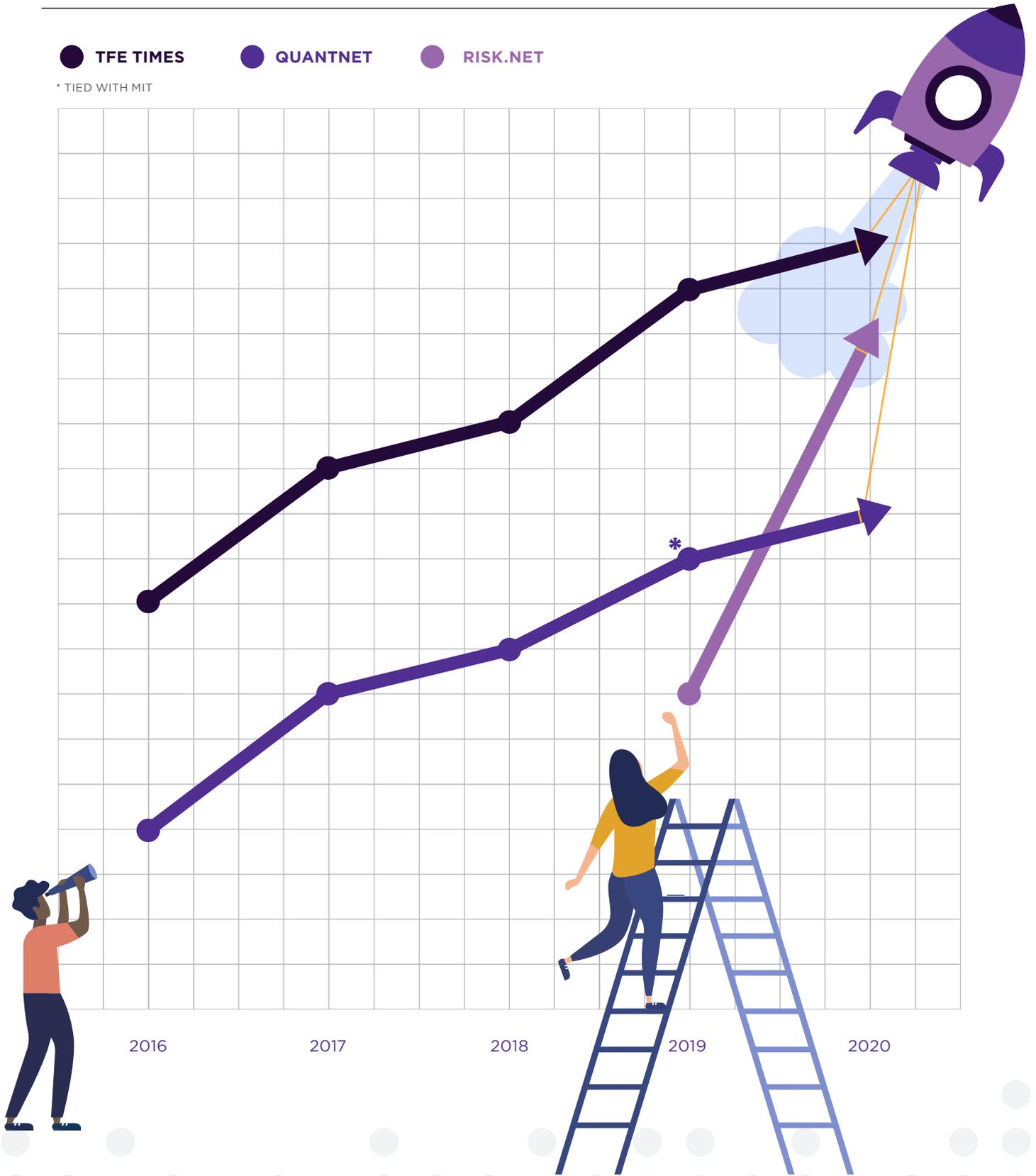


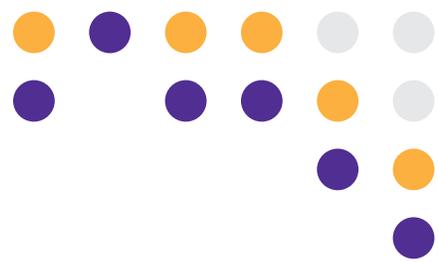
Catching FIRE

THE OFFICIAL NEWSLETTER OF THE NYU TANDON DEPARTMENT OF FINANCE AND RISK ENGINEERING

● TFE TIMES ● QUANTNET ● RISK.NET

* TIED WITH MIT





Making New History from a Tiny Corner of the World

In 1905, the philosopher, essayist, poet, and novelist George Santayana wrote, “Those who cannot remember the past are condemned to repeat it.”

