1014-39-277 **Richard DeVault\*** (`rich@nsula.edu`), Department of Mathematics, Northwestern State University of Louisiana, Natchitoches, LA 71497, and **Vlajko Kocic** and **Donna Stutson**. *Global behavior of solutions of the nonlinear difference equation $x_{n+1} = p_n + x_{n-1}/x_n$.*

We study the global asymptotic behavior of solutions of the nonautonomous difference equation

$$x_{n+1} = p_n + \frac{x_{n-1}}{x_n}, \quad n = 0, 1, ...,$$

where $\{p_n\}_{n=0}^{\infty}$ is a positive bounded sequence and the initial conditions $x_{-1}$ and $x_0$ are positive. We obtain sufficient conditions for the boundedness and persistence of solutions and for the existence of unbounded solutions. In addition we obtain global attractivity results. The results are applied to the case when $\{p_n\}_{n=0}^{\infty}$ is periodic with prime period $k$. We also state some open questions related to the equation. (Received September 05, 2005)

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