AIM: This study determined the diagnostic performance of ECG-gated MSCT in comparison with conventional MSCT. MATERIALS AND METHODS: Forty-five consecutive patients prospectively underwent ECG-gated (group 1, n = 23) or non-ECG-gated (group 2, n = 22) 8-slice MSCT of the pulmonary arteries. Image data were interactively evaluated by three independent chest radiologists with respect to the presence of emboli at different arterial levels, and with regard to cardiac motion artefacts. Consensus reading by two experienced chest radiologists served as diagnostic gold standard. ROC analysis was carried out for the different vascular sections. RESULTS: Twenty-five patients (56 %) were diagnosed to have pulmonary embolism (13 from group 1, 12 from group 2). Cardiac motion artefacts were significantly more frequent in group 2 (70 % in group 2 versus 13 % in group 1, p< 0.05). There was no significant difference between the two groups in the overall sensitivities (0.92 vs. 0.95) and specificities (0.92 vs. 0.98) or in sensitivities and specificities at any assessed pulmonary arterial level. CONCLUSION: ECG-gated MSCT pulmonary angiography does not significantly influence the diagnostic performance of MSCT in these patients. Therefore no recommendation for routine clinical practice can be given.