INSTITUTIONAL ADVISORY & SOLUTIONS

PGIM

THE DIFFERENTIAL

New Developments in Portfolio Construction

December 2022 | Issue 7

PGIM's Institutional Advisory and Solutions Group provides objective, data-informed analysis to help Chief Investment Officers and Investment Committees manage their portfolios.

To learn more about PGIM IAS, contact IAS@pgim.com or visit pgim.com/IAS.

IN THIS ISSUE

Dear Investor,

We close the year on a confident and optimistic note. The quarter has been chock-a-block with client visits and meetings while the flow of research ideas and working papers remains robust with the publication of three exciting new papers that have received widespread attention:

- **"Measuring the Value of a Portfolio Liquidity Line"**
  To enhance portfolio liquidity a CIO can consider an external, collateralized liquidity line. To offset the cost, the CIO can consider increasing allocations to less liquid assets with higher expected returns. This research allows CIOs to evaluate and quantify the expected return-liquidity risk tradeoff of a portfolio liquidity line.

- **"Portfolio Implications of a Positive Stock-Bond Correlation World"**
  Even in a positive stock-bond correlation world – a world we have experienced over the past year – a balanced portfolio of stocks and bonds remains optimal. This message is often overlooked given the media drumbeat announcing the death of the 60-40 portfolio. Surprisingly, optimal asset allocation weights in a positive correlation world are only slightly different than optimal weights when correlation is negative. Given the modest cost of being wrong about future correlation, investors need not rush to change their correlation assumption and re-optimize their asset mix until a new correlation regime becomes established.

- **"Building Portfolios with Infrastructure: Performance, Cash Flows & Portfolio Allocation"**
  CIOs need better information on the performance and cash flow characteristics of their infrastructure investments. Using asset- and fund-level data, we highlight important differences between infrastructure assets and funds, and compare their historical performance and cash flow characteristics with both public and other private investments.

  We then develop a method to estimate infrastructure equity assets' income returns and cash flows depending on their age and sector. With risk measures that capture both idiosyncratic and time-series income return volatility, we highlight that a CIO cannot ignore the high idiosyncratic risk of infrastructure assets when evaluating their future performance and cash flow risk.

  To help CIOs make better-informed decisions regarding their allocations to infrastructure, we use our asset-allocation framework (OASIS). We find that infrastructure investments, especially infrastructure assets, could improve portfolio diversification and liquidity, driven by their relatively large and stable income return.

  IAS unveiled this research at the EDHEC InfraDay Conference in London in early December.

Given the turbulence in the markets in Q4, our OASIS asset allocation framework for liquid and illiquid assets continues to attract attention and has led to more interactions and projects with investors.

As the year comes to a close, the IAS team is preparing for its 1st Annual IAS North America Research Conference at the Yale Club in New York City on 12 January 2023. At this half-day conference we will discuss our portfolio construction research with CIOs, heads of asset allocation and senior PMs from the US and Canada. Like all IAS get-togethers, we anticipate that the Conference will be highly interactive, with the sessions featuring numerous polling questions to help facilitate a free-flowing exchange of ideas between and among IAS researchers and conference participants alike.

Finally, we have some exciting papers forthcoming this Winter:

- ***"Is There a Need for a Chief Liquidity Officer?"*** *– January*
- ***"Reported and Real-World Private Asset Performance"*** *– March*

As always, IAS's goal is to deliver pragmatic and implementable research to help CIOs and their Investment Committees make better-informed portfolio management decisions.

All of us in IAS wish you and your families the best for 2023!

Warm regards,

Bruce D. Phelps, PhD, CFA

FORTHCOMING RESEARCH

Access IAS research →

PGIM IAS currently has four research streams: Real Assets, Strategic Portfolio Construction, Manager Allocation & Selection and Asset Allocation with Illiquid Private Assets. The common thread throughout is our focus on addressing new and emerging issues that CIOs and asset allocators are facing that could affect long-term portfolio risk and performance. As always, we attempt to offer pragmatic, data-driven, actionable answers to critical questions.

