Magnetic Properties and Electronic Structure in Transition Metal Doped La$_{0.5}$Ca$_{0.5}$Mn$_{0.98}$TM$_{0.02}$O$_3$ (TM = Cr, Ti) perovskites were studied by using the temperature dependences of magnetization and coercive field. The transition-metal doping like La$_{0.5}$Ca$_{0.5}$Mn$_{1-y}$TM$_{y}$O$_3$ (TM = transition metal) can alter the Mn$^{3+}$/Mn$^{4+}$ ratio, and lead to significant modifications in the magnetic properties. The observed reductions of Curie temperature and magnetization are interpreted with the calculated ratio of Mn$^{3+}$/Mn$^{4+}$ according to the Curie-Weiss law. The value is determined to be 0.48 for the TM-doped samples. The Mn L- and O K-edge were also measured by x-ray absorption fine-structure spectroscopy. The domain-wall pinning was investigated, as well, with the temperature dependence on coercivity at a constant field.

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Date submitted: 03 Dec 2005