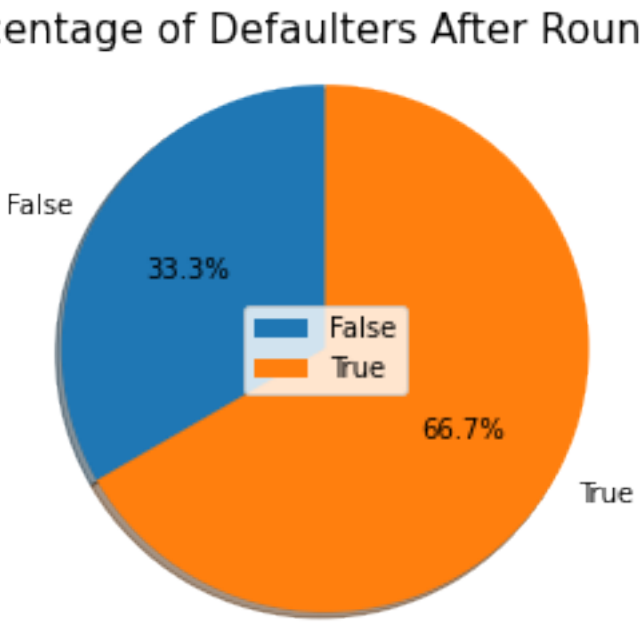
```
Node B has defaulted in round 12
Node C has NOT defaulted in round 12
```



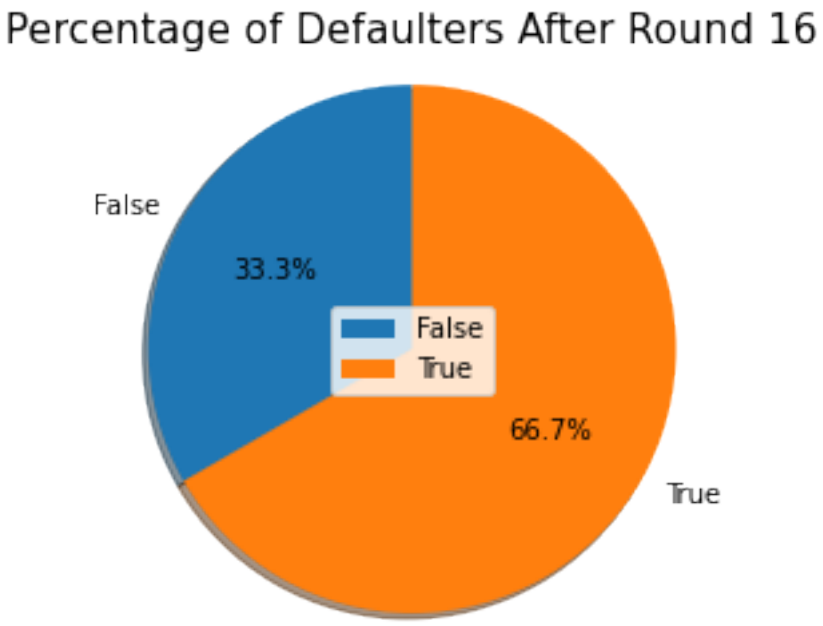

```
Node A has defaulted in round 13
Node B has defaulted in round 13
Node C has NOT defaulted in round 13
```