ILLIQUID PRIVATE ASSETS

Reported and Real-World Private Asset Performance

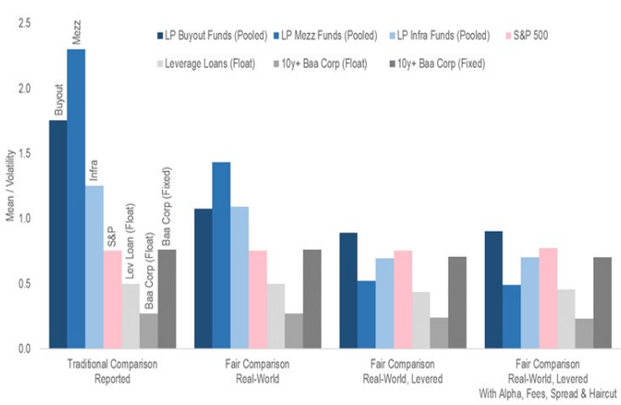
By Xiang Xu, PhD
Spring 2023

Our Fair Comparison Framework provides CIOs with a systematic tool to estimate and compare the *real-world* (as opposed to reported) performance of private assets with public assets on a more consistent, risk-adjusted basis.

Reported private asset performance measures (*e.g.*, IRR and PME) do not reflect investors' real-world challenges. For example, unlike for public assets, a CIO has little control over the size and timing of their private asset investments, which are at the GP's discretion. The LP investor will typically commit a portion of their assets to the GP, wait for the commitment to be called, and invest the uncommitted and committed, but uncalled, capital elsewhere (*e.g.*, a public market index).

However, reported measures fail to capture the performance of the uncommitted and uncalled capital, and the impact of manager selection, which is an integral part of the real-world performance. The framework we develop more fully captures the real-world performance of private investments, allowing CIOs to make better allocation decisions and improve performance.

Fair Comparison of Private vs. Public Assets Based on Real-World Performance; 2005-2021



Note: Results based on real-world performance, levered to make volatilities comparable, and adjusted for financing costs, manager alpha and fees. Source: Barclays, Bloomberg, Burgiss, S&P and PGIM IAS. For illustrative purposes only.

ILLIQUID PRIVATE ASSETS

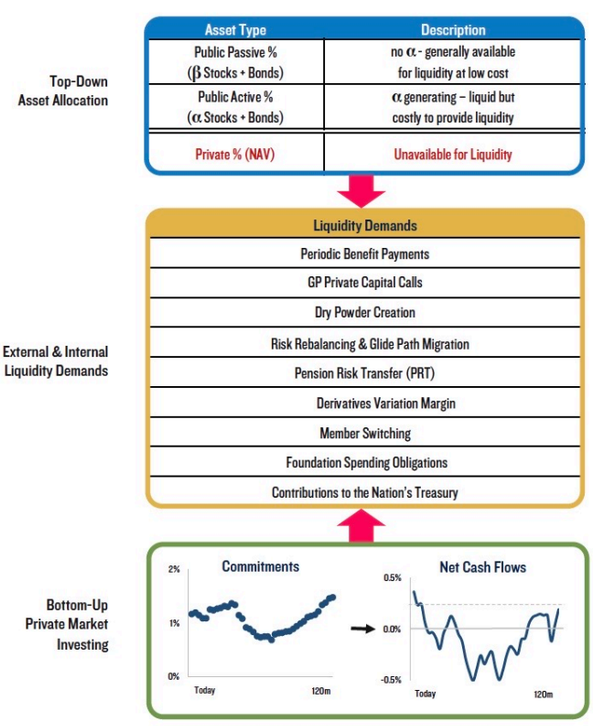
Is There a Need for a Chief Liquidity Officer?

By Michelle Teng, PhD, CFA
Spring 2023

Many institutional investors have a Chief Risk Officer assisting the CIO to measure and monitor portfolio volatility. However, periods of elevated volatility come and go and, for many long-term investors (*e.g.*, pensions, sovereign wealth funds and defined contribution plans), are rarely life threatening. In contrast, liquidity events can create a sudden and unexpected need to raise cash, threatening a fund's survival and forcing CIOs to make undesirable and often costly portfolio decisions.

