INSTITUTIONAL ADVISORY & SOLUTIONS

PGIM

THE DIFFERENTIAL

New Developments in Portfolio Construction

September & December 2023 – Special Year-End Double Issue | Issue 10

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
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IN THIS ISSUE

Dear Investor:

Welcome to 2024!

For PGIM IAS, 2023 ended with a bang! In October, IAS teamed up with the **Shanghai Advanced Institute of Finance (SAIF)** at **Shanghai Jiao Tong University** to host our inaugural **IAS Asia Research Conference**. SAIF, a leading Chinese finance and management research institution, warmly welcomed the IAS team at their historic Shanghai campus. This was PGIM's first conference in China and we deeply appreciate SAIF's hospitality. The full-day event featured research presentations from both SAIF's faculty and PGIM IAS researchers on Chinese and US financial trends and as well as on the latest developments in portfolio construction research. Over 40 participants from academia and industry attended.

Some highlights from the conference included:

- **Introduction:** Professors Hong Yan and David Li (SAIF)
- **Keynote Address:** Benjamin Deng Bin, Chief Investment Officer, Ping An Group
- **"What Can Macro-Active Bond Funds Tell Us about Monetary Policy Change?"** by Professor Claire Yurong Hong (SAIF)
- **"Higher Bond Yields – Historical Implications for Stock-Bond Relative Returns"** by Dr. Xu Xiang (PGIM IAS)
- **"Predicting Mutual Fund Performance in China: A Machine Learning Approach"** by Professors Hong Yan and Chao Zi (SAIF)
- **"Building Portfolios with Infrastructure: Performance, Cash Flows and Portfolio Construction"** by Ms. Junying Shen (PGIM IAS)

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In the closing months of 2023, IAS published two important papers:

Ms. Aili Chen's paper, **"To Roll or Not to Roll (Forward)? LP NAV Estimation for Private Equity and Real Estate,"** has attracted industry interest as it directly addresses a key CIO concern: How to best obtain timely net asset values (NAVs) of private fund shares for reporting, risk management and rebalancing purposes? Many CIOs, as limited partners (LPs), rely on NAVs reported by their general partners (GPs). Yet, timely GP-supplied NAVs can be elusive, prompting LPs to lean on their own estimates using the prior quarter's GP-supplied NAVs and recent financial data.

Market volatility brings this issue to the fore. When public markets see a 20% dip, should LPs mark their NAVs down accordingly? Such times prompt discussions on the accuracy and relevance of LP-estimated NAVs especially as different LPs may follow different valuation methods. Possible LP valuation methods include simply waiting for the next GP report, adjusting the prior GP-supplied NAV to account for interim cash flows, or a "roll forward" approach, adjusting prior GP-supplied NAVs for public market movements.

So, which approach has performed the best? Ms. Chen gives CIOs an empirical basis for evaluating various NAV estimation methods by examining, historically, how well each approach has matched subsequently reported GP-supplied NAVs.

Surprisingly, for private equity we find that, on average, using public market performance to roll forward NAV estimates performs about as well as adjusting NAV estimates for interim cash flows. However, market conditions matter. In *down markets,* the roll forward method leads to larger quarterly estimation errors relative to other potential methods. In contrast, in *up markets* rolling forward using public market movements has yielded better estimates. The paper also examines how well each approach performed for small and large funds and by vintage age.

These conclusions, however, are specific to private equity. In contrast, when estimating current quarter NAVs for *private real estate funds*, rolling GP-supplied NAVs forward based on market information performs significantly worse than other methods. This is likely due in part to the differences between how valuation is approached in the two asset classes: private real estate valuations tend to hinge more on actual transactions – largely absent during stressed markets – while private equity valuations are more likely to lean on readily-observable public equity market outcomes.

PE Average Absolute Quarterly Percentage Errors (MAPE), in %
(Vintages: 2000-2018, Market Proxy: S&P 500, Q1 2004 – Q3 2022)

Method	All Quarterly Periods	Volatile Periods with at least ±10% Public Return	UP Periods with +10% or better Public Return	DOWN Periods with -10% or worse Public Return
M1	6.09%	6.90%	4.71%	10.55%
M2	4.81	6.29	6.16	6.49
M3 "Roll-forward"	4.45	7.85	5.96	11.00

RE Average Absolute Quarterly Percentage Errors (MAPE), in %
(Vintages: 2000-2018, Market Proxy: NAREIT, Q1 2004 – Q3 2022)

Method	All Quarterly Periods	Volatile Periods with at least ±10% Public Return	UP Periods with +10% or better Public Return	DOWN Periods with -10% or worse Public Return
M1	6.45%	7.20%	5.39%	9.90%
M2	3.77	4.94	4.54	5.55
M3 "Roll-forward"	8.03	15.87	13.90	18.84

Note: We exclude data from the 3 full years after the initial year for each vintage. As a result, vintages 2019 to 2022 are excluded. Source: Burgiss, Datastream, PGIM IAS. As of 30 September 2022. For illustrative purposes only.