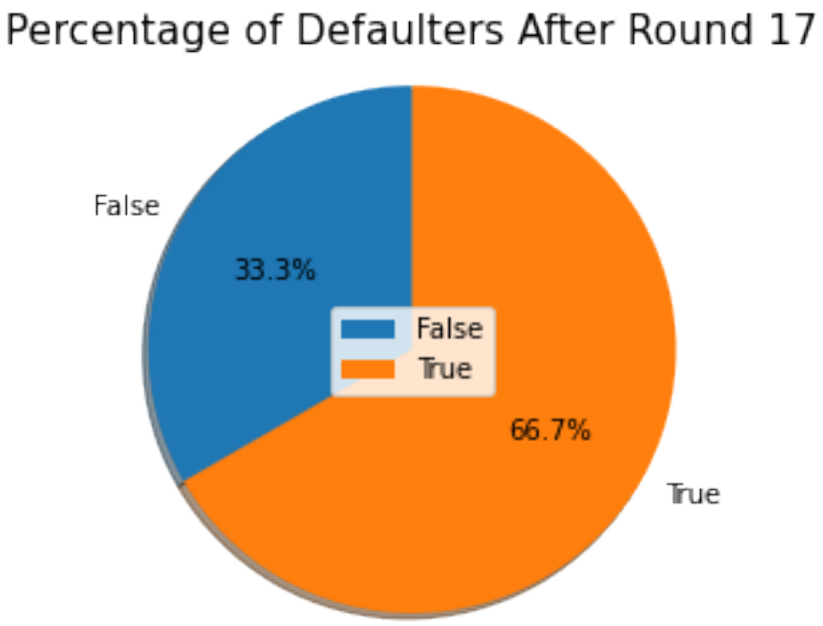
```
Node A has defaulted in round 14
Node B has defaulted in round 14
Node C has NOT defaulted in round 14
```




```
Node A has defaulted in round 15
Node B has defaulted in round 15
Node C has NOT defaulted in round 15
```

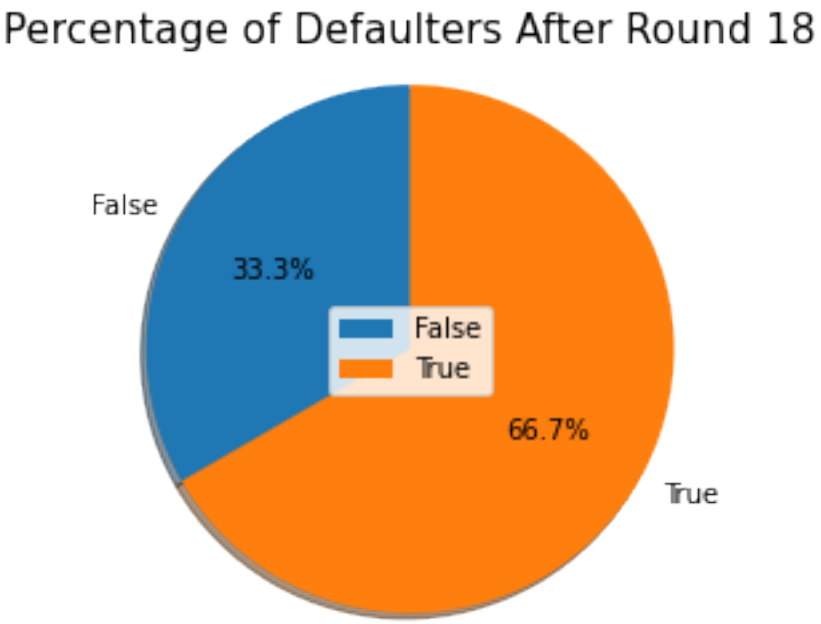



```
Node A has defaulted in round 16
Node B has defaulted in round 16
Node C has NOT defaulted in round 16
```

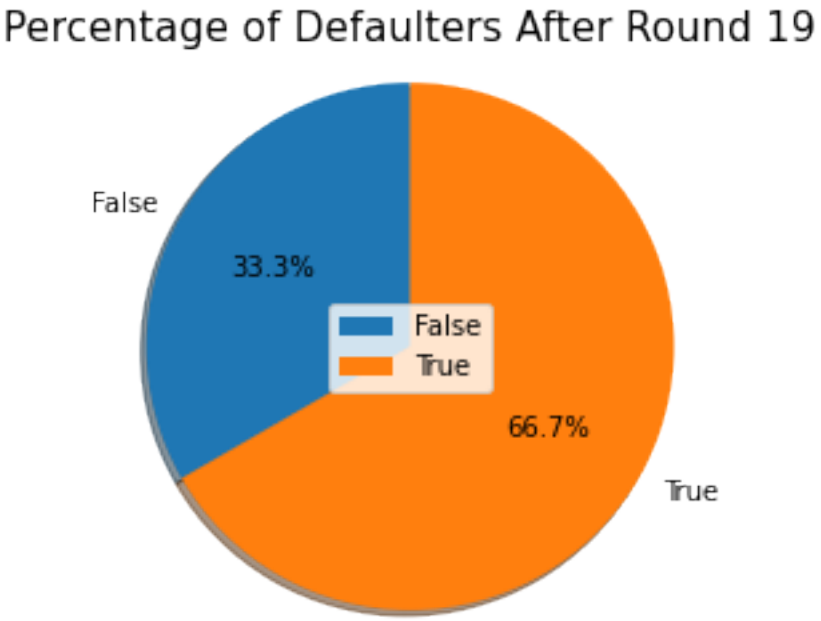



```
Node A has defaulted in round 17
```