What makes liquidity management particularly challenging is the need to integrate all aspects of a fund's liquidity demands and sources – top-down asset allocation, bottom-up private market deal-making activities, and internal and external operations – into a coherent, long-horizon framework.

We discuss the key elements of good liquidity management and argue that liquidity considerations are sufficiently unique and prevalent to justify discussing the need for a new and separate "Chief Liquidity Officer" role, despite the potential burden of increased organizational bureaucracy. While the choice to focus on liquidity management via a dedicated managerial position or via existing processes is up to individual funds, the notion that CIOs will need to continue to enhance their ability to analyze, monitor, and manage liquidity seems more clear-cut.



Source: PGIM IAS. Provided for illustrative purposes only.

IAS INTERACTIVE PORTFOLIO CONSTRUCTION TOOLKIT

Access IAS toolkit →

To further expand our capabilities in supporting CIOs and asset allocators with pragmatic and data driven research, we have developed a web-based, interactive toolkit based on previous IAS research.

The **IAS Interactive Portfolio Construction Toolkit** allows users to use those tools to look at current data, to dynamically adjust model assumptions, and to customize results.

In providing a "hands on" interactive experience, the **IAS Interactive Portfolio Construction Toolkit** can give clients greater insights into the problems that they are facing and the contours of potential answers, ultimately leading to more substantive conversations with the IAS group.

We currently have modules focused on real assets and on stock-bond correlation. In the coming months we expect to add additional modules on recession probability modeling (based on **The Probability of Recession: A Critique of a New Forecasting Technique** – *May 2020*) and on the fair comparison of illiquidity private assets and public assets (based on **Reported and Real-World Private Asset Performance** – *forthcoming Spring 2023*).

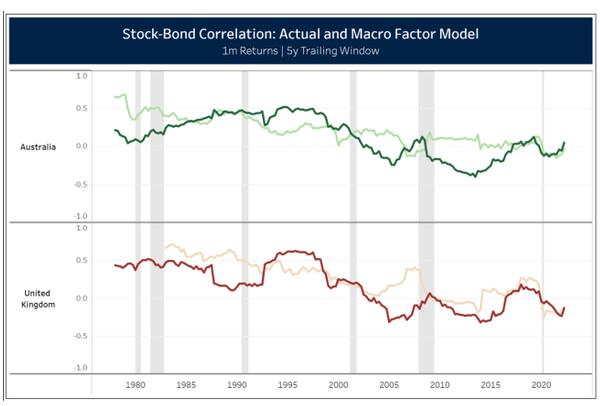
STRATEGIC PORTFOLIO CONSTRUCTION

Stock Bond Correlation Module

The Stock-Bond Correlation Module allows users to track the ongoing evolution of developed market stock-bond correlations and their underlying macroeconomic drivers, and to explore how correlation impacts portfolio construction and performance.

Users can:

- Monitor the stock-bond correlations in six major DMs
- Examine how macroeconomic drivers are influencing correlation
- Determine how capital market assumptions impact optimal portfolio construction and performance

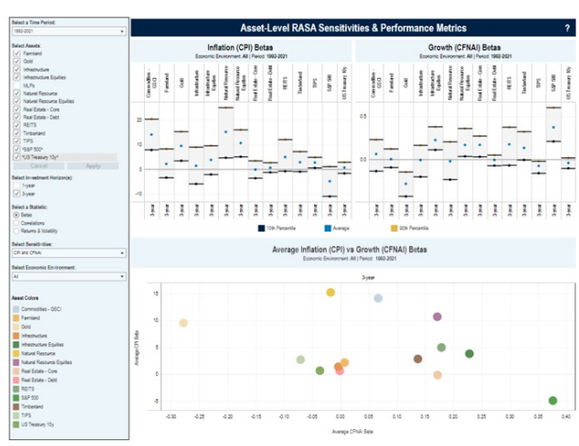


REAL ASSETS

RASA® Interactive Portfolio Construction Module

Based on the different sensitivities of a wide range of real assets to macroeconomic conditions that underpin our RASA (Real Assets Sensitivity Analysis) framework, ***RASA Interactive*** enables investors to determine if their real asset benchmark is aligned with their objectives, to compare their real assets portfolio to peer portfolios, and to conduct "what-if" analysis to modify portfolio allocations.

