

# Michael B. Imerman

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## Education

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**Postgraduate:** Princeton University, Postdoc in Operations Research & Financial Engineering, 2011-2012  
Topics: Financial Data Science, High-frequency Econometrics, Big Data Analytics  
Advisor: Professor Jianqing Fan

**Graduate:** Rutgers University, Ph.D. in Management, 2011  
Major: Finance; Minor: Economics  
Dissertation: “Structural Credit Risk Models in Banking with Applications to the Financial Crisis”  
Chairs: Ren-Raw Chen (Co-Chair), Ben J. Sopranzetti (Co-Chair)

**Undergraduate:** Rutgers University, B.S. in Finance, *with Highest Honors*, 2004

## Academic Positions

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### *Claremont Graduate University, Drucker School of Management*

Associate Professor of Finance (with tenure)	July 2021 – Present
Co-Director of Financial Engineering Program	July 2018 – July 2021
Assistant Professor of Finance	July 2018 – June 2021
Adjunct Professor of Mathematics	September 2019 – Present

### *Lehigh University*

Theodore A. Lauer Distinguished Professor of Investments	July 2015 – July 2018
Assistant Professor	August 2012 – July 2018

### *Princeton University*

Postdoctoral Research Associate	July 2011 – June 2012
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### *Rutgers Business School*

Instructor	July 2010 – June 2011
Teaching Assistant/Research Assistant	September 2006 – June 2010

## Research Interests

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Credit Risk Modeling, Banking, Financial Regulation, Risk Management, Securitization, FinTech Innovation

## Journal Publications

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“Fiscal stimulus as an optimal control problem” (with Philip Ernst, Larry Shepp, and Quan Zhou), *Stochastic Processes and their Applications*, 2021 (In Press)

“When Enough is Not Enough: Bank Capital and the Too Big to Fail Premium,” *Review of Quantitative Finance and Accounting*, November 2020, Volume 55(4): pp. 1371-1406

**(Cont'd)**

“Recent Developments in the FinTech Industry,” (with Thomas J. Chemmanur, Harshit Rajaiya, and Qianqian Yu), *Financial Management, Markets and Institutions*, June 2020, Volume 8(1)

“Cashing in on innovation: a taxonomy of FinTech,” (with Frank J. Fabozzi), *Journal of Asset Management*, May 2020, Volume 21(3): pp. 167-177 **LEAD ARTICLE**

“What does the volatility risk premium say about liquidity provision and demand for hedging tail risk?” (with Jianqing Fan and Wei Dai), *Journal of Business and Economic Statistics*, October 2016, Volume 34(4): pp. 519-535

“Liquidity, Leverage, and Lehman: A Structural Analysis of Financial Institutions in Crisis,” (with Ren-Raw Chen, N.K. Chidambaran, and Ben J. Sopranzetti), *Journal of Banking and Finance*, August 2014, Volume 45: pp. 117-139

“Self-reporting under SEC Reg AB and transparency in securitization: Evidence from loan-level disclosure of risk factors in RMBS deals,” (with Joseph R. Mason and Hong Lee), *The Journal of Risk Finance*, 2014, Volume 15(4): pp. 334-384.

## **Working Papers**

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**Completed:**

“Price Discovery in the Residential Mortgage-Backed Security, Credit Default Swap, and ABX Markets” (with Joseph R. Mason, Rajesh P. Narayanan, and Meredith E. Rhodes)

“Pandemic Exposure, Credit Market Reactions, and Corporate Default Risk” (with Ran Zhao)

**Permanent:**

“Is mathematics able to give insight into current questions in finance, economics and politics?” (with Larry Shepp) arXiv preprint: <http://arxiv.org/abs/1410.6084>

**In-Progress:**

“Outreach, Usage, and Quality of Services: An Empirical Examination of Global Financial Inclusion” (with Arzu Kastal)

“Does the market differentially reward FinTech innovation by banks? Evidence from M&A in the presence of limited patent protection” (with Ben J. Sopranzetti)

“Bigger (Data) is Not Always Better: The Effects of Feature Bias and Model Averaging on Loan-level Mortgage Default Models” (with Joseph R. Mason and Hong Lee)

## **Books and Book Chapters**

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*The Economics of FinTech: Understanding Digital Transformation in Financial Services*, with Frank J. Fabozzi and Nirvikar Jain, (in progress) to be published by MIT Press in 2021

“Structural Credit Risk Models: Endogenous Versus Exogenous Default,” in *Encyclopedia of Finance*, 2<sup>nd</sup> Edition, C.F. Lee and Alice C. Lee (eds.), Springer, 2013.

