CheggSolutions - Thegdp

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## Finance: NPV and Reducing Float

Given data and introduction:

- Current bank: Floyd Bank
- Collections handled daily: $3.3 million
- Compensating balance required: $340,000

Proposed new system:

- Banks A and B:
- Collections handled daily by each: $1.65 million (each)
- Compensating balance required by each: $175,000
- Total compensating balance required: $175,000 + $175,000 = $350,000

Bank management expects collections to be accelerated by one day.

The T-bill rate: 2.2% annually

### Part (a): NPV of accepting the system

#### Step 1: Calculate the difference in compensating balances

Current compensating balance: 340,000 USD

Proposed compensating balance in new system: 175,000 USD + 175,000 USD = 350,000 USD

Difference in compensating balances: 350,000 - 340,000 = 10,000 USD

The difference in compensating balances between the current system and the proposed system is $10,000.

#### Step 2: Calculate the reduction in collections float

Since collections are accelerated by one day: 3.3 million USD/day

The company will be able to access an additional $3.3 million one day earlier.

#### Step 3: Calculate the NPV of the system

Calculate the annual benefits from the accelerated collections: 3,300,000 × 0.022 = 72,600 USD/year

Calculate the total annual savings, considering reduced balances and accelerated collections: 72,600 + (340,000 - 350,000) × 0.022 = 72,600 + (-10,000) × 0.022 = 72,600 - 220 = 72,380

The annual savings due to the new system considering both the reduced collection float, and the additional compensating balance.

Final Answer (a): NPV = 72,380 USD

### Part (b): Annual net savings

#### Step 4: Calculation

Annual net savings are the gains from the accelerated collection minus the interest lost on the increased compensating balance: 72,380 USD/year

Using the previously calculated values, the net savings from the system includes both the benefit from accelerated collections and the minor increase in the compensating balance.

Final Answer (b): Annual net savings = 72,380 USD

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