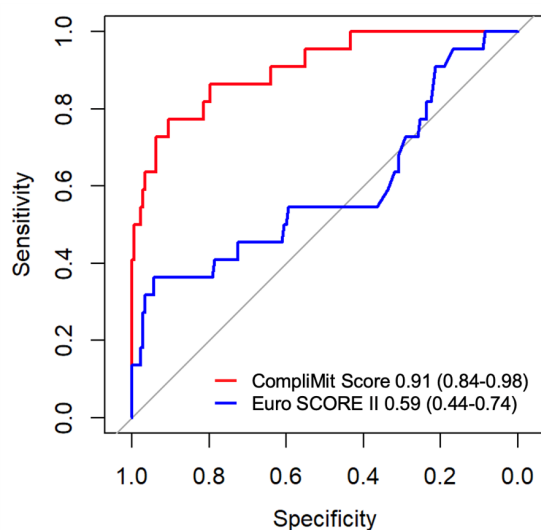
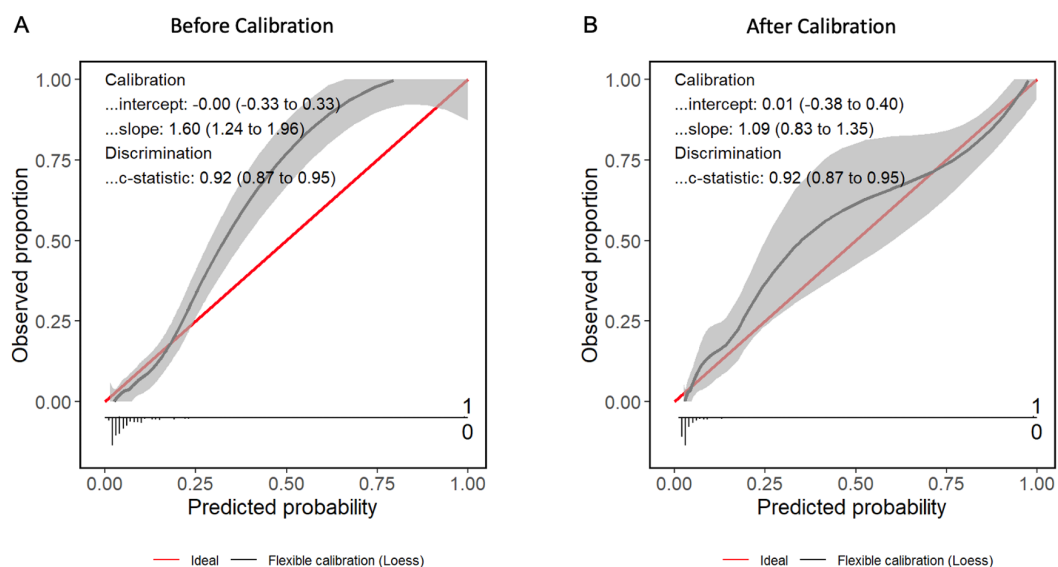


| Table S1 Variables included in Cox regression analysis |                   |         |
|--------------------------------------------------------|-------------------|---------|
| Characteristics                                        | Crude HR (95% CI) | P value |
| Gender                                                 | 1.67 (1–2.8)      | 0.05    |
| Age                                                    | 1.62 (1.2–2.18)   | 0.001   |
| Smoking history                                        | 1.33 (0.73–2.43)  | 0.348   |
| Drinking history                                       | 1.43 (0.7–2.91)   | 0.326   |
| Hypertension                                           | 1.22 (0.69–2.14)  | 0.497   |
| Hyperlipidemia                                         | 1.31 (0.48–3.62)  | 0.6     |
| Diabetes                                               | 0.85 (0.31–2.34)  | 0.749   |
| Chronic lung disease                                   | 1.65 (0.75–3.63)  | 0.215   |
| Chronic liver disease                                  | 4.44 (1.91–10.34) | 0.001   |
| Chronic kidney disease                                 | 2.07 (0.5–8.48)   | 0.312   |
| Neurological disorder                                  | 1.12 (0.45–2.79)  | 0.814   |
| Poor mobility                                          | 0.71 (0.1–5.14)   | 0.737   |
| Previous MI                                            | 4.31 (1.35–13.79) | 0.014   |
| Previous PCI                                           | 3.12 (1.53–6.36)  | 0.002   |
| Atrial fibrillation                                    | 0.81 (0.48–1.36)  | 0.422   |
| PAH                                                    | 1.66 (1.24–2.22)  | 0.001   |
| Extracardiac arteriopathy                              | 1.29 (0.93–1.79)  | 0.123   |
| Previous cardiac surgery                               | 2.34 (1.33–4.12)  | 0.003   |
| Previous surgery                                       | 1.08 (0.58–2.01)  | 0.798   |
| HR                                                     | 1.3 (1.13–1.49)   | <0.001  |
| NYHA                                                   | 1.31 (0.91–1.9)   | 0.148   |
| Mitral regurgitation                                   | 1.66 (0.88–3.13)  | 0.119   |
| Mitral stenosis                                        | 0.65 (0.38–1.1)   | 0.107   |
| Tricuspid regurgitation                                | 1.83 (1.36–2.44)  | <0.001  |
| Implantations-valve                                    | 1.07 (0.78–1.46)  | 0.695   |
| Implantations-ring                                     | 1.51 (0.9–2.54)   | 0.115   |
| Temporary pacemaker implantation                       | 4.91 (2.6–9.29)   | <0.001  |
| BMI                                                    | 0.94 (0.7–1.26)   | 0.685   |
| Euro SCORE II                                          | 1.6 (1.39–1.85)   | <0.001  |
| Surgical time                                          | 1.79 (1.56–2.05)  | <0.001  |
| Aortic cross-clamping time                             | 1.12 (0.87–1.46)  | 0.375   |