Dr. Xu Xiang's **"Higher Bond Yields – Historical Implications for Stock-Bond Relative Returns"** was motivated, in part, by the dramatic rise in Treasury yields and the resilience of the broad stock market. The rapid rise in bond yields has prompted the argument that stocks have become relatively less attractive in terms of future total returns. At the root of this argument lies the so-called *"Fed Model,"* which argues that risky stocks should offer investors a higher yield than less-risky bonds. According to this model, when the earnings yield on stocks is low relative to the yield on bonds, stocks are "overvalued," with current stock prices too high and future stock returns that are likely to be muted. By the same token, when bond yields are high relative to the yield on stocks, future bond returns are likely to be robust, since bond yields are a good forecast of future total returns (if held to maturity).

In exploring the historical ability of the Fed Model to explain future stock and bond returns, Dr. Xu shows that it has provided a reliable signal for future risk-adjusted, *relative* total stock-bond returns over the last 50y. These insights may be a valuable input for asset allocation decision making, which depends on assessing the expected returns and the relative risk-adjusted performance of these two major assets classes.

In the current context, given the recent stock-bond real yield difference of 1.1%/y (as of September 2023), a key message for CIOs regarding the outlook for stocks and bonds is that, historically, such a gap in yields is consistent with stocks outperforming bonds by 2.4%/y over the next 10y – well below the historical average outperformance of 4.4%/y – while on a *risk-adjusted basis*, bonds *outperform* stocks by 0.07 points in the subsequent 10y under these circumstances.

Dr. Xu is currently extending this work to examine the optimal "sizing" of the stock-bond trade, conditional on real yield differences.

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We also have some exciting papers forthcoming in the coming months:

- **"Prospects & Prescriptions for Continued Positive Stock-Bond Correlation"** – *February 2024, expected.* A brief peek of this research paper is available in the next section.
- **"How Well Did Inflation Hedging Strategies Perform during the Recent Inflationary Period?"**– *March 2024, expected.* Throughout 2021-2022 CIOs had available, and considered, a variety of real asset strategies to hedge expected and unexpected inflation. Subsequently, inflation appeared! The 2022-2023 runup and decline in inflation provides a laboratory to explore how well real asset strategies performed. Did they successfully hedge inflation? What worked and did not work? This research should help inform CIOs on their future real asset strategies.
- **"Asset Allocation for Dutch Solidarity Pension Schemes"**– *April 2024, expected.* Using the IAS OASIS asset allocation methodology, Ms. Aili Chen examines the liquidity consequences for a Dutch Solidarity Pension Scheme that increases its allocations to illiquid assets. This requires Ms. Chen to first model a Solidarity Scheme plan, which is challenging given a lack of clarity on some aspects of such schemes. Then, Ms. Chen applies the OASIS liquidity framework to evaluate alternative allocations to illiquid assets (*e.g.,* infrastructure).
- **"Impact and Responsible Investing: Relative Portfolio Attributes & Performance"**– *April 2024, expected.* A brief peek of this research paper is available in the next section.

Welcome to Dr. Stuart Jarvis, FIA, DPhil, Managing Director, PGIM IAS

PGIM IAS is delighted to welcome Dr. Stuart Jarvis to our team. Dr. Jarvis is based in the PGIM London office. Given Dr. Jarvis' experience in the pensions area and the heavy interaction IAS has with clients located in the UK and Europe, Dr. Jarvis will nicely expand IAS' capabilities to conduct research from a European perspective and to engage more actively with clients.

Dr. Stuart Jarvis joins IAS after 19 years in senior portfolio solutions roles at Barclays Global Investors, BlackRock and, most recently, Columbia Threadneedle. Dr. Jarvis was responsible for asset-liability modelling and designing customised strategic asset allocation for pension plans, insurers, and sovereign institutions. As an MD at BlackRock, he designed strategies for pension plans to manage their funding ratio volatility and improve funding status and developed the capital market assumptions and tools underpinning the firm's approach to portfolio construction. Earlier, Dr. Jarvis was a pensions consultant at Hewitt, Bacon & Woodrow. Dr. Jarvis holds a MMath in Mathematics from Cambridge and a DPhil in Mathematics from Oxford. He is also a Fellow of the Institute of Actuaries.