So, I think it’s time for a little history lesson, as painful as that may be.

Between 1918 and 1920, the Spanish flu pandemic infected one-third of the world population. In 1929, a stock market crash

set off the Great Depression, decreasing the gross national product of the United States by one-third. Between 1963 and 1968, race riots broke out in most U.S. cities, affecting about one-third of the U.S. population.

And in the spirit of repeating the past, the last third of this year has seen:

- a pandemic
- a stock market crash
- riots protesting racism

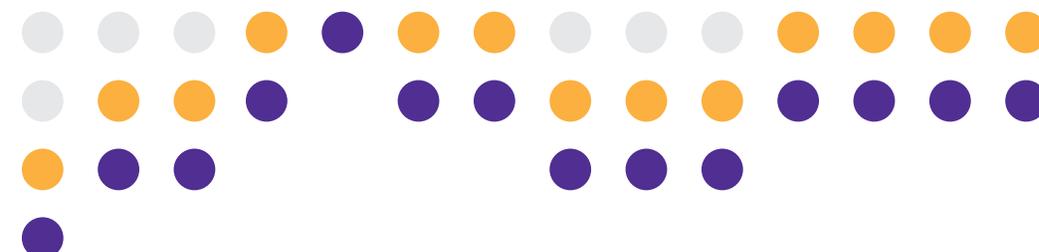
OK, George, stop it already!
I get your point.

I’m watching the History Channel every night, so I know what to expect for the rest of this year. After all, we’ve got a presidential election coming up this November, and the democratic challenger

has a lead in the polls. Wait . . . I’ve seen that movie, and I didn’t like the ending, not one bit.

Maybe I should change TV channels or do something else, because it’s a scary world out there.

I know I can’t change world history, but maybe I can help change the future of our tiny little corner of it. Read on for some news about what’s been going on in our Department of Finance and Risk Engineering (FRE). Unlike the world outside the department, the news has actually been pretty good. And if, after reading FRE’s recent history in this newsletter, you forget some of the details, that’s all right. I actually wouldn’t mind being condemned to repeat what’s been going on around here!



Reaching Far and Ranking High

Two arbiters of quantitative finance education recently placed the NYU Tandon School of Engineering among the top master's degree programs.

The Quant Finance Master's Guide for 2020, published by *Risk.net*, placed the New York University Tandon School of Engineering fifth in the world — an eight-position leap from last year. In tabulating the rankings, *Risk.net*, one of the foremost financial publications, measured such factors as graduate salaries, employment rate, program selectivity, student-lecturer contact hours, and faculty research.

Additionally, *TFE Times* listed NYU Tandon as number three among the 2020 Best Master's of Financial Engineering Programs, up from number four the previous year. NYU Tandon's program — the first to be certified by the International Association of Financial Engineers — was earlier ranked ninth by *QuantNet*, an online resource for the financial industry. In that report, the school climbed seven positions over the last five years.

The rankings reflect a restructuring of the educational offerings at NYU Tandon under the leadership of Professor and Department Chair Peter Carr, who is himself ranked second in the world by Google Scholar in Quantitative Finance citations, second in Derivatives, and fifth in Financial Engineering. The department faculty also includes acclaimed scholar and author Nassim Nicholas Taleb, ranked first in the world in Tail Risk citations, third in Quantitative Finance, and sixth in Financial Engineering. Notably, Carr and Taleb generated most of their citations while working in the financial industry as a quant

and trader, respectively, and such large numbers of citations are highly unusual for practitioners, rather than pure academics.

Under Carr's direction, the department has been particularly responsive to global demand by financial institutions and insurance firms for machine-learning expertise, adding more than a dozen courses on artificial intelligence in recent years. Other cutting-edge coursework focuses on crypto-currencies, blockchain, sophisticated modeling and information technology such as automated differentiation and cloud computing, computational finance, algorithmic finance, and risk finance. The department offers multiple classes through Coursera, as well as short, specialized courses taught by leading industry practitioners.

Eighty-six percent of NYU Tandon's financial engineering students are employed within three months of graduation, with *Risk.net* reporting an average starting salary of \$91,200*. The department offers career training and networking events, and a dedicated career placement officer, Sara DeLusant, whose background includes managing Morgan Stanley's quantitative finance campus recruitment.