| CPB time                                               | 1.65 (1.45–1.88)  | <0.001  |
| Urine output                                           | 1.26 (1.01–1.57)  | 0.045   |
| Blood loss                                             | 1.57 (1.3–1.89)   | <0.001  |
| RBC in                                                 | 1.53 (1.42–1.65)  | <0.001  |
| Plasma In                                              | 1.75 (1.58–1.94)  | <0.001  |
| Platelets In                                           | 1.39 (1.27–1.52)  | <0.001  |
| 24-hour drain output                                   | 1.72 (1.48–1.99)  | <0.001  |
| Ventilator assistance time                             | 1.23 (1.15–1.31)  | <0.001  |
| Preoperative UCG                                       |                   |         |
| SBP                                                    | 1.07 (0.83–1.39)  | 0.599   |
| DBP                                                    | 0.87 (0.67–1.13)  | 0.3     |
| LAD                                                    | 1.41 (1.18–1.7)   | <0.001  |
| LVEF                                                   | 1.04 (0.8–1.35)   | 0.758   |
| LVEDD                                                  | 0.93 (0.72–1.21)  | 0.587   |
| LVESD                                                  | 0.94 (0.72–1.22)  | 0.62    |
| MV-AD                                                  | 0.93 (0.72–1.21)  | 0.605   |
| MV-LD                                                  | 1.07 (0.83–1.38)  | 0.606   |
| Preoperative                                           |                   |         |
| Hb                                                     | 0.9 (0.7–1.16)    | 0.416   |
| PCO <sub>2</sub>                                       | 1.04 (0.88–1.23)  | 0.656   |
| PO <sub>2</sub>                                        | 1.13 (0.89–1.44)  | 0.304   |
| SpO <sub>2</sub>                                       | 0.79 (0.64–0.98)  | 0.031   |
| ALB                                                    | 0.77 (0.57–1.04)  | 0.087   |
| ALT                                                    | 1.06 (0.84–1.35)  | 0.612   |
| AST                                                    | 1.26 (1.13–1.39)  | <0.001  |
| CHOL                                                   | 0.86 (0.66–1.11)  | 0.249   |
| HDL                                                    | 1.07 (0.83–1.37)  | 0.612   |
| LDL                                                    | 0.08 (0–26.49)    | 0.39    |
| TC                                                     | 0.87 (0.65–1.16)  | 0.338   |
| Scr                                                    | 1 (0.79–1.28)     | 0.969   |
| GLU                                                    | 1.04 (0.83–1.32)  | 0.726   |
| BNP                                                    | 1.01 (0.78–1.3)   | 0.951   |
| ESR                                                    | 0.87 (0.63–1.19)  | 0.37    |
| FT3                                                    | 0.79 (0.6–1.04)   | 0.096   |