Our tool captures almost five decades of historical data and provides users with the flexibility to compare real assets based on performance metrics, evaluate sensitivities to macroeconomic and market changes, and to determine how to allocate across the real assets universe based on portfolio objective over different time periods and return horizons.



IN CONVERSATION WITH IAS

IAS' Michelle Teng discusses current trends in the defined contribution (DC) world with PGIM DC Solution's Senior Strategist, Mikaylee O'Connor.

Mikaylee O'Connor
VP, Senior DC Strategist
PGIM DC Solutions*

Michelle Teng, PhD, CFA
VP, Co-Head of Private Assets Research
PGIM IAS

Mikaylee is Vice President and Senior Defined Contribution Strategist for PGIM DC Solutions. She is actively involved with several industry organizations, including the Defined Contribution Institutional Investment Association (DCIIA), where she serves as a member of the operating committee and executive committee. Prior to joining PGIM, Mikaylee was the Head of Defined Contribution Solutions and a Senior Consultant for RVK, Inc.

Michelle is Vice President and Co-Head of the Private Assets Research Program in PGIM's Institutional Advisory & Solutions (IAS) group. She joined IAS from the Prudential Retirement's Investment & Pension Solutions team. Michelle is also author of the IAS "business-school" case study series tracking the transformation of the (hypothetical) Cenland Corporation's traditional DB plan to a DC plan from the perspective of the plan's CIO and portfolio managers. These case studies are available at www.PGIM.com/IAS.

MT: Looking back on your 2022 client and industry engagements, what are the main themes in those discussions? What new trends are emerging?

MOC: Retirement income, personalization, non-traditional asset classes, and participant communications and engagement, have been some of the main themes discussed in 2022.

Many of these topics are interconnected – personalization and participant engagement often go hand in hand and it is hard to discuss retirement income without mentioning the inclusion of non-traditional asset classes. There is a growing recognition that how plans engage and provide solutions to their participants needs to evolve. At one end of the spectrum, Gen-Z is joining the workforce and their communication styles are different – in fact TikTok has been a hot topic this year! At the other end of the spectrum, there is an increasing number of DC participants moving into retirement and we need to make sure they have the tools and solutions needed to thrive in retirement.

The DC system was not designed to provide retirement income – so, we will need to see transformational change from our current savings system into a true retirement system. To truly solve for the needs of retirees, the system will likely require more integrated personalization and a liability-informed investment approach based on individuals' spending rather than the typical pension liabilities profile. One-size-fits all investment solutions are no longer the answer.

In the US, target date funds (TDFs) have been very successful accumulation vehicles – we are seeing significant inflows going into these strategies. Now the question is "Can we do better? Can we leverage the additional data from say record keeping and payroll systems to deliver better outcomes?"

MT: During the pandemic, many DC participants were allowed to draw on their retirement assets, creating liquidity challenges for funds. What other kinds of sudden liquidity demands should CIOs be thinking about in this context?

MOC: Two areas I'd highlight. First, the passage of SECURE 2.0 will likely make it easier for individuals affected by federally-declared disasters to tap their retirement accounts, which could create increased liquidity demands should we experience more natural disasters. While this has not been the case in the US, in other countries such as Australia, such dynamics could pose greater liquidity challenges given the pooling of investments and greater use of illiquid investments.

While not necessarily unexpected, the greatest outflows from the US DC system are from rollovers into IRAs. In some cases, outflows are exceeding inflows, which may ultimately impact the types of investments considered and the ability to maintain pricing efficiencies – two issues that are important to CIOs.

MT: How do DC plans think about the role of less liquid private assets?

MOC: It is important to first mention that there are different governance structures that plan sponsors employ within the DC space. I'll put them into three categories – plan sponsors with a CIO and investment staff; plan sponsors without investment staff who rely on an investment consultant or advisor; and plan sponsors who outsource the investment decisions to a third-party. The governance structure often impacts the investment decisions as well as whether private assets are used.