"Our latest rankings — and the upward trend they represent — affirm the high caliber of our faculty, many of whom have decades of experience as industry leaders, as well as the drive and intelligence of our students," said Carr. "We're proud to be preparing them for highly sought quant, risk, and tech careers, and feel confident that we will continue to attract even more talent to the department."



NYU Tandon
Financial Engineering

1st

program to be certified by the
International Association of
Financial Engineers

ranked

5TH

by The Quant Finance Master's Guide
for 2020, published by Risk.net

ranked

3rd

by the TFE Times

86%

employed within
three months of
graduation

with *Risk.net* reporting an average
starting salary of \$91,200

"We are thrilled to see the Department of Finance and Risk Engineering recognized as a global powerhouse in financial engineering," said Jelena Kovačević, dean of the NYU Tandon School of Engineering. "They are pushing the boundaries in the field, creating a fertile training ground for the next generation of experts, and shaping the future of the industry."

Our Grads Have Vision



JP Delavin

M.S. in Financial Engineering;

My vision: To bring much-needed development to the financial system in my native Philippines

How Tandon is helping me bring that vision to life:

After earning my undergraduate degree in Management Engineering from Ateneo de Manila University and training in the Chartered Financial Analyst (CFA) program, I worked in private equity, corporate finance, and investment banking. I came to realize that the Philippines cannot yet compete with the financial hubs in the region, like Singapore, Hong Kong, and Sydney. Especially with geographic barriers becoming less and less relevant in the age of globalization and financial technology, it's now essential for the country to have financial engineers and academics with a deep understanding of the ever-changing and increasingly complex demands of the world of finance.

I intend to work with Asian financial institutions to ensure that I am up to date with the latest developments in the financial markets, and I'll also be taking the knowledge I've gained at NYU Tandon, particularly in the areas of risk management and derivatives, back to Ateneo de Manila University, where I'll teach in the applied math in mathematical finance (AMF) program. That's the only bachelor's degree in quantitative finance and one of only three master's programs of its kind in the country, and I hope that my future students go on to help secure the Philippines' place on the world stage.



Shreya Gossain

M.S. in Financial Engineering

My vision: Helping people invest for their future safely and wisely

How Tandon is helping me bring that vision to life:

After earning my bachelor's degree in electrical engineering with a minor in economics, I dreamed of coming to New York City to study. Who wouldn't want to study financial engineering in one of the world's most important financial capitals? In that sense, Tandon is, literally, a dream come true. The Department of Finance and Risk Engineering has a very helpful and dedicated career counselor, so now I even have my dream job, as a market risk analyst, already lined up.

I wanted to give something back to Tandon, in return for all I've gotten from the school, so I ran for the presidency of the Graduate Student Council, and in that capacity, I planned events that enhanced the student experience and helped them get through their very challenging courses of study. I'm proud that I'm the first female president of the Graduate Student Council in the school's history, and that feels even more special considering that my tenure coincided with Tandon getting its first female dean.



Dmytro Kostynyuk

B.S. in Mathematics; Minor in Financial Engineering

My vision: I believe that we were all brought into this world to make a contribution to society, and no matter what your specialty is, there is always some way you can help improve the future. I have had the honor and privilege to work across various fields within the financial world, and applying the quantitative skills that I have learned, I will do all that I can to help improve the efficiency and judgement of financial groups planning to raise and invest capital into the start-ups and companies that will lead this generation forward into the next era of innovation.

How Tandon is helping me bring that vision to life:

Tandon gave me access to a base of knowledge that is applicable in almost any job area. It allowed me the flexibility to both study and work, which put into perspective how what I learned could be used in my future career. Not many other schools allow for such opportunities, and I am grateful to have been at Tandon.





Our Alumni Shine

Meng Ai Makes *Forbes* “30 under 30” List in the Food and Wine Category

What do traditional Chinese dry-pot cooking and a master’s degree in Finance and Risk Engineering have to do with each other? Not much on the surface, but that combination has propelled Meng Ai (’16) to a spot in the “Food and Drink” category on the prestigious “30 under 30” list published annually by *Forbes* magazine.

While restaurants often tout their star chefs, they also need solid financial oversight, and that’s where Ai comes in. Along with Culinary Institute of America grad Ning (Amelie) Kang, she helped found Málà Project, the first Chinese restaurant in Manhattan to focus on the distinctive dry-pot style of cooking, which calls for a mélange of meats and vegetables to be prepared with spice-infused oil and served communally. The restaurant, launched in late 2015, has since become a fixture on New York’s increasingly more inventive Chinese food scene, and in 2018 the partners opened a second location in Midtown. (They are now planning to open their third Manhattan location later in 2020.)

