The thesis consists of three articles. The common theme of the first two articles is the possibility of iterating weak* derived sets in dual Banach spaces. In the first article we prove that in the dual of any non-reflexive Banach space we can always find a convex set of order n for any $n \in \mathbb{N}$, and a convex set of order $\omega + 1$. This result extends Ostrovskii's characterization of reflexive spaces as those spaces for which weak* derived sets coincide with weak* closures for convex sets. In the second article we prove an iterated version of another result of Ostrovskii, that a dual to a Banach space X contains a subspace whose weak* derived set is proper and norm dense, if and only if X is non-quasi-reflexive and contains an infinite-dimensional subspace with separable dual. In the third article we study quantitative results concerning ξ-Banach-Saks sets and weak ξ-Banach-Saks sets. We provide quantitative analogues to characterizations of weak ξ-Banach-Saks sets using $\ell_1^{\xi+1}$ spreading models and a quantitative version of the relation of ξ-Banach-Saks sets, weak ξ-Banach-Saks sets, norm compactness and weak compactness. We use these results to define a new measure of weak non-compactness and finally give some relevant examples.