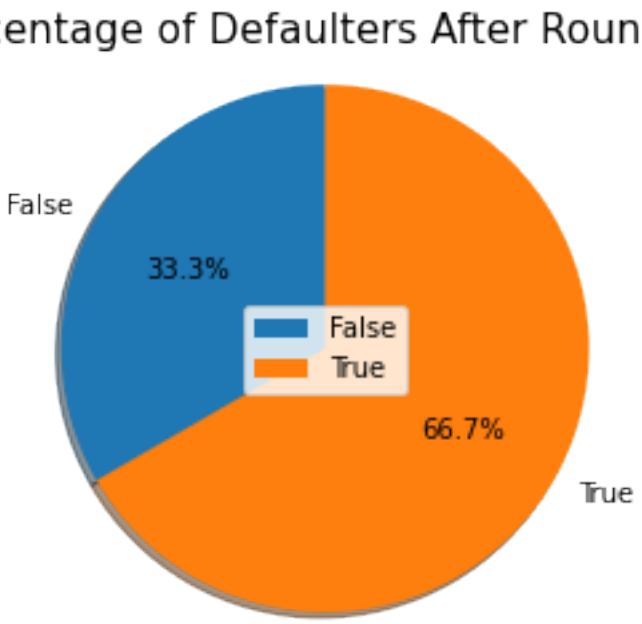
```
Node B has defaulted in round 17
Node C has NOT defaulted in round 17
```



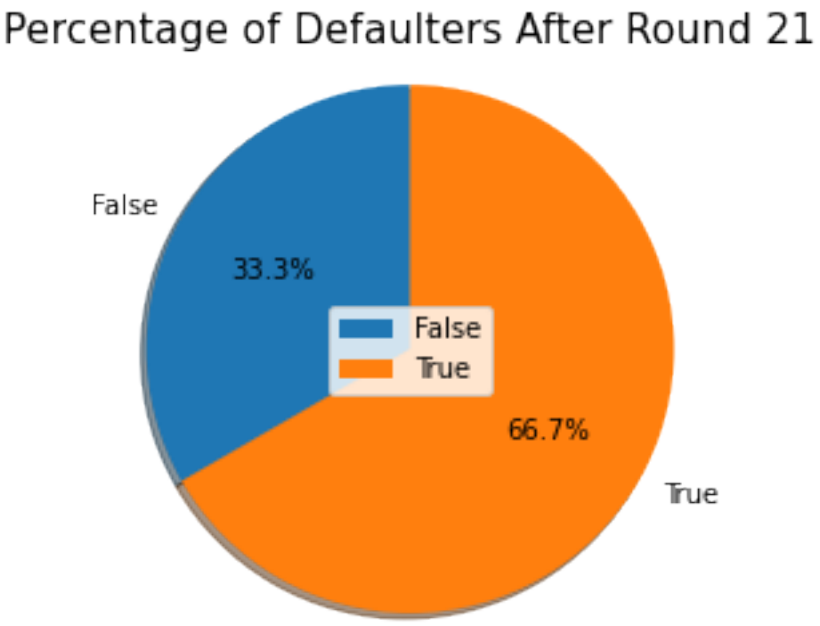

```
Node A has defaulted in round 18
Node B has defaulted in round 18
Node C has NOT defaulted in round 18
```