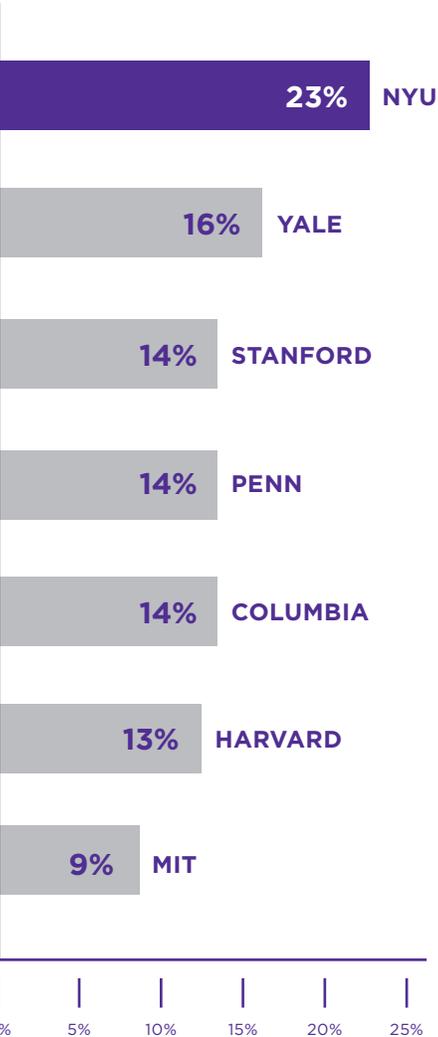
Ai, who also works at a top-tier Chinese venture-capital firm, now oversees the

business aspects of the restaurants from her home in Shanghai. “I can’t express how valuable my education at NYU Tandon has been to my career and life,” she said in a note to Dean Jelena Kovačević. “I hope to continue to make you proud.”

That seems like a certainty. Proving that Ai received not just stellar financial training at NYU Tandon but a strong sense of social mission, Málà Project is dedicated to diversity and equity: 50% of the employees are immigrants, and 60% of the management team members are female. Ai and her colleagues are not only focusing on building a financially sustainable business, but a platform of opportunities for their employees and other entrepreneurs who want to pursue their restaurant dreams. Since its founding, five of the original employees (four of whom are women) have become leaders and managers at the company, and now — in a model example of a virtuous circle — two of those women have founded their own enterprises and developed partnerships with Málà Project.



NYU LEADS PEERS IN PERCENTAGE OF FEMALE ENTREPRENEURS



NYU President Andrew Hamilton paid homage to the university’s rising number of young female entrepreneurs in his February 2020 newsletter, and an honorable mention was given to Meng Ai, acknowledging her contributions to New York City’s food scene.

Mixing It Up

On Wednesday, January 29, 2020, NYU Tandon Finance and Risk Engineering Alumni enthusiastically gathered for their first mixer of the year. The event, which was held at Slattery's Midtown Pub, featured hors d'oeuvres, cocktails, and great company. The well-attended gathering attracted 50 attendees from a wide variety of classes, from 1997 to 2019! The department strongly values alumni connection and looks forward to holding at least two events for our grads each year, so please plan on joining us.



The Limitations of Modeling in a Pandemic

Nassim N. Taleb has cautioned that while models can help determine how to stop the spread of COVID-19, it is important to distinguish between exactly what models can and cannot predict. "All models' assumptions fail to describe the details of most real-world systems," he has explained. "However, these systems may possess large-scale behaviors that do not depend on all these details. A simple model that correctly captures these large-scale behaviors but gets some details wrong is useful; a complicated model that gets some details correct but mischaracterizes the large-scale behaviors is misleading at best. The accuracy and sophistication of a model's details matter only if the model's general assumptions correctly describe the real-world behaviors of interest. Carefully delineating models' strengths and

shortcomings will not only clarify how they can help but also temper expectations among policymakers and members of the public looking to understand the full impact of the virus in the weeks and months ahead. More important even than prediction is the ability of models to guide actions that can change this impact, including actions that can potentially drive the virus to extinction."

