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**NOTES TO THE FINANCIAL STATEMENTS**


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**NOTE 7: DERIVATIVE INSTRUMENTS**


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**A. Summary Information****Component Unit – University of North Carolina System**

The following table summarizes the University of North Carolina (UNC) System's significant derivative instruments. It includes the fair value balances and notional amounts of derivative instruments outstanding at June 30, 2022, classified by type, and the changes in fair value of such derivative instruments for the fiscal year then ended (dollars in thousands).

Type	(a) Changes in Fair Value	(b) Fair Value at June 30, 2022	Fair Value Measurements Using		Notional
			Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	
UNC at Chapel Hill:					
Cash flow hedges:					
Pay-fixed interest rate swaps	\$ 50,447	\$ (68,533)	\$ -	\$ (68,533)	\$ 250,000
Investment derivatives:					
Pay-fixed interest rate swaps	\$ 729	\$ (467)	\$ -	\$ (467)	\$ 7,740
U.S. dollar equity futures	\$ (23,633)	\$ (1,191)	\$ (1,191)	\$ -	\$ 142,106
Total	\$ (22,904)	\$ (1,658)	\$ (1,191)	\$ (467)	

- (a) For the fiscal year ended June 30, 2022, the changes in fair value of cash flow hedges are classified as both *deferred outflows of resources* and *deferred inflows of resources*, and the changes in fair value of investment derivatives are classified as *operating grants and contributions*.
- (b) At June 30, 2022, the fair value balances of cash flow hedges outstanding are classified as both *hedging derivative asset* and *hedging derivative liability*. The fair value balances of investment derivatives outstanding are classified as *investments*, except that investment derivatives with a negative fair value are classified as *accounts payable and accrued liabilities*. For the UNC System, the total fair value of cash flow hedges at June 30, 2022 was negative \$71.42 million.

The fair value measurements are categorized within the fair value hierarchy established by generally accepted accounting principles. The U.S. dollar futures classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets for those securities. The pay-fixed interest rate swaps (cash flow hedges and investment derivatives) classified in Level 2 of the fair value hierarchy are valued using discounted cash flow techniques.

**B. Hedging Derivative Instruments****Component Unit – University of North Carolina System**

The following table displays the objectives and terms of the UNC System's significant hedging derivative instruments outstanding at June 30, 2022 (dollars in thousands):

Type	Objective	Notional Amount	Effective Date	Maturity Date	Terms
UNC at Chapel Hill:					
Pay-fixed interest rate swap	Hedge changes in cash flows on variable rate debt	\$ 100,000	12/1/07	12/1/36	Pay 3.314%; receive 67% of SOFR + 7.4 basis point
Pay-fixed interest rate swap	Hedge changes in cash flows on variable rate debt	\$ 150,000	12/1/11	12/1/41	Pay 4.375%; receive 67% of SOFR + 7.4 basis point

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The UNC System's significant hedging derivative instruments are exposed to the following risks that could give rise to financial loss:

*UNC at Chapel Hill*

*Interest rate risk.* UNC at Chapel Hill (University) is exposed to interest rate risk on its interest rate swaps which is largely offset (or expected to be offset) by rates paid on variable-rate debt. In addition, the fair values of these instruments are highly sensitive to changes in interest rates. Because rates have declined significantly since the effective dates of the swaps, the swaps have a negative fair value as of June 30, 2022. The fair values are calculated as of June 30, 2022 and based on the implied forward rate for 67% of SOFR plus 7.4 basis points. As rates rise, the value of the swaps will increase, and as rates fall, the fair value of the swaps will decrease.

*Basis risk.* The University is exposed to basis risk on the swaps to the extent there is a mismatch between variable bond rates paid and swap index rates received.

*Termination risk.* The swap agreements use the International Swaps and Derivatives Association (ISDA) Master Agreement, which includes standard termination events, such as failure to pay and bankruptcy. Termination could result in the University being required to make an unanticipated termination payment. The swaps may mandatorily terminate if the University fails to perform under terms of the contract.

Information on debt service requirements on long-term debt of the primary government and component units and net cash flows on associated hedging derivative instruments is presented in Note 8E.

**C. Investment Derivative Instruments****Primary Government**

The North Carolina Department of State Treasurer External Investment Pool (External Investment Pool) has investments in equity and commodity futures, foreign currency forward and spot currency contracts. More detailed information about the External Investment Pool is available in a separate report (see Note 3A).

**Component Unit – University of North Carolina System**

The University of North Carolina System's investment derivative instruments are exposed to the following risks that could give rise to financial loss:

*UNC at Chapel Hill*

*Interest rate risk.* The University is exposed to interest rate risk on its interest rate swap. The fair value of this instrument is highly sensitive to interest rate changes. Because rates have changed since the effective dates of the swap, the swap has a negative fair value as of June 30, 2022. The negative fair value may be countered by a reduction in total interest payments required under the variable-rate bonds, creating lower synthetic interest rates. As forward rates rise, the value of the swap will increase and as rates fall, the value of the swap will decrease. The University pays 5.24% and receives Securities Industry and Financial Markets Association (SIFMA) Swap Index rate. On June 30, 2022, SIFMA Swap Index rate was .91%. The interest rate swap has a notional amount of \$7.74 million and matures November 1, 2025.

**D. Synthetic Guaranteed Investment Contracts****Primary Government**

In the Supplemental Retirement Income Plan of North Carolina, 401(k) Plan, there are synthetic guaranteed investment contracts (SGICs) within the North Carolina Stable Value Fund. SGICs are unallocated insurance contracts. There is one SGIC with The Prudential Insurance Company of America (Prudential), one SGIC with Nationwide Life Insurance Company (Nationwide Life), one SGIC with American General Life Insurance Company (American General), and one SGIC with Transamerica Life Insurance Company (Transamerica Life) which are all fully benefit responsive. The SGICs provided an average credit rating yield of 2.26%, 1.76%, 1.84%, and 1.91%, respectively. The fair value of the securities covered by the contracts as of December 31, 2021, is \$1.79 billion and the contract value is \$1.76 billion. The contracts are unrated and have a maturity of less than one year.

In the North Carolina Public Employee Deferred Compensation Plan, 457 Plan, there are SGICs within the North Carolina Stable Value Fund. SGICs are unallocated insurance contracts. There is one SGIC with Prudential, one SGIC with Nationwide Life, one SGIC with American General and one SGIC with Transamerica Life which are all fully benefit responsive. The SGICs provided an average credit rating yield of 2.26%, 1.76%, 1.84%, and 1.91%, respectively. The fair value of the securities covered by the contracts as of December 31, 2021, is \$345.59 million and the contract value is \$339.25 million. The contracts are unrated and have a maturity of less than one year.

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Both the Supplemental Retirement Income Plan of North Carolina and the North Carolina Public Employee Deferred Compensation Plan have entered into wrap contracts with Prudential, Nationwide Life, American General, and Transamerica Life to assure that the crediting rate on participant investments will not be less than zero. The wrap contracts with Prudential, Nationwide Life, American General, and Transamerica Life were determined to have no value.