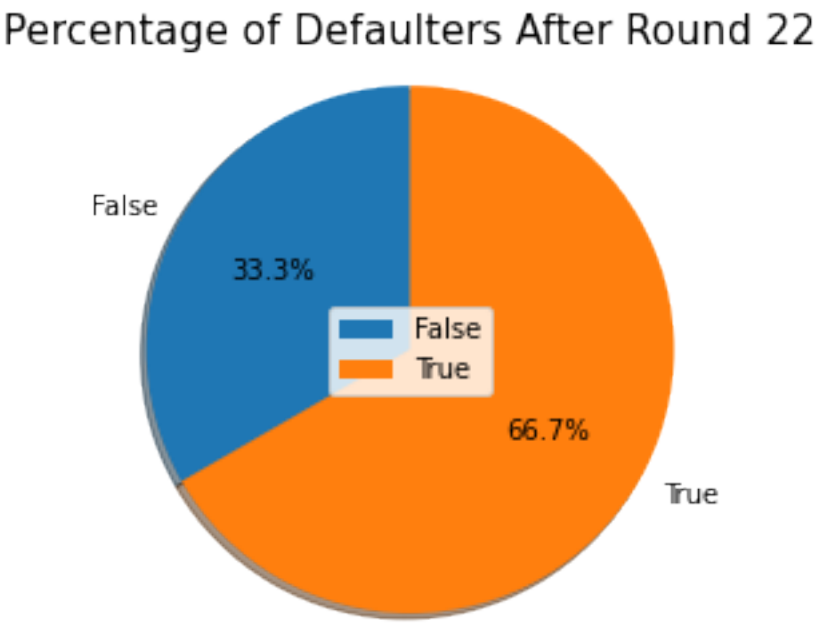
```
Node A has defaulted in round 19
Node B has defaulted in round 19
Node C has NOT defaulted in round 19
```




```
Node A has defaulted in round 20
Node B has defaulted in round 20
Node C has NOT defaulted in round 20
```

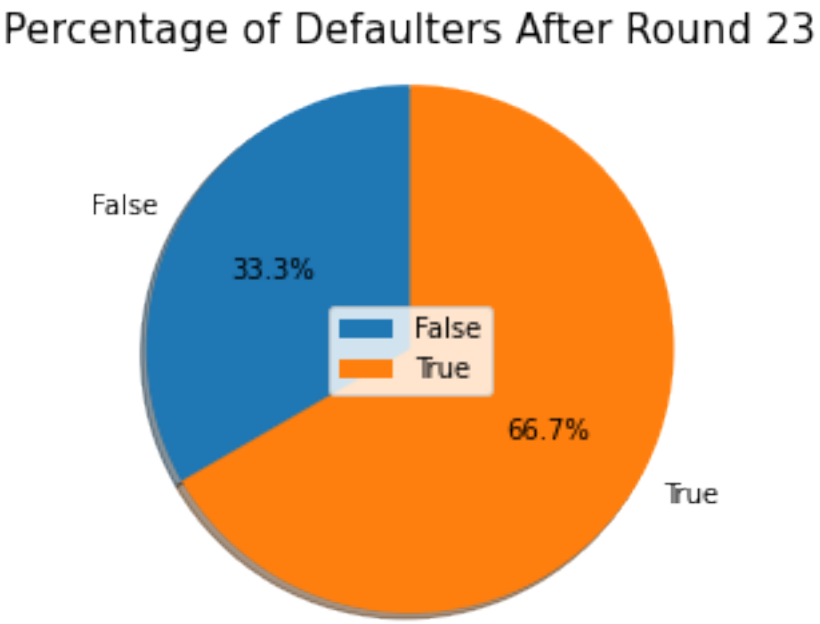



```
Node A has defaulted in round 21
Node B has defaulted in round 21
Node C has NOT defaulted in round 21
```