The paper, "What Models Can and Cannot Tell Us about COVID-19," co-written by Alexander F. Siegenfeld (lead author) and Yaneer Bar-Yamb, appeared in a recent volume of Proceedings of the National Academy of Sciences (PNAS) and can be read in its entirety at

www.pnas.org/content/pnas/early/2020/06/23/2011542117.full.pdf

Spotlight on Roza Galeeva

On occasion, the new Finance and Risk Engineering adjunct professor Roza Galeeva goes by the moniker Rhoza, because rho, the 17th letter of the Greek alphabet, is the mathematical symbol for correlation, the study of which has been a focus during her long career at Morgan Stanley (MS).

The credit for the creative twist goes to Department Chair Peter Carr, then a colleague at the company, who suggested using her name as a new “Greek” (derivative, that is), with respect to correlation. Alex Eydeland, a legendary figure in the commodities world who served for more than a decade as the head of commodity quants at Morgan Stanley, hit upon “Rhoza.” “Correlations — specifically correlations in commodity — is my passion, my life and my first name,” she says.

Here at NYU Tandon, she has several aims. First, she hopes to inspire in her students an appreciation of how exciting and challenging working with commodities can be. “You are not dealing with dry abstractions,” she explains. “You’re looking at real assets like pipelines, power plants, storage facilities, oil wells; you can’t create a universal model to value a power plant, for example, as every plant has unique features and physical characteristics.” She continues, “Every commodity is unique: a commodity delivered to a particular location, on a certain month, day or even hour, could be very different from the same commodity delivered at a different location or time.”

Another objective is to prepare her students for a seamless progression from the classroom into the real world: she wants to show them how the beauty and power of mathematics can be used in real applications (in particular, for modeling commodity derivatives) and to help them develop the skills for working with real



problems and real data — looking for patterns and connections and delivering the results in a concise, clear fashion.

She hopes, as well, to attract more women to finance, a field in which they are still underrepresented. “I have been mentoring female students in my teaching posts, as well as at Morgan Stanley,” she says. “I want them to know they have a place at the table and can excel as long as they have the right knowledge, talent, confidence and attitude.”

While those are an ambitious set of goals, she is well-equipped to see them to fruition. She brings with her to NYU an impressive set of skills and capabilities — including almost 20 years of industry experience in modeling and risk management — and with advanced degrees in mathematical physics, she has

extensive experience in academia also. She has taught advanced mathematical courses throughout the world, including the U.S., France, Mexico, Russia, and Bulgaria (doing so in five local languages, all of which she speaks fluently), and has done research in dynamical systems, collaborating and co-authoring papers with many renowned mathematicians.

It is clear why Chair Peter Carr, whom she first met at a financial conference in Mexico in 1999, recruited her to his department’s remarkable roster of instructors. “While my current job at Morgan Stanley is one I began dreaming of as soon as I decided to join the financial industry, I still often thought of returning to the classroom to teach and mentor,” she says. “I’m happy to get the chance to do that at NYU.”

Researching, Publishing, Keynote Speaking: Our Faculty Members Stay on the Move



Peter Carr

Researchers from around the world flocked to the Second International Symposium on Partial Differential Equations and Stochastic Analysis in Mathematical Finance, which was held from January 6-10 at the Tsinghua International Mathematics Conference Center (TSIMF) in Sanya, China. The opening ceremony featured FRE Department Chair Peter Carr, whose lecture was titled "Adding Optionality." During the informative address he explained that optionality arises when an investor is able to choose between the more valuable of two alternatives in the future and presented a new way to value optionality via change of arithmetic.

On Friday, February 28, he was a panelist at an International Association for Quantitative Finance (IAQF) event, the Breakfast Roundtable with IAQF Senior Fellows, held at the Cornell Club of New York. The panelists, all of whom were past recipients of the Annual Financial Engineer of the Year Award, discussed the future of research and the markets.



David Shimko

Industry Professor David Shimko's paper "Long-Term Project Valuation in Capital-Constrained Firms," volume 40 of *Finance (Revue de l'association Francaise de Finance)*, one of the largest bibliographic databases dedicated to Economics and available freely on the internet. The paper, according to its abstract, "values correlated future cash flows when idiosyncratic risk earns a premium. For example, single period RAROC-style valuations used by financial institutions can be extended to multiple periods. Properties of the valuation differ considerably from traditional NPV analysis. Cash flow valuations are non-additive, and asset values vary inversely with cash flow variances and covariances. Negative valuations are possible even when expected cash flows are positive. The valuation of normally distributed cash flows is provided in matrix form, as well as the period-specific risk charge allocations. Simplified perpetuity formulas are also developed for cash flows that follow random walks."



