PROMOTION RECOMMENDATION
The University of Michigan
College of Literature, Science, and the Arts

Erhan Bayraktar, associate professor of mathematics, with tenure, College of Literature, Science, and the Arts, is recommended for promotion to professor of mathematics, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:
Ph.D.	2004	Princeton University
M.A.	2002	Princeton University
B.S.	2000	Middle East Technical University

Professional Record:
2010 – present	Associate Professor, Department of Mathematics, University of Michigan
2010 – present	Susan Meredith Smith Professor of Actuarial Sciences, Department of Mathematics, University of Michigan
2006 – 2010	Assistant Professor, Department of Mathematics, University of Michigan
2004 – 2006	Post-doctoral Assistant Professor, Department of Mathematics, University of Michigan

Summary of Evaluation:
Teaching – With two-thirds of the undergraduate majors in actuarial or financial mathematics, Professor Bayraktar plays an important role in the teaching mission of the department. Over the last three years he has taught the undergraduate and graduate level finance courses, as well as the graduate level probability sequence, which is taken mostly by students in the Ph.D. program. Students' ratings show that he is a very strong teacher in all of his courses. He has been very successful at attracting students to write their Ph.D. dissertations under his supervision, and he has also supervised undergraduate research projects.

Research – Professor Bayraktar is generally regarded as a leader in financial mathematics and control theory. He is a prolific researcher with many outstanding papers to his credit. The unusual breadth of his published research is also impressive, ranging from work on problems in pure mathematical analysis to applied problems in inventory control and insurance. His research has been awarded a National Science Foundation CAREER grant and the first Junior Scientist Prize in Finance from the Society for Industrial and Applied Mathematics (SIAM).

Recent and Significant Publications:
"Stochastic Perron's method and verification without smoothness using viscosity comparison: The linear case," with M. Sirbu, *Proceedings of the American Mathematical Society*, 140, 2012, pp. 3645-3654.
"Regularity of the optimal stopping problem for jump diffusions," with H. Xing, *SIAM Journal on Control and Optimization*, 50(3), 2012, pp. 1337-1357.
"Optimal stopping for nonlinear expectations-Part II," with S. Yao, *Stochastic Processes and Their Applications*, 121, 2011, pp. 212-264.

"Inventory management with partially observed non-stationary demand," with M. Ludkovski, *Annals of Operations* Research, 176(1), 2010, pp. 7-39.

Service – Professor Bayraktar has performed important service in his department and to the university. Nationally, he was the principal organizer of a very successful conference at Michigan, and he organized several mini-symposia at SIAM meetings.

External Reviewers:

Reviewer (A)
"Considering the fact that Baryaktar [sic] has published 60 papers since his PhD in 2004, I find that he has been amazingly productive. ... Most of the publications are in high quality journals, and the papers that I have read myself...confirmed the impression that Baryaktar [sic] is not only very productive but that he is also producing mathematics of the highest quality."

Reviewer (B)
"Erhan was selected as the prize recipient, from an international pool of candidates from top institutions in Europe and the US, which says a lot about the quality of his research relative to his peers, and asked to present a plenary lecture at the SIAM 2010 Conference on Financial Mathematics in San Francisco..."

Reviewer (C)
"He has established himself as one of the leading figures in Financial Mathematics in [the] US and also has a high international reputation. He is a talented and hard-working mathematician, one of the most visible ones of his generation in the field, and I strongly recommend him for promotion to Professor."

Reviewer (D)
"Does he have an outstanding research program? Yes, he does. I think his best work may be his most recent: the really beautiful papers with Sirbu on the 'stochastic Perron's method' - a major, and perhaps game-changing, extension of established viscosity solution techniques for PDEs. ...each of his papers is among the best in its respective area, so it is largely a matter of taste which ones of them are 'most significant.'"

Reviewer (E)
"Erhan Bayraktar's track record of conference talks and research visits gives clear evidence of his scholarly visibility, both at the national and international level. His contributions to stochastic analysis and finance are widely acknowledged. In other words, he is a renowned member of the mathematical finance community."

Reviewer (F)
"...I am impressed by the number of topics he is working on, the depth of his work in these many areas, and also I am impressed by the network of collaborations he has been able to create in a few years. ...I can attest that Professor Bayraktar's case would be one the best we are seeing in the area of Mathematics and he would be granted full professorship with acceleration (in time and salary)."
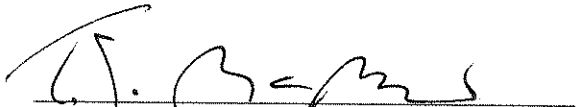
Reviewer (G)

"He possesses impressive knowledge, lightning learning, strong motivation, great analytical power and insight, and the ability to work on many different problems simultaneously. He has been collaborating widely, tackling difficult problems on his own -- as well as with his peers, and the graduate students and post-docs that he inspires. *The breadth* of topics in list of publications *and the depth* of the results he has managed to obtain, are just phenomenal."

Reviewer (H)

"...Bayraktar is a very accomplished scholar. In my view, he has clearly exhibited those qualities requisite to promotion to full professor at a leading research institution such as Michigan, and I am delighted to be writing in support of his case."

Summary of Recommendation:

Professor Bayraktar has a prolific research program of very high quality and is recognized as a leading researcher in his field. He makes a major contribution to the teaching mission of his department. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Associate Professor Erhan Bayraktar be promoted to the rank of professor of mathematics, with tenure, College of Literature, Science, and the Arts.

Terrence J. McDonald
Arthur F. Thurnau Professor,
Professor of History and Dean
College of Literature, Science, and the Arts

May 2013