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IN CONVERSATION WITH IAS CONTINUED

Based on our recent DC plan sponsor survey, 80% of DC plan sponsors offer an off-the-shelf TDF. That means the investment decisions are at the discretion of the hired investment manager. In addition, approximately 50% DC plan sponsors indicated their TDFs are primarily passive or all passive management. So, who is most likely to incorporate private assets into their DC plans? It's the plan sponsors with internal investment staff that offer a custom TDF. The most common private asset class being used is private real estate. I should mention that some off-the-shelf TDFs employ private assets as well. For example, Prudential's Day One Portfolios have been using private real estate for years.

MT: With many DC plans outsourcing their asset allocation decisions to third parties, do you see a continuation of that trend or a return to in-house management?

MOC: I'd suggest that we're seeing an ongoing trend toward more outsourcing in the US, and not just for small employers. Typically, plan sponsors can engage an OCIO or move to a Pooled Employer Plan or "PEP." Under both scenarios, the plan sponsor is shifting its fiduciary responsibility to a third party (to varying degrees). As we see more consolidation or pooling of DC plan assets here in the US, I would anticipate a greater usage of institutional best practices, such as a thoughtful mix of active and passive and greater incorporation of private assets – more aligned with what we already see in places like Australia. But we are still in the early stages.

MT: Globally, many DBs are transitioning to DCs, with some CIOs now responsible for both DB and DC plans. How could these CIOs apply their DB experience to design more innovative DB-like investment options for their DC plans?

MOC: I believe there is a huge opportunity for CIOs and investment staff of DB plans to use their expertise to apply institutional investment practices to their DC plans. This will likely become even more important as DC plans transform to become true retirement plans. With DC plan assets often exceeding DB plan assets, and the increased focus on solving the retirement income problem – a decumulation challenge, the experience in asset-liability work that CIOs bring to the table will be very valuable.

A good exercise for CIOs to consider is evaluating if and why they employ different investment philosophies between their DB and DC plans. As an example, I often see differences in the use of active vs. passive management and single vs. multi-manager portfolios. If a DB plan's fixed income allocation is 100% actively managed, how do you reconcile that with the DC plan only offering passive fixed income options? Yes, there are certain considerations that may justify different approaches, but there are also several reasons for more consistent philosophies. At the end of the day, both plans have an objective to provide retirement income.

MT: You work directly with clients in analyzing retirement readiness for their DC participants. What kinds of "what-if" planning is currently top of mind for your DC clients?

MOC: Essentially, using data from the plan sponsor and using our proprietary advice engine, we can estimate each participant's projected goal completion at retirement. We can then layer on some "what-ifs" such as changes in the savings rate, delayed claiming of Social Security and delayed retirement. This allows us to answer questions like "What would be the impact on participants in the $50-$75k salary group if they increase savings by 1% and delay claiming Social Security by one year?"

These types of studies are extremely helpful in helping plan sponsors see where they may have gaps and what types of solutions may work best for their participant populations.

MT: You recently completed a survey of DC plan sponsors. What are some key findings and how do you think the survey can help promote innovation?

MOC: As I mentioned earlier, with the help of Greenwich Associates we recently completed a DC plan sponsor survey, which includes 155 401(k) plan sponsors covering plans ranging from $100m to $5+b. It covers several topics including governance and plan oversight, plan sponsor priorities and retirement readiness, QDIAs, alternatives, core menu, ESG and retirement income.

The survey is designed to help us better understand priorities and interests of DC plan sponsors. Plan sponsors, consultants and organizations are also finding the results useful in understanding where the industry is in terms of developing certain processes and where priorities lie.

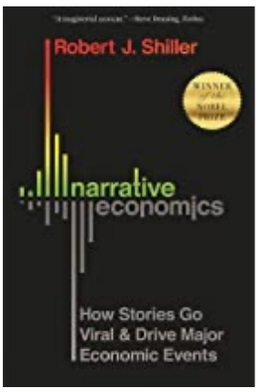
Some highlights are the continued growth in usage of OCIO capabilities, about 60% plan sponsors are taking some steps with regards to ESG, and close to 70% of plan sponsors are doing something in the retirement income space.