Roy S. Freedman

Adjunct Professor Roy S. Freedman discovered three new integer sequences (A329940, A329655, A329943), which were published in the *On-Line Encyclopedia of Integer Sequences* (oeis.org). Additionally, on the arXiv open-access preprint service (arXiv.org), he posted three papers related to Machine Learning: "Copula Representations and Error Surface Projections for the Exclusive Or Problem," "Visual Backpropagation," and "Operational Interpretations of the Chernoff Inequality." On the SSRN repository (ssrn.com), Dr. Freedman posted his "Chairman's Introduction" to the three International Conferences on Artificial Intelligence Applications on Wall Street (1991, 1993, 1985; proceedings papers published by the IEEE and IAKE). These conferences provide a still-relevant and important historical perspective on AI applications to financial services.





Thomas Philips

The March 2020 issue of the *Journal of Portfolio Management* features “Ultra-Simple Shiller’s CAPE: How One Year’s Data Can Predict Equity Market Returns Better than Ten,” an insightful article by Adjunct Professor Thomas Philips and co-author Adam Kobar. In it, they provide a theoretical foundation for the Cyclically Adjusted P/E ratio (CAPE) methodology and demonstrate that the standard CAPE methodology does not accurately predict returns when CAPE is very depressed – an additional non-linear term is called for. In addition, they separate the problems of noise reduction and cyclicity, and, as they put it “kill three birds (noise reduction, cyclicity and nonlinearity) with three small stones.”



Jon Hill

Adjunct Professor Jon Hill, who has taught Model Risk Management and Governance at Tandon, is the author of “A Smarter Model Risk Management Will Follow from Building Smarter Models,” which appears in the February 2020 issue of the *Journal of Risk Management in Financial Institutions*. In it, he describes one forward-looking possibility for making the manually intensive practice of MRM smarter by building models with a rudimentary level of “self-awareness.”

Dr. Hill, who is the head of the New York Chapter of Model Risk Managers International Association, will also present a lecture at FRE’s BQE (Brooklyn Quant Experience) this coming fall.



A Winning Streak

On Friday, November 9, 2019, 50 teams took part in the prestigious annual University Trading Challenge competition, held at Bentley University in Boston, where NYU Team Bobcat took 2nd overall place and NYU Team Alpha Quant placed 3rd.

Team Bobcat, captained by Hepu Jin, placed first in the Portfolio Management Challenge, while team member Boyan Han also achieved recognition for best individual performance in that segment. Titash Goshal of Team Alpha Quant garnered best-individual-performance honors in the Trading Challenge.

Those wins are part of a five-year streak, and highlights include back-to-back overall first place finishes in 2017 and 2018. The new 2019 trophies will join the others on proud display on the 10th floor of 1 MetroTech Center.

Thanks go to Professor Ronald Slivka, team advisor, for his steadfast support and guidance throughout the years.

TEAM MEMBERS

ALPHA QUANT:

Xiongan Cheng, Titash Ghoshal and Ji Wu

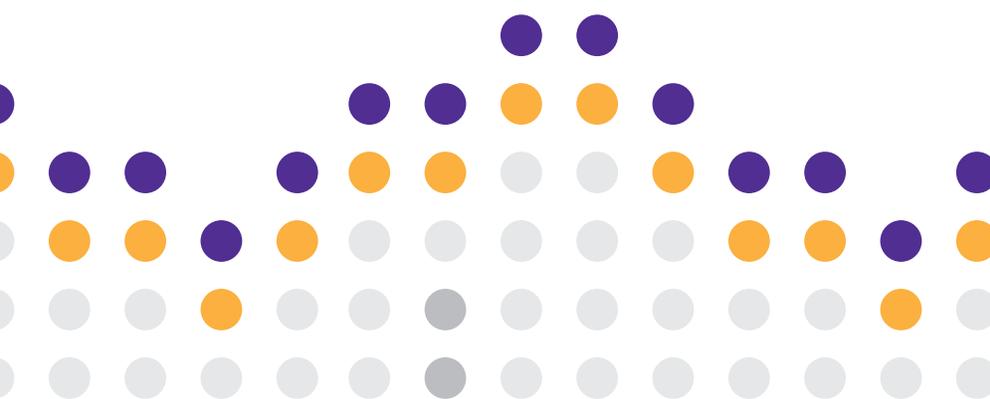
BOBCAT:

Hepu Jin, Zicheng He, and Boyan Han

TRADER JOE’S:

Shreyank Gandhi, Shreya Gossain, and Riddhiman Dass

Congratulations to all for a job well done!