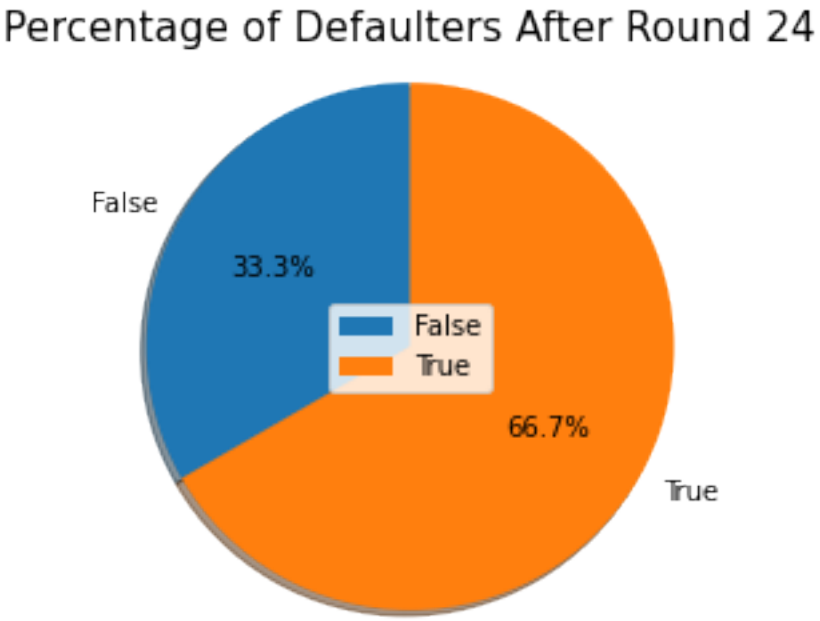



```
Node A has defaulted in round 22
```

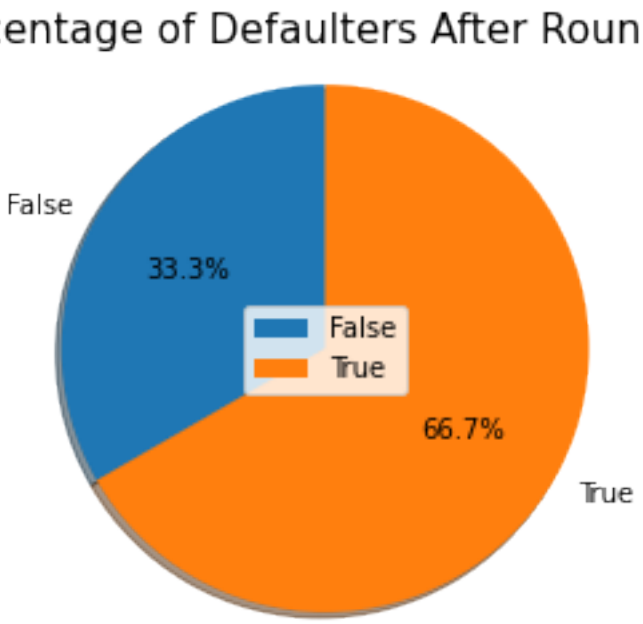
```
Node B has defaulted in round 22
Node C has NOT defaulted in round 22
```



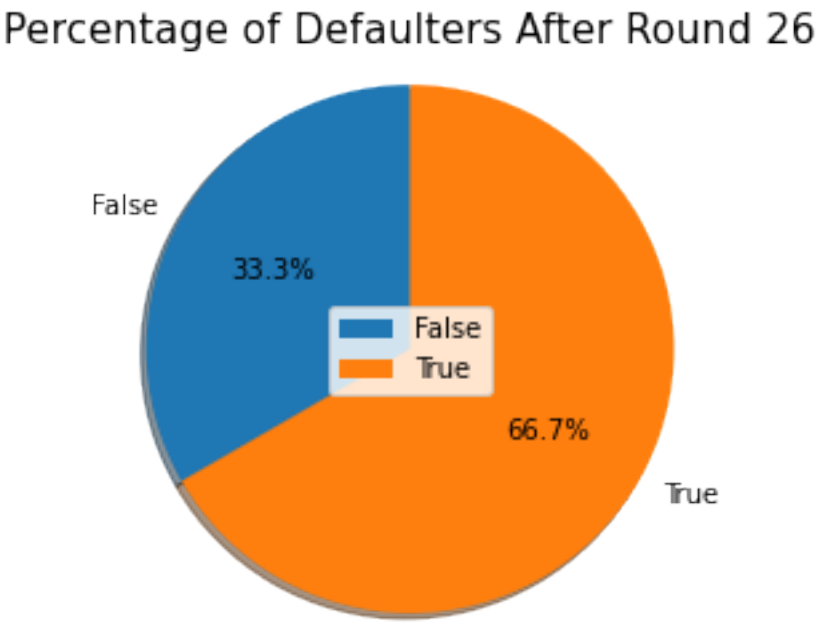

```
Node A has defaulted in round 23
Node B has defaulted in round 23
Node C has NOT defaulted in round 23
```



