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For commutative algebras of finite type over noetherian rings, it will be shown that derived Hochschild functors with coefficients in certain bimodules can be expressed as compositions of derived functors over the algebra itself. Such decompositions are used to construct, in the commutative case, a theory of rigid dualizing complexes for that extends those of Van den Bergh (for finite-dimensional algebras over a field) and of Yekutieli and Zhang (for algebras of finite type over rings of finite global dimension). (Received September 15, 2009)