Exceptional Events

FRE 2nd Year Students Hold Peer Recruiting Advice Panel

FRE students often find that the best sources of advice are right here on campus! On Tuesday, February 11, 2020, they gathered for the latest FRE Peer Recruiting Advice Panel, held in the MakerSpace Event Space, where four graduating students shared their best job-hunting strategies and gave the inside scoop on how they landed their dream jobs! Panel topics included knowing the differences between the U.S. and Chinese job market, preparing for interviews, being creative in making networking connections, and more.

Staff Appreciation Day at the Barclays Center

To celebrate our financial program's leap in global rankings, on February 12, the department hosted a Staff Appreciation Day at the Barclays Center, where the Brooklyn Nets took on the reigning NBA champs, the Toronto Raptors. In the end, the Nets were able to stop the Raptors' franchise-record winning streak of 15

games with a 101-91 defeat on their home court!

Our own FRE team in attendance included Peter Carr, David Shimko, Jennifer Novicki, Carmen Montes De Oca, Zahra Patterson, Yves-Pierre, Sara DeLusant, Krunal Patel, Roujia Chen, and Uditi Chaudhary. (FRE team members unable to attend but just as integral to the department's rankings success include Barry Blecherman, Nassim Taleb, Jonnett Romano, James Tien, Agnes Tourin and Andrew Papanicolau.)

Our group took some time to remember Kobe and Gianna Bryant and pay tribute to the nine people who died tragically in the helicopter crash of January 26 by reflecting at a mural on the corner of Flatbush Avenue and Pacific Street designed by artist Efren Andaluz, a lifelong Lakers fan from Queens.

All in all, it was a memorable day, especially since the Nets, who famously represent Brooklyn, embody the NYU Tandon FRE ethos: "One Team, One Goal."



Did You Know . . .

When he's not teaching, Ron Slivka is a serious cook and dinner party host whose signature "comfort food" dishes make skillful use of herbs and spices to create memorable tastes and aromas. If that weren't a demanding enough hobby, he also sings bass in three choral groups: a local community chorus specializing in 19th and 20th century music, a church choir that performs sacred music, and CantusNovus ("New Song"), a select *cappella* chamber chorus devoted to music from the Renaissance to the 21st century. (Visit <https://www.youtube.com/user/cantusnovuspa/videos> to hear him in action.)

In another display of musical talent, David Shimko enjoys singing karaoke in Chinese! His go-to songs are "Tong Hua" (Fairy Tale) and "Yueliang Daibiao Wo De Xin" (The Moon Represents My Heart.) He hopes to one day bring karaoke to Tandon and perform for his students.

Peter Carr is not the only department chair in his family; his wife also holds a departmental chairmanship. Three cheers for this dynamic academic duo!

Jelena Kovacevic, the first female dean of the NYU Tandon School of Engineering, speaks Serbian, English, French and Italian.



Brooklyn Quant Experience

LECTURE SERIES

Spring 2020 Brooklyn Quant Experience

Our lecture series was renamed last spring to “BQE,” but the same great mix of industry professionals and academic stars. All lectures were held on Thursdays, from 6 to 7 pm at the location indicated. After March 5th, all lectures were given via Zoom. The fall 2020 BQE lectures will all be held via Zoom.

JANUARY 30

Milind Sharma,
QuantZ/QMIT
at Event MakerSpace
(Rogers Hall, First Floor)

FEBRUARY 6

Dhruv Madeka,
Amazon
at LC 400
(Dibner Building, Fourth Floor)

FEBRUARY 13

Harvey Stein,
Bloomberg
at LC 400
(Dibner Building, Fourth Floor)

FEBRUARY 20

Claudio Tebaldi,
Bocconi University
at Event MakerSpace
(Rogers Hall, First Floor)

FEBRUARY 27

Marina Di Giacinto,
Sapienza University of Rome
at Event MakerSpace
(Rogers Hall, First Floor)

MARCH 5

Kimberly Weston,
Rutgers University
at LC 400
(Dibner Building, Fourth Floor)
-rescheduled.

Stephan Strum,
Worcester Polytechnic Institute
via Zoom

MARCH 12

Marco Avellaneda,
Courant Institute
at LC 400
(Dibner Building, Fourth Floor)
-rescheduled.

Peter Carr,
NYU Tandon School of Engineering
via Zoom

MARCH 26

Federico Bandi,
Johns Hopkins University
at LC 400
(Dibner Building, Fourth Floor)
-rescheduled.

