

# U Cal Irvine Team Wins Inaugural CSBS Data Analytics Competition

May 12

*By Thomas F. Siems, Ph.D., CSBS Senior Economist and Director of Research*

A three-member team of students from the University of California, Irvine has won the inaugural CSBS 2021 Data Analytics Competition: Modeling the Future of Banking. The competition challenged students to develop an early-warning predictive analytics model to signal potential bank failure/distress.

With roughly 5,000 banks in the United States, bank examiners must rely on off-site risk-modeling tools to monitor individual banks, particularly smaller institutions that do not have as frequent on-site examinations. The early detection of financial distress and/or failure of a bank can help stem losses and systemic contagion of losses throughout the financial system and save taxpayers from potential costly government bailouts.

CSBS selected University of California, Irvine students Romeo Ignacio, Yunjie Xie and Abhishek Devarajan as winners of the first ever competition. Led by faculty advisor Dr. Gary Richardson, the UC Irvine team used a CAMELS-like method for classifying banking metrics and found that bank earnings variables were the strongest predictors of bank failure.

Using risk-scoping data maintained by CSBS, bank failure data from the Federal Deposit Insurance Corporation (FDIC) and macroeconomic variables from the Federal Reserve Economic Database (FRED), the team developed and tested four different logistic regression models to predict bank failures using data from 2006 to 2020. The team employed several operations research, statistical and data analytics techniques, including principal component analysis—a statistical technique designed to shrink a large dataset into a smaller number of variables.

The other finalists in the CSBS 2021 Data Analytics Competition include a team of students from Texas Tech University in Lubbock, Texas and a team of students from Southern Methodist University in Dallas.

The Texas Tech team was led by faculty advisor Mike Mauldin and PhD student advisor Baily Allen. The five-member team included Mordecai Bediako, Christian Davis, Mitchell Ryan, Justin Moore and Jacoby Wray. The team used a logistic regression model using a variable they constructed that specified when certain indicators violated peer-group percentile thresholds.

The five-student SMU team was led by faculty advisor Dr. Richard Barr. Ahmed Alefari, Emma Hanson, John Clay Richard, James Stine and Jessica Wang used linear regression models and discriminant analysis methods to identify patterns among banks and a logistic regression model to predict failure.

As the first-place winners of the 2021 CSBS Data Analytics Competition, the UC-Irvine team will collect \$5,000. The two runners-up teams from Texas Tech University and SMU will each collect \$2,500.

CSBS created the Data Analytics Competition to give college students an opportunity to explore data analytics solutions to real-world banking questions and to provide CSBS and state regulators with creative ideas and valuable solutions to interesting and important bank-related data analytics questions.

CSBS' Data Analytics Task Force provided oversight and direction for the 2021 CSBS Data Analytics Competition.