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## Conference and Seminar Presentations

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“Pandemic Exposure, Credit Market Reactions, and Corporate Default Risk”

*IAQF/Thalesian Seminar, Webinar via Zoom, October 2020*

*Pacific Basin Finance, Economics, Accounting, and Management, Taiwan (presented remotely), January 2021*

*China Accounting and Finance Review Conference, Hong Kong (presented remotely), September 2021*

“A martingale approach to the question of fiscal stimulus”

*Applied Math Seminar of the Claremont Colleges, Pomona College, December 2018*

*Symposium on Optimal Stopping, Rice University, Houston, TX, June 2018*

“The Rise of FinTech: How Technological Innovation is Disrupting Financial Services”

*Mublenberg College, April 2018*

“Does the market differentially reward FinTech innovation by banks?

Evidence from M&A in the presence of limited patent protection”

*16<sup>th</sup> Finance, Risk and Accounting Perspectives Conference, Cambridge, UK, September 2017*

*Philly Five Conference, Villanova University, PA, October 2017*

*Quinnipiac University, December 2017*

*Claremont Graduate University, February 2018*

“A Data-Driven Analysis of the Vol Risk Premium”

*IAQF/Thalesian Seminar, New York, NY, November 2016*

“More Data, More Problems:

Identifying and Quantifying the Missing Bias in Loan Level Data for Securitized Mortgages”

*Lehigh University, Perella Department of Finance Brown Bag Seminar, October 2016*

“How to Bailout If You Must: A Mathematical Model of Government Intervention”

*Mini-Symposium in Memory of Professor Vladimir Dobric, Bethlehem, PA, December 2015*

“What does the volatility risk premium tell us about liquidity provision and hedging tail risk?”

*FMA Annual Meetings, Orlando, FL, October 2015*

*China International Conference in Finance, Shenzhen, China, July 2015*

*Rutgers University, December 2013*

“Liquidity, Leverage, and Lehman: A Structural Analysis of Financial Institutions in Crisis”

*Louisiana State University, November 2013*

*Conference on Risk Management and Reform of Bank Regulation, Beijing, China, April 2013*

“Structural Credit Risk Based Estimation of Bank Capital”

*Federal Reserve Board of Governors, D.C., December 2012*

*FMA Annual Meetings, Atlanta, GA, October 2012*

*20th Annual Conference on Pacific Basin Finance, Piscataway, NJ, September 2012*

*Lehigh University, October 2011*

*Villanova University, March 2011*

*Oklahoma State University, December 2010*

*James Madison University, December 2010*

*Rutgers University, November 2010*

“An Econometric Analysis of the Volatility Risk Premium”

*Second Measuring Risk Conference, Princeton, NJ, September 2012*

*20th Annual Conference on Pacific Basin Finance, Piscataway, NJ, September 2012*

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“Default Probability Estimation with Structural Credit Risk Models”

*Wilks Statistics Seminar, Princeton University, March 2012*

“Anatomy of Financial Institutions in Crisis: Endogenous Modeling of Bank Default Risk”

*FMA Annual Meetings, New York, NY, October 2010*

“Bank Capital Requirements and Credit Risk Management”

*FMA Doctoral Consortium Dissertation Workshop, New York, NY, October 2010*

“Financial Institutions in Crisis: Modeling the Endogeneity Between Credit Risk and Capital Requirements”

*Conference on Financial Economics and Accounting, Piscataway, NJ, November 2009*

*FMA Annual Meetings, Reno, NV, October 2009 (with N.K. Chidambaran)*

*Triple Crown Conference in Finance, New York, NY, May 2009*

**Conference Discussions**

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Discussion of “Bank Regulation and Systemic Risk: Cross Country Evidence”

*Pacific Basin Finance, Economics, Accounting, and Management, Taiwan (presented remotely), January 2021*

Discussion of “Off-Balance Sheet Securitization, Bank Lending, and Corporate Innovation”

*FMA Annual Meetings, San Diego, CA, October 2018*

“Discussion of ‘Bank Loan Renegotiation and Credit Default Swaps’”

*FMA Annual Meetings, Boston, MA, October 2017*

“Discussion of ‘Systemic Risk and Systemic Importance Measures During the Crisis’”

*Eastern Finance Association Conference, Jacksonville, FL, April 2017*

“Discussion of ‘Mitigating Counterparty Risk’”