MT: What is on your plate for 2023?

MOC: With the passage of SECURE 2.0 legislation at the end of 2022, there is a lot to digest across the 90 or so retirement provisions. I'm currently working on a special edition "Buzz from Washington" piece specific to the new legislation. I am also working on a handful of short papers related to the results of our DC plan sponsor survey and will be publishing the results of a separate OCIO survey at some point in 2023.

As with 2022, I'll be out meeting with DC clients, consultants, and attending industry events. The team is making great progress on our suite of DC solutions, which I'm excited to share more about in the coming months. PGIM DC Solutions has a lot going on this year!

WHAT WE'RE READING



Narrative Economics

by Robert J. Shiller
Princeton University Press, 2019

Economists have a poor track record predicting the ups and downs of the business cycle. Perhaps this is because economists' models rely on a limited set of inputs (official economic statistics and market data). Traditionally, these models do not incorporate human beliefs that are formed by the customs and conventions of the day and that circulate in the form of narratives – stories that seek to promote a set of values. For Shiller, *"economic narratives"* are narratives that have the potential to impact the business cycle by changing people's spending, saving and investment decisions.

For example, the 10y-long Great Depression following the 1929 market crash was, for economists, inexplicably long. Shiller suspects that consumption did not rebound quickly because the narrative in vogue was the new morality that promoted saving and frowned on conspicuous consumption (a "frugality narrative"), which was, in part, in reaction to the excesses of the roaring '20s.

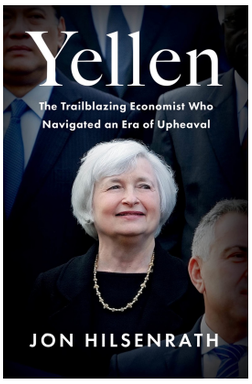
A recent example of the potential economic impact of narratives is the surprising price rise of Bitcoin. Perennial narratives of people's fear of being replaced by new technology (a "labor-saving narrative") and frustration with authority (an "anarchist narrative") may have combined to motivate people to join the cybercurrency ecosystem by buying Bitcoin.

For Shiller, narratives circulate through an economy like a contagious virus through a susceptible population. The typical pattern is for a narrative to take hold, rapidly spread and then, at some point, decline. Shiller uses data from Google Ngrams to measure the "epidemic pattern" of various historical economic narratives. How quickly a narrative spreads and its persistence is a function of the narrative's contagiousness and how quickly it is forgotten – characteristics that are, unfortunately, impossible to know ex ante.

While it is plausible that narratives affect people's economic decisions, it is very difficult to see how to incorporate narratives in economic forecasting. In retrospect, there is no shortage of narratives consistent with the economic activity of a historical period. However, there are likely to be many narratives that are inconsistent. How does one find the operative narrative(s) to support or refute Shiller's hypothesis? While Shiller documents the epidemic-like rise and fall of various US economic narratives over the last 100+ years, there is little evidence linking such narratives to subsequent economic outcomes. Indeed, narratives may be the consequence of an economic event, not the cause.

CIO Takeaway: While *Narrative Economics* offers an intriguing hypothesis and discusses several captivating historical episodes, the CIO will likely be left with "What now?" Shiller's hypothesis is essentially untestable. Even if it is accepted on faith, there is no guidance on how to identify the economic narratives in play today or to anticipate what narratives may matter in the near-term future.

— Bruce P.



Yellen: The Trailblazing Economist Who Navigated an Era of Upheaval

by Jon Hilsenrath
Harper Business, HarperCollins Publishers, 2022

Janet Yellen is a pathbreaker. She is the only person to have held all three of the top US economic policymaking positions – Chair of the Council of Economic Advisors (1997-99), Chair of the Board of Governors of the Federal Reserve System (2014 to 2018), and currently, Secretary of the Treasury, having been a tenured professor (only the second woman at the time) at UC Berkeley's Hass School of Business.