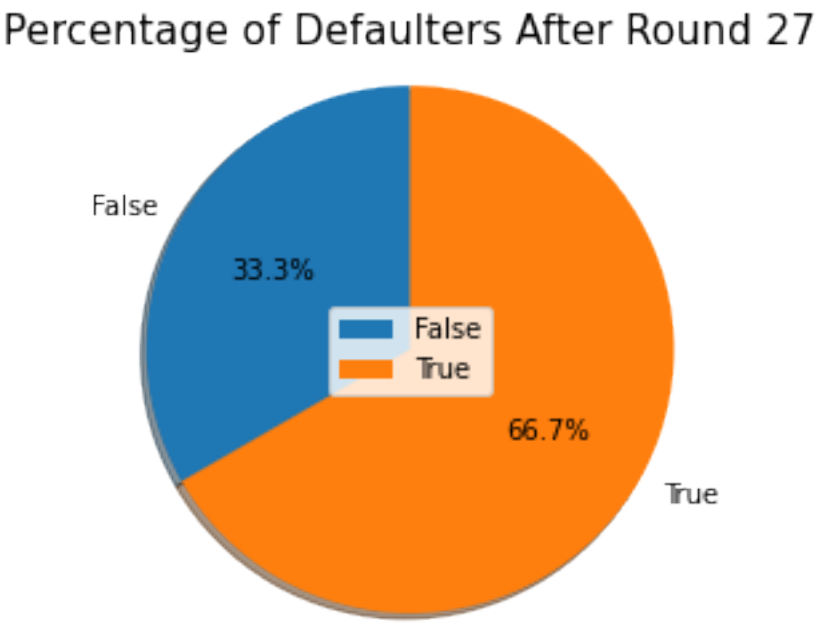
```
Node A has defaulted in round 24
Node B has defaulted in round 24
Node C has NOT defaulted in round 24
```




```
Node A has defaulted in round 25
Node B has defaulted in round 25
Node C has NOT defaulted in round 25
```

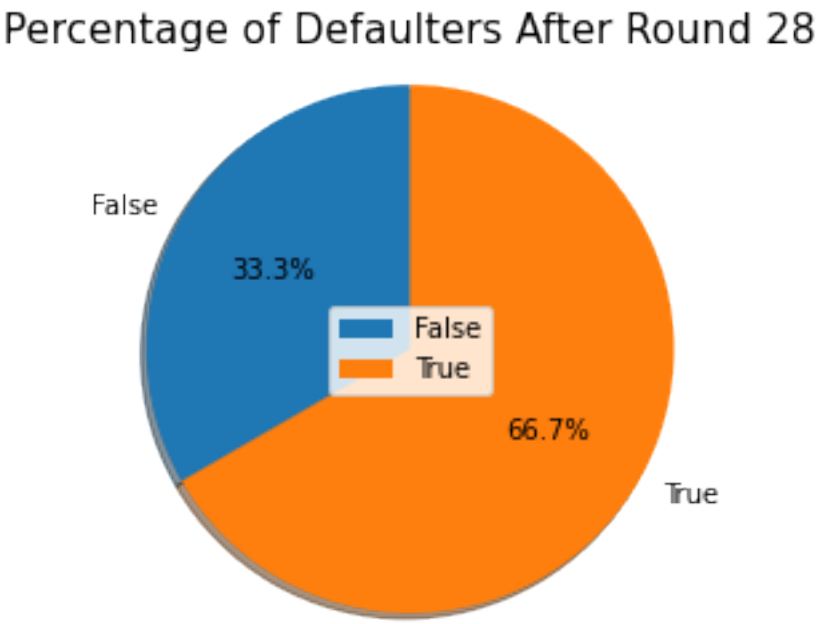



```
Node A has defaulted in round 26
Node B has defaulted in round 26
Node C has NOT defaulted in round 26
```