*Midwestern Finance Association Conference, Atlanta, GA, March 2016*

“Discussion of ‘Liquidity Risk and Expected Municipal Bond Returns’ ”

*26<sup>th</sup> Financial Economics Accounting Conference, Piscataway, NJ, November 2015*

“Discussion of ‘Funding Liquidity and Its Risk Premiums’ ”

*Conference on Risk Management and Reform of Bank Regulation, Beijing, China, April 2013*

“Discussion of ‘A Theory of Reverse Asset Substitution’ ”

*Mid-Atlantic Research Conference in Finance, Villanova, PA, March 2013*

“Discussion of ‘Management Quality and Corporate Credit Ratings: Structural Credit Model Perspectives’ ”

*FMA Annual Meetings, Atlanta, GA, October 2012*

“Discussion of ‘Modeling Correlated Systemic Liquidity and Solvency Risk’ ”

*Liquidity Risk Management Conference, New York, NY, June 2012*

“Discussion of ‘Capital Shortfall: A New Approach to Ranking and Regulating Systemic Risks’ ”

*Conference on Capital Requirements for Financial Firms, Cleveland, Ohio, April 2012*

“Discussion of ‘Treasury Bill Yields: Overlooked Information’ ”

*FMA Annual Meetings, Denver, CO, October 2011*

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“Discussion of ‘Moody's and S&P Ratings: Are They Equivalent?’ ”

*FMA Annual Meetings, New York, NY, October 2010*

“Discussion of ‘Joint Provision of Credit Insurance with Unsecured Lending’ ”

*FMA Annual Meetings, Reno, NV, October 2009*

“Discussion of ‘Option Implied Cost of Equity and Its Properties’ ”

*FMA Annual Meetings, Dallas, TX, October 2008*

## **Panels and Invited Lectures**

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Moderator for “Beat Them or Join Them? Traditional Banks and Fintechs in the Race to Digitize”

*GARP 2021 Virtual Risk Convention, February 2021*

“Disrupting Financial Services: A Conceptual Framework for FinTech Innovation”

*Colorado State Virtual Guest Lecture in ‘Advances in Financial Technology’ class, February 2021*

“Innovations in Payments Systems and Technologies”

*Carnegie Mellon Virtual Guest Lecture in ‘Macroeconomics for Computational Finance’, November 2020*

“Innovations in Online, Mobile, and Digital Banking”

*NYU Stern School of Business Virtual Guest Lecture in ‘Applications in Entrepreneurial Finance: Fintech’, April 2020*

“Innovations in Payments Technology”

*NYU Stern School of Business Virtual Guest Lecture in ‘Applications in Entrepreneurial Finance: Fintech’, April 2020*

“FinTech, Trust, and the Customer Experience”

*Drucker School Spring Welcome Back Event Keynote Address, Claremont, CA, January 2020*

“FinTech and Disruptive Innovation in Financial Services”

*Lazaridis School Research Day Plenary Talk, Wilfrid Laurier University, Ontario, Canada, March 2018*

“FinTech: At the Intersection of Data Science and Finance”

*Lehigh University Guest Lecture in CSE 198 (Introduction to Data Science), Bethlehem, PA, September 2017*

“Data Science and Finance: The Next Frontier”

*Lehigh University Guest Lecture in CSE 198 (Introduction to Data Science), Bethlehem, PA, April 2016*

“From Quantitative Credit Risk Models to Big Data Analytics: Corporate Default, Bank Capital, and Securitization”

*Moody's Investor Service, New York, NY, August 2015*

“Big Data Analytics in Finance: Volatility, Liquidity, and Risk Management”

*Xi'an Jiaotong University, Xi'an, China, July 2015*

“Assessing the Default Risk of Broker-Dealers with Structural Credit Models”

*Invited Presentation, Securities and Exchange Commission, D.C., December 2012*

“The Fate of Derivatives in a Post-Crisis World (aka Why derivatives are not inherently evil)”

*Lehigh University, Bethlehem, PA, October 2011*

“Structural Credit Risk Models in Banking”