| hTSH                                                   | 0.62 (0.29–1.28)  | 0.196   |
| Postoperative                                          |                   |         |
| Hb                                                     | 0.68 (0.55–0.83)  | <0.001  |
| CRP                                                    | 0.82 (0.61–1.11)  | 0.195   |
| ALB                                                    | 0.63 (0.47–0.83)  | 0.001   |
| ALT                                                    | 0.99 (0.76–1.29)  | 0.936   |
| AST                                                    | 1.23 (1.05–1.43)  | 0.009   |
| LAC                                                    | 1.41 (1.22–1.63)  | <0.001  |
| BE-B                                                   | 1.11 (0.86–1.43)  | 0.433   |
| BUN                                                    | 1.53 (1.27–1.85)  | <0.001  |
| Scr                                                    | 1.33 (1.12–1.59)  | 0.001   |
| cTnl                                                   | 1.56 (1.33–1.83)  | <0.001  |
| CK-MB                                                  | 1.31 (1.05–1.63)  | 0.017   |
| NT-proBNP                                              | 1.29 (1.12–1.48)  | <0.001  |
| PCO <sub>2</sub>                                       | 0.5 (0.17–1.48)   | 0.209   |
| PO <sub>2</sub>                                        | 0.78 (0.59–1.04)  | 0.095   |
| SpO <sub>2</sub>                                       | 0.95 (0.78–1.15)  | 0.577   |

ALB, albumin; ALT, alanine aminotransferase; AST, aspartate aminotransferase; BE-B, base excess of blood; BMI, body mass index; BNP, B-type natriuretic peptide; BUN, blood urea nitrogen; CHOL, cholesterol; CK-MB, creatine kinase-MB; CPB, cardiopulmonary bypass; CRP, C-reactive protein; cTnl, cardiac troponin I; DBP, diastolic blood pressure; ESR, erythrocyte sedimentation rate; FT3, free triiodothyronine; GLU, glucose; Hb, hemoglobin; HDL, high-density lipoprotein; hTSH, human thyroid stimulating hormone; HR, heart rate; LAC, lactic acid; LAD, left atrial diameter; LDL, low-density lipoprotein; LVEDD, left ventricular end-diastolic diameter; LVEF, left ventricular ejection fraction; LVESD, left ventricular end-systolic diameter; MI, myocardial infarction; MV-AD, mitral valve annulus diameter in the antero-posterior direction; MV-LD, mitral valve annulus diameter in the lateral direction; NT-proBNP, N-terminal pro-B-type natriuretic peptide; NYHA, New York Heart Association; PAH, pulmonary arterial hypertension; PCO<sub>2</sub>, partial pressure of carbon dioxide; PCI, percutaneous coronary intervention; PO<sub>2</sub>, partial pressure of oxygen; RBC, red blood cells; SBP, systolic blood pressure; Scr, serum creatinine; SpO<sub>2</sub>, oxygen saturation; TC, triglyceride.



**Figure S1** ROC analysis for internal validation. Blue, EuroSCORE II; red, CompliMit Score. ROC receiver operating characteristic.



**Figure S2** Calibration curve in the whole population. The predicted probabilities are plotted against the observed proportion of MACE.