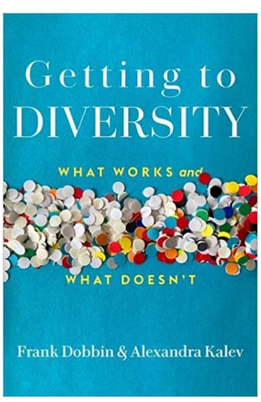
During her nearly six decades of public service, Yellen has steered the US economy through a myriad of cross-currents: the rise and fall of US inflation, burgeoning globalization, a surge in US productivity, a tech-fueled equity market boom and bust, the housing-bubble-induced Great Financial Crisis, a period of unprecedentedly low interest rates, the deployment of a slew of unconventional monetary policy tools, the COVID pandemic and the resulting increase in government spending and debt, supply chain disruptions, war in Ukraine, the resulting surge in inflation, and, currently, the looming specter of recession.

In Hilsenrath's narrative, Yellen's genius lies in her tireless ability to analyze an issue from multiple perspectives, to bring relevant and innovative data to bear, and to tease out implications down to the most minute details. He traces Yellen's lifelong dedication to and success in the realm of economic policy to three major influences in her life: her mother, who pushed her to excel academically and to prepare meticulously; her physician father, who worked tirelessly to help others; and her academic mentor Prof. James Tobin, who challenged her to provide direction and clarity in a world of uncertainty and chaos.

Janet Yellen's intellectual and academic background puts her firmly in the vanguard of the "New Keynesian School" of Economics, focused on the role that fiscal and monetary policy can have in business cycle stabilization. But she is far from an idealogue, acting with the knowledge that real world problems are far messier than what cut-and-dry academic models suggest. Throughout her career, Yellen has made decisions based on evidence not ideology, allowing her to be most dominant at the most dire moments without ever compromising "her basic decency, honesty and sense of duty."

CIO Takeaway: Janet Yellen's storied career provides us with a worthwhile case study in the value of acting with integrity and cultivating good will so as to be most influential when clear thinking is needed most. As Hilsenrath notes, *"Yellen battled hardest when the stakes were highest … she leaned into debates because her arguments were right and she had the conviction and knowledge to defend them."*

— Noah W.



Getting to Diversity: What Works and What Doesn't

by Frank Dobbin and Alexandra Kalev
The Belknap Press of Harvard University Press, 2022

Sociologists Frank Dobbin of Harvard University, and Alexandra Kalev of Tel Aviv University take an empirical approach to a vexing problem facing corporate America and American society more generally – how to increase workforce diversity, particularly with respect to higher paying managerial jobs. The lack of access to such jobs for historically underrepresented groups – female, Black, Latinx, and Asian workers – reinforces inequality and socio-economic disparities. Conversely, increased access to such roles could contribute to ameliorating these persistent inequities.

Drawing on nearly two decades of peer-reviewed empirical studies, *Getting to Diversity* evaluates corporate diversity initiatives to determine "what works and what doesn't."

Dobbin and Kalev leverage data from 800 companies, dozens of human resource initiatives, and 8m employee job histories and demonstrate that initiatives to "democratize" career systems have a significant positive impact on the likelihood that women, Black, Latinx, and Asian workers will join the managerial ranks. They bucket such systems into four broad categories: recruitment, mentoring, training, and work-life support. Corporations that intentionally include non-white males in these career systems increase the managerial opportunities for underrepresented groups.

For example, recruiting at historically black colleges and universities has a pronounced effect on increasing managerial diversity as does tapping into professional networks such as the Women in Technology Forum or the Society of Hispanic Professional Engineers. Similarly, creating formal mentoring programs that draw from a diverse group of junior employees based on workplace interest, and not just relying on informal mentor-mentee relationships that typically are based on race, gender or ethnicity, also leads to a significant uptick in managerial roles for non-Whites.

At the same time, the authors offer evidence that training programs aimed at erasing bias and harassment, rules-based systems, and enhanced grievance systems *do not* improve manager diversity.

CIO Takeaway: In any organization, diverse perspectives, talents, and skills are invaluable, even more so when that organization is tasked with navigating the complexities of financial markets. With an abundance of empirical support, *Getting to Diversity* presents a set of concrete and practical workforce initiatives that CIOs can deploy to develop a more diverse and representative cadre of senior leaders.

— Noah W.

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