Using Quillen-Lurie deformation theory formalism we develop an obstruction theory for studying the stable $\infty$ category of modules over a given geometric $\infty$ stack, and produce a more general version of the Thomason-Trobaugh localization theorem for triangulated categories. This helps us identify a large class of perfect geometric stacks. Applications include Grothendieck duality. (Received September 21, 2011)