*Invited Presentation, State Street Corporation, Boston, MA, November 2010*

## Honors and Awards

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BLAIS Challenge Award – “Disrupting Finance: The Claremont Joint FinTech Initiative” (2021)  
SSRN All Time TOP TEN Entrepreneurship & Finance (2020)  
Drucker School of Management Faculty of the Year Award (2019)  
Kauffman Foundation Knowledge Challenge Grant (2018)  
Semi-Finalist, FMA Best Paper Award in Financial Markets and Institutions (2018)  
Travel Grant from Eugene Mercy, Jr. President and Provost Fund for Faculty Development (2017)  
Nominee, Frank Hook Assistant Professorship of Teaching and Scholarship (2017)  
Data X Innovation Grant (2016)  
Graduate Student Senate Champion Award (2016)  
Theodore A. Lauer Distinguished Professorship (2015)  
Emerald Publishing Highly Commended Paper Award (2015)  
SSRN All Time TOP TEN Credit Risk Paper (2014)  
Emerald Group Publishing Literati Award for Outstanding Reviewer (2014)  
Semi-Finalist, FMA Best Paper Award in Financial Markets and Institutions (2012)  
FMA Doctoral Consortium Participant (Fall 2010)  
Rutgers Summer Research Award (Summer 2010)  
RBS Dean's Fund Research Grant (Summer 2010)  
FMA Doctoral Student Travel Grant (Fall 2009)  
Rutgers Summer Research Award (Summer 2008)  
Recipient of Rutgers RRC Grant (Summer 2007)

## Professional Service

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### Conference Organization

FMA Programming Committee (2012, 2013, 2015, 2016, 2017)  
Review Committee, SEC Third Annual Conference on Financial Market Regulation (2016)  
Selection Committee, 26<sup>th</sup> Financial Economics Accounting Conference (2015)  
Financial Institutions Track Chair, Mid-Atlantic Research Conference in Finance (2014)

### Editorships and Review Work

Editorial Board, *Advances in Quantitative Analysis of Finance and Accounting* (2020 – present)  
Editorial Advisory Board, *Journal of Financial Data Science* (2018 – present)  
Associate Editor, *Journal of Risk Finance* (2013 – 2019)  
Referee for *Journal of Banking & Finance*, *Financial Review*, *Journal of Credit Risk*, *Journal of Empirical Finance*, *Review of Quantitative Finance and Accounting*, *Journal of Applied Finance*  
Textbook Reviewer for John Wiley & Sons, Inc.  
Book Reviewer for Academic Press, “Nonlinear Dynamics of Financial Crises” by Ionut Purica  
Grant Proposal External Reviewer, Central Michigan Early Career Grant (2013)

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## University Service

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CGU Board of Trustees Investment Committee	January 2021 – Present
CGU Financial Engineering Steering Committee	July 2018 – Present
Co-Director of M.S. Financial Engineering, Claremont Graduate University	July 2018 – July 2021
CGU Drucker School Dean Search Committee	Spring 2020 – January 2021
Founder of M.S. in Finance Program, Claremont Graduate University	Fall 2018
Acting Co-Director, MSAF Program, Lehigh University	Fall 2015
Chair, FinTech Track for Lehigh Hackathon	January 2016 – April 2016
Data Science Curriculum Committee	December 2016 – July 2018
CBE Database and Software Committee	February 2015 – July 2018
Finance Department Professor-of-Practice Search Committee	Summer 2016
Finance Department Recruiting Committee	Fall 2015
Search Committee for Holliday Chair in Real Estate	Fall 2014 – May 2015
Ad-hoc Committee for MSAF Graduate Certificates	October 2014 – August 2016
Faculty Advisor, International Association of Quantitative Finance (IAQF)	2014 – 2016
Faculty Advisor, GARP Research Fellowship Jiexia Ding “A Study of Basel III and Liquidity Risk Management of Bank Holding Companies”	Fall 2013 – Summer 2014
Rutgers Day Faculty Advisor for Little Investment Bankers of Rutgers (LIBOR)	April 24, 2010

## Doctoral Students

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Meredith Rhodes, “Credit Securities from an Information Perspective,” Louisiana State University (outside member), Ph.D. in Finance, defended October 2018

Arzu Kastal, “A New Approach to Measuring Financial Inclusion,” CGU, Ph.D. in Management, defended May 2019

Robert Benton Reich, “Short Term Economic Costs and Head Trauma: Evidence from Major League Baseball,” CGU, Ph.D. in Management, defended October 2019

Ran Zhao, “Essays on Credit Derivatives and Credit Risk Modeling,” CGU, Ph.D. in Financial Engineering, proposed April 2019

## Masters Independent Studies

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Eddie Valentino (Lehigh)	“Risk Management Models”	Fall 2012
Jun Yao (Lehigh)	“Mortgage Valuation Models”	Fall 2015
Yingbiao Deng (Lehigh)	“Valuation and Fair Value Analysis”	Spring 2016
Jun Yao (Lehigh)	“Valuation of MBS”	Spring 2016

