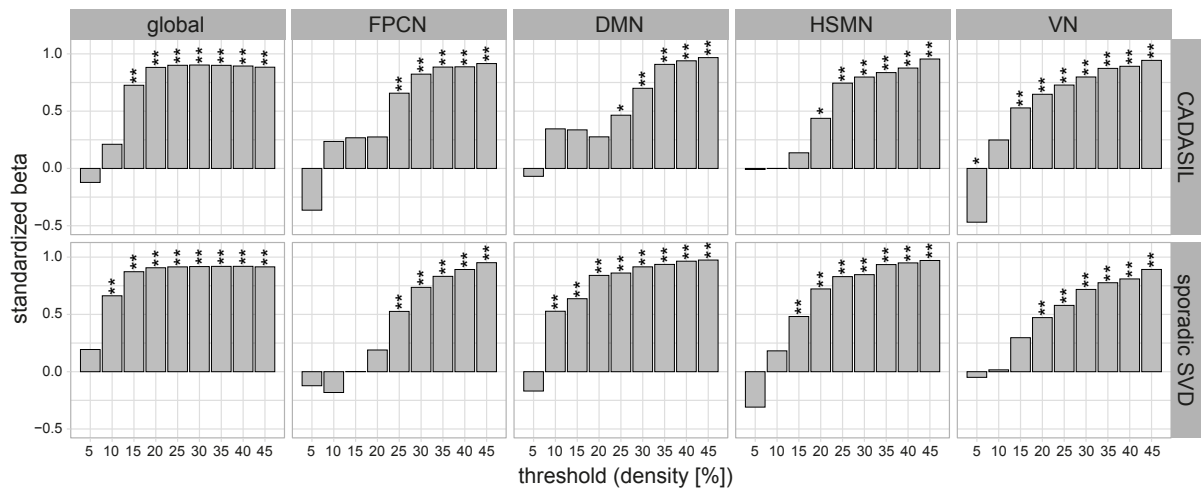


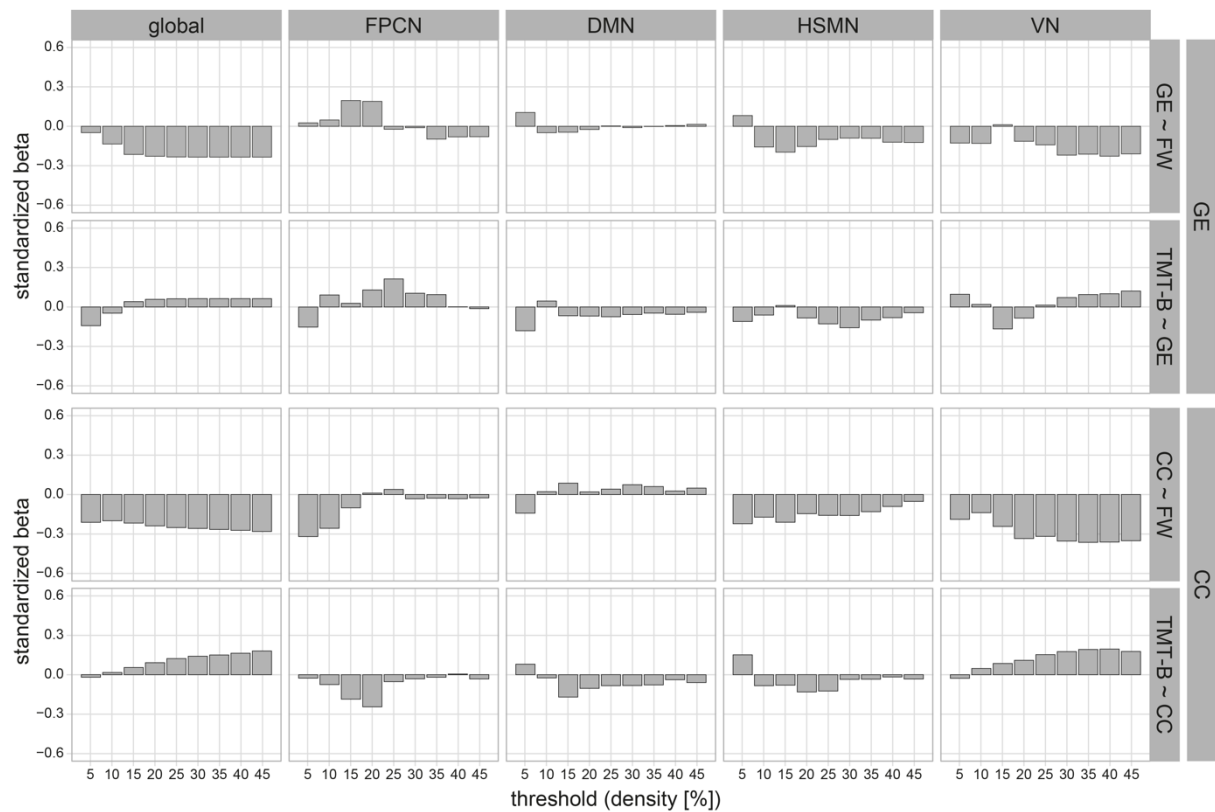
Supporting Information Table S1: MRI acquisition parameters

