Abstract. This paper attempts to clarify a preprint of Markarian (2001). Markarian's preprint proves the relative Riemann–Roch theorem using a result describing how the HKR map fails to respect comultiplication. This paper elaborates on the core computations in Markarian's preprint. These computations show that the HKR map twisted by the square root of the Todd genus "almost preserves" the Mukai pairing. This settles a part of a conjecture of Caldararu, 2005. The relative Riemann–Roch theorem follows from this and a result of Caldararu, preprint, 2003.