APRIL 2

Glenn Shafer,
Rutgers University
via Zoom

APRIL 9

Bin Zou,
University of Connecticut
at LC 400
(Dibner Building, Fourth Floor)
-rescheduled.

APRIL 16

Weilong Fu,
Columbia University
Event MakerSpace
(Rogers Hall, First Floor)
-rescheduled.

Steven Heston,
University of Maryland
College Park, via Zoom

APRIL 23

Agostino Capponi,
Columbia University
via Zoom

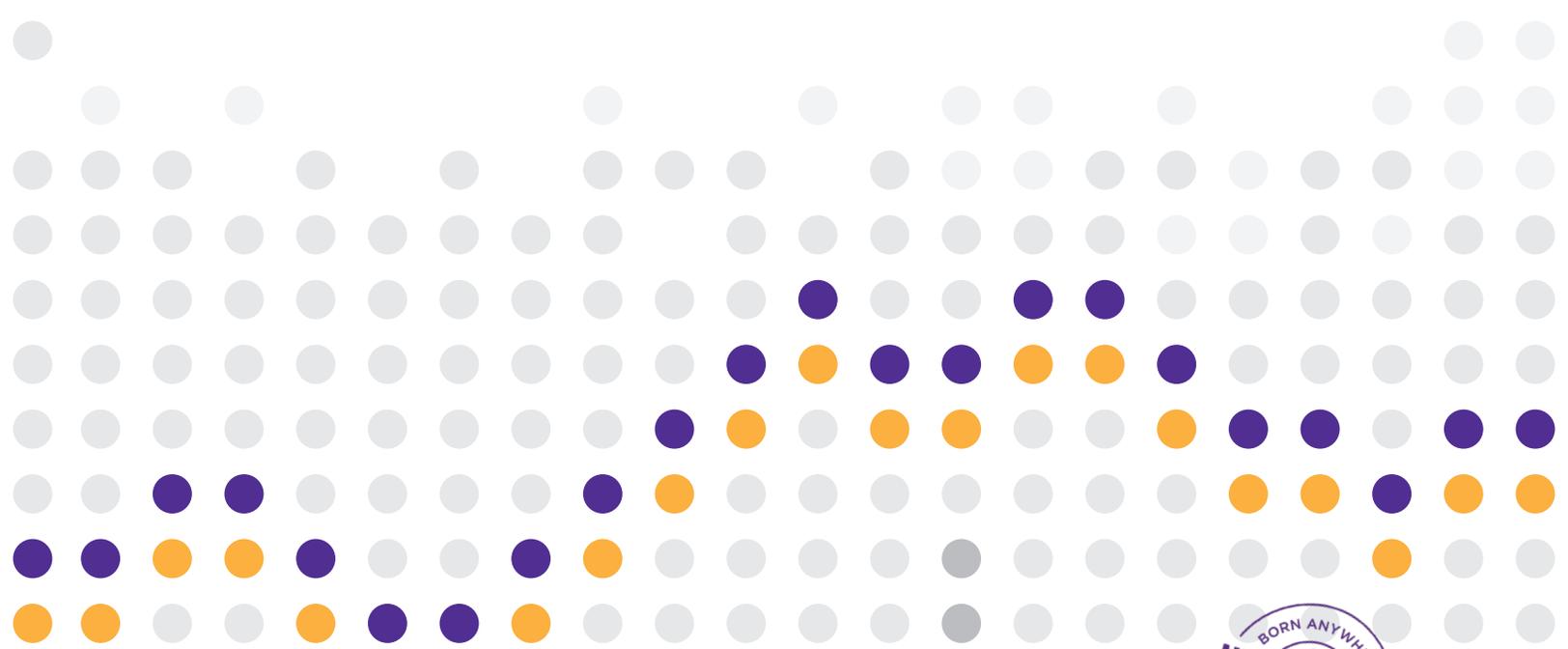
APRIL 30

Igor Cialenco,
Illinois Institute of Technology
via Zoom

MAY 7

Ting-Kam Leonard Wong,
University of Toronto
at LC 400
(Dibner Building, Fourth Floor)
-rescheduled.

Department of Finance and Risk Engineering
1 Metrotech Center
Brooklyn, NY 11201



Comments or Questions?
engineering.fre@nyu.edu or 646-997-3279

engineering.nyu.edu #NYUTandonMade

ABOUT Catching FIRE

Contributing Writer: Zahra Patterson and Co.
Design: NYU Tandon Marketing and Communications Office
facebook.com/NYUSOEFRE