Sequence	Feature	CADASIL (VASCAMY)	Sporadic SVD (RUN DMC – InTENse)
3D-T1	Scanner	Skyra, 3 Tesla	Prisma, 3 Tesla
	Head coil	64-channels	32-channels
	Type	MPRAGE	MP2RAGE
	TR [ms]	2500	5500
	TE [ms]	4.37	3.84
	TI [ms]	1100	700/2500
	Flip angle [°]	7	7/4
FLAIR	Voxel size [mm]	1	0.85
	TR [ms]	5000	5000
	TE [ms]	398	394
	TI [ms]	1800	1800
FLASH	Voxel size [mm]	1	0.85
	TR [ms]	35	35
	TE [ms]	29.5	29.5
	Flip angle [°]	15	15
	Slice thickness [mm]	2	2
Multi-shell DWI	In-plane resolution [mm]	0.9 x 0.9	0.8 x 0.8
	TR [ms]	3800	3220
	TE [ms]	104.8	74
	Flip angle [°]	90	90
	Slice thickness [mm]	2	1.7
	In-plane resolution [mm]	2 x 2	1.7 x 1.7
	b-values [s/mm <sup>2</sup> ]	200/500/1000/3000	200/500/1000/3000
	Directions (per b-value)	3/6/30/60	3/6/30/60
	b=0 [n]	10	10
	multi-band acceleration factor	3	3
Multi-band EPI	TR [ms]	700	700
	TE [ms]	39	39
	Flip angle [°]	52	52
	Slice thickness [mm]	3	2.4
	In-plane resolution [mm]	3 x 3	2.4 x 2.4
	multi-band acceleration factor	8	8
	volumes	675	700
se-EPI field map	TR [ms]	7100	7100
	TE [ms]	66	66
	Flip angle [°]	90	90
	Slice thickness [mm]	3	2.4
	In-plane resolution [mm]	3 x 3	2.4 x 2.4

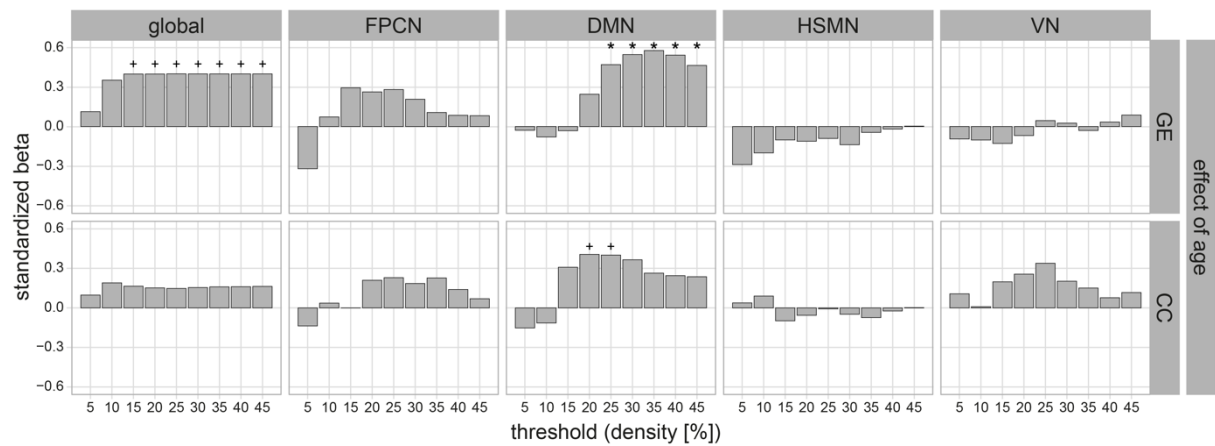
Abbreviations: DWI, diffusion-weighted imaging; EPI, echo planar imaging; FLAIR, fluid-attenuated inversion recovery; FLASH, fast low angle shot; MP(2)RAGE, magnetization prepared (2) rapid acquisition gradient echo(es); TE, echo time; TI, inversion time; TR, repetition time.



**Supporting Information Figure S1** Correlations between global efficiency and clustering coefficient (\* uncorrected-p < 0.01; \*\* uncorrected-p < 0.001)



**Supporting Information Figure S2** Cross-sectional analysis in sporadic SVD using simple regression. Standardized beta estimates are shown for regression of network measures against disease burden ( $GE \sim FW$ ;  $CC \sim FW$ ) and processing speed against network measures ( $TMT-B \sim GE$ ;  $TMT-B \sim CC$ ). Analyses were performed for each of the five reconstructed networks (columns) using different density thresholds (x-axis). Abbreviations: GE, weighted global efficiency; CC, weighted clustering coefficient; FW, free water content within main white matter tracts; TMT-B, trail making test matrix B; global, global network; FPCN, fronto-parietal task control network; DMN, default mode network; HSMN, hand somatosensory-motor network; VN, visual network.



**Supporting Information Figure S3** Standardized beta estimates for simple regression analyses of subject-wise calculated standard deviations of the network measures (GE, weighted global efficiency; CC, weighted clustering coefficient) against age. Analyses were done for each of the five reconstructed networks (in columns), and for different density thresholds (x-axis). \*  $p < 0.05$  (Bonferroni corrected). +  $p < 0.1$  (marginally significant after correction). Abbreviations: global, global network; FPCN, fronto-parietal task control network; DMN, default mode network; HSMN, hand somatosensory-motor network; VN, visual network.