Finally, in this edition of The Differential we include Ms. Aili Chen's interview *("In Conversation with IAS")* with Dr. Christoph Jäckel, Managing Partner at Montana Capital Partners. PGIM acquired MCP, a leading secondaries player focused on specific niches at the smaller and more complex end of the market, in 2021.

Given the liquidity pressures arising from the lack of exits, institutional investors have turned to private equity secondaries for liquidity and investment opportunities. Ms. Chen's interview with Dr. Jäckel provides readers with a front-row seat to the activities in this rapidly growing part of the alternatives market.

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.

We in PGIM IAS are grateful for a wonderful and lively 2023 with almost 100 client interactions around the world, seven published research papers, several completed customized investor asset allocation studies, and numerous conference presentations, IAS is more excited than ever for the year ahead.

Warm regards,

Bruce D. Phelps, PhD, CFA

FORTHCOMING 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.

STRATEGIC PORTFOLIO CONSTRUCTION

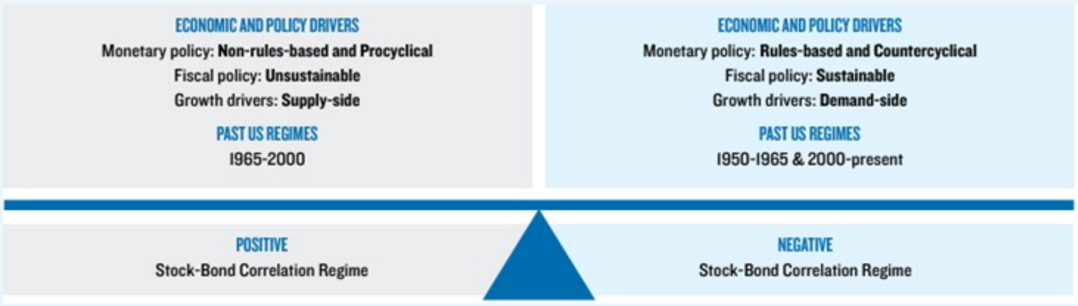
Prospects & Prescriptions for Continued Positive Stock-Bond Correlation

Noah Weisberger, PhD & Xiang Xu, PhD

February 2024, expected

US stocks and bonds have moved in tandem for more than two years, declining sharply in 2022 and then rebounding together in 2023. These synchronized moves have pushed stock-bond correlation into positive territory, a clear change in regime after more than 20y of negative correlation. Historically, correlation regimes tend to be long-lived and driven by the prevailing macroeconomic and policy landscape. Looking ahead, should fiscal sustainability concerns, monetary policy uncertainty, and the supply-side nature of recent economic fluctuations become entrenched, positive stock-bond correlation may persist, as it did from 1970 to 2001.

A sustained period of positive stock-bond correlation would be a new investing backdrop for many market participants, and it is worth emphasizing that, despite claims to the contrary, ***even when correlation is positive, bonds belong in a balanced portfolio.*** Historically, a balanced portfolio of stocks and bonds performs about as well in positive correlation environments as in negative ones. Moreover, the currently narrow valuation gap between stocks and bonds suggests that bonds may be poised to outperform stocks on a risk-adjusted basis (see "*Higher Bond Yields – Historical Implications for Stock-Bond Relative Returns,*" summarized above), underscoring their role in a balanced portfolio.



STRATEGIC PORTFOLIO CONSTRUCTION

Impact and Responsible Investing: Relative Portfolio Attributes & Performance

Stuart Jarvis, FIA, DPhil

April 2024, expected

Investors increasingly incorporate "responsible investing" – attention to environmental, social or governance concerns – into their asset allocations. Even for investors with no responsible investing goal, the resulting market dynamics create both risks and opportunities. Responsible strategies therefore come in many flavours, including, for example:

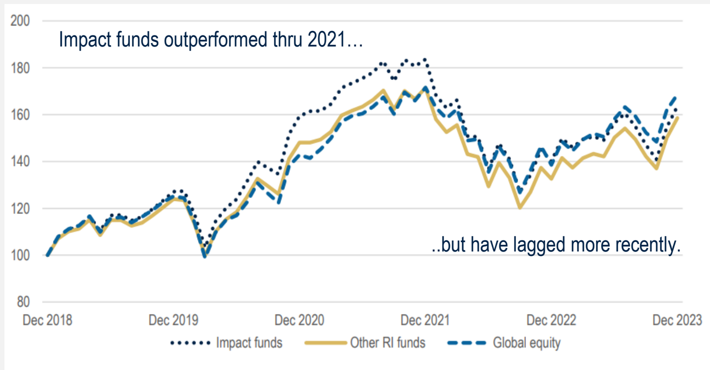
- **Screening:** Seeking to avoid controversial companies or industries
- **"Buy brown-sell green:"** Investing in companies to encourage a positive trajectory; and
- **Impact investing:** Seeking explicit environmental or social goals alongside financial objectives.