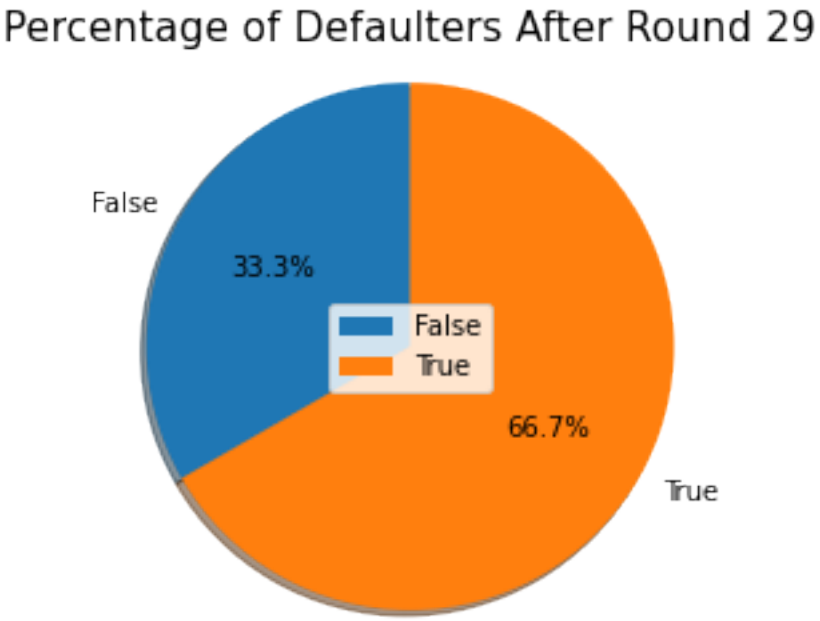



```
Node A has defaulted in round 27
```

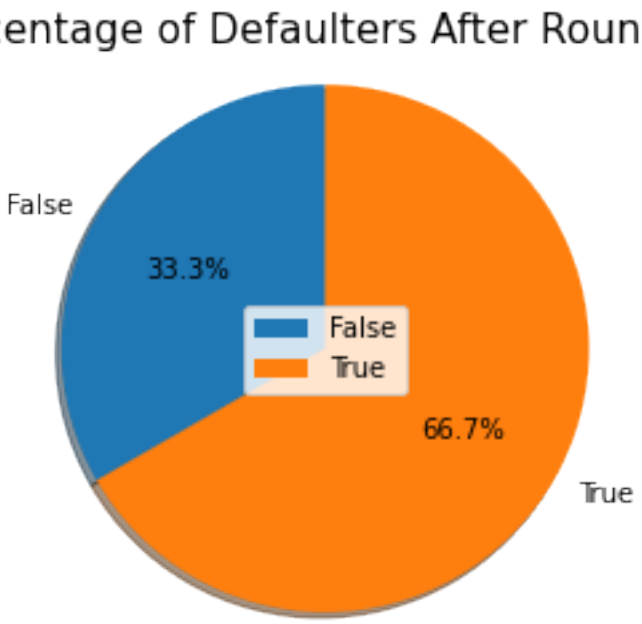
```
Node B has defaulted in round 27
Node C has NOT defaulted in round 27
```




```
Node A has defaulted in round 28
Node B has defaulted in round 28
Node C has NOT defaulted in round 28
```



```
Node A has defaulted in round 29
Node B has defaulted in round 29
Node C has NOT defaulted in round 29
```




```
Node A has defaulted in round 30
Node B has defaulted in round 30
Node C has NOT defaulted in round 30

------------------------------------------------------------
```