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Oisin Connolly (Lehigh)	“Survey of Crypto-Asset Return Series”	Fall 2017
Yijie Xu (CGU)	“FinTech Risk”	Spring 2020

## Course Taught

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### *Undergraduate:*

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|---------------------------------|---------|-------------------------------------|
| • Derivatives & Risk Management | Lehigh  | Fall 2012 – Spring 2018             |
| • Investment Analysis           | Rutgers | Spring 2009; Spring 2011            |
| • Advanced Corporate Finance    | Rutgers | Fall 2009, Spring 2010, Spring 2011 |
| • Corporate Finance             | Rutgers | Fall 2010                           |

### *Graduate:*

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|-----------------------------------|---------------|---------------------------------------|
| • Asset Management                | CGU (MSFE)    | Fall 2018; Spring 2020; Spring 2021   |
| • Introduction to Risk Management | CGU (MSFE)    | Fall 2018; Fall 2019; Fall 2020       |
| • Financial Derivatives           | CGU (MSFE)    | Spring 2019; Spring 2020; Spring 2021 |
| • FinTech                         | CGU (MBA)     | Spring 2019; Spring 2020; Fall 2020   |
| • Financial Engineering Practicum | CGU (MSFE)    | Fall 2019; Fall 2020                  |
| • Quantitative Risk Management    | CGU (MATH)    | Fall 2019; Fall 2020                  |
| • Derivative Pricing              | Lehigh (MSAF) | Fall 2012 – Fall 2017                 |
| • Advanced Credit Risk Modeling   | Lehigh (MSAF) | Spring 2014                           |

## Curriculum Development

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**Developed new M.S. in Finance program at the Drucker School of Management;** 32 unit, one-year specialized masters program. The objective is to provide students with an education covering a breadth of topics across the field of finance but is differentiated by its emphasis on innovation and technologies in financial services without the mathematical rigor of a Financial Engineering program. The program is also designed to prepare students to successfully pass the CFA Exam, and the curriculum contains courses that cover material from Levels I, II, and III.

**Reviewed and Updated M.S. in Financial Engineering curriculum at CGU** (joint program between Drucker School of Management and Institute for Mathematical Sciences); this 40 unit program, for which I have served as Co-Director since 2018, is usually completed in 1.5 to 2 years. Students take half of their coursework from the Drucker School of Management and the other half from the Institute for Mathematical Sciences. The curriculum was updated in Spring 2019 to increase the emphasis on Risk Management as well as the role that Machine Learning, FinTech, and Data Science play in the future of Financial Engineering. Quantitative Risk Management was moved from an elective to a required course. A new capstone course, Financial Engineering Practicum, was introduced. And FinTech was made an elective course for the MSFE degree. New courses on Quantum Computing and Machine Learning for Asset Pricing were approved and are in development.

### New course development:

**FinTech (MGT 332)** – 2 unit class

Topics Covered: FinTech Innovation, Clayton Christensen’s Theory of Disruptive Innovation, Peter Drucker’s Seven Sources of Innovation, the Entrepreneurial Finance of FinTech, Digital Banking, Payments Technology, FinTech Lending, Disintermediation via Technology Platforms, Digital Wealth Management, InsurTech, Big Tech in Finance

**Financial Engineering Practicum (FINENG 340)** – 4 unit class; required capstone for MSFE program

Topics Covered: Fixed Income Risk Management, Credit Risk Modeling, Credit Derivatives, Hybrid Securities and Convertible Bonds, Stress Testing, Model Validation, Securitization, Machine Learning and Big Data Analytics in Finance



## Industry Experience

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<b>Lehman Brothers</b> - New York, NY	
High Grade Credit Product Control	2004 – 2005
Equity Derivatives Product Control	Summer 2003
<b>AXA Financial</b> - New York, NY	Summer 2002
<b>Kenneth Cole Productions</b> - Secaucus, NJ	
Credit Department	Summer 2001

## Affiliations

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American Finance Association  
Financial Management Association  
Western Finance Association  
International Association of Quantitative Finance  
Alpha Kappa Psi  
Beta Gamma Sigma  
Golden Key Honor Society

## References

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### Ren-Raw Chen

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### Joseph R. Mason

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E. J. Ourso College of Business  
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### Frank J. Fabozzi

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Senior Scientific Adviser, EDHEC-Risk Institute  
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### Ben J. Sopranzetti

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### Jianqing Fan

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