The inclusion of explicit non-financial goals within impact investing can generate concern that the resulting financial returns are concessionary *(i.e.,* below what could otherwise be produced), and therefore that these strategies could potentially be at odds with a CIO's fiduciary duty. From this perspective, impact strategies sit at one extreme of a spectrum of responsible investing strategies.

Within a European context, the EU's SFDR regulation provides an alternative, and related, point of view. The regulation distinguishes between Article 8 funds (which integrate sustainability considerations into their investment process) and Article 9 funds (which have explicit sustainability goals).

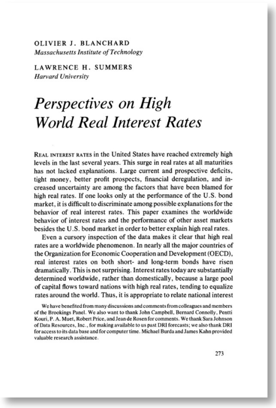
We use mutual fund data to explore how these different strategies have performed in recent years, looking at both financial and non-financial metrics. Additionally, from a portfolio construction perspective, we also examine how various flavours of responsible investing differ in terms of their sector and style tilts, and risk characteristics and, therefore, how they should be incorporated into a portfolio.

Impact Fund Performance versus other Responsible Investing Funds and Global Equity (2018-2023)



Note: 31 December 2018 = 100. Averages shown for global equity funds as of 31Dec23 with over USD 100m in assets versus a fund tracking the MSCI World Index. All returns net of fees. Source: Lipper, PGIM IAS. For illustrative purposes only.

WHAT WE'RE READING



OLIVIER J. BLANCHARD
Massachusetts Institute of Technology

LAWRENCE H. SUMMERS
Harvard University

Perspectives on High World Real Interest Rates

REAL INTEREST RATES in the United States have reached extremely high levels in the last several years. This surge in real rates at all maturities has not lacked explanations. Large current and prospective deficits, tight money, better profit prospects, financial deregulation, and increased uncertainty are among the factors that have been blamed for high real rates. If one looks only at the performance of the U.S. bond market, it is difficult to discriminate among possible explanations for the behavior of real interest rates. This paper examines the worldwide behavior of interest rates and the performance of other asset markets besides the U.S. bond market in order to better explain high real rates.

Even a cursory inspection of the data makes it clear that high real rates are a worldwide phenomenon. In nearly all the major countries of the Organization for Economic Cooperation and Development (OECD), real interest rates on both short- and long-term bonds have risen dramatically. This is not surprising. Interest rates today are substantially determined worldwide, rather than domestically, because a large pool of capital flows toward nations with high real rates, tending to equalize rates around the world. Thus, it is appropriate to relate national interest

We have benefited from many discussions and comments from colleagues and members of the Brookings Panel. We also want to thank John Campbell, Bernard Connolly, Pentti Kouri, P. A. Muet, Robert Price, and Jean de Rosen for comments. We thank Sara Johnson of Data Resources, Inc., for making available to us past DRI forecasts; we also thank DRI for access to its data base and for computer time. Michael Burda and James Kahn provided valuable research assistance.

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Summers and Blanchard Debate the Future of [Real] Interest Rates

Peterson Institute for International Economics - transcript
7 March 2023

Perspectives on High World Real Interest Rates

Oliver J. Blanchard & Lawrence H. Summers
Brookings Papers on Economic Activity, 2:1984

In 1984, Blanchard and Summers (B&S) outlined the drivers of real rates (*e.g.*, large projected budget deficits; strong investment demand; tight monetary policy; and high bond risk premia). At the time the economics profession was grappling with a conundrum: high real interest rates and low equity earnings yields (*i.e.,* high stock prices).

Some of the potential explanations for high real rates (*e.g.,* large projected future budget deficits; tight monetary policy) were inconsistent with high stock prices. However, B&S argued that high real rates also reflected high investment demand (lowered business taxes and upbeat business prospects), a factor that could also justify strong stock prices.

However, throughout the early part of the 2000s, both B&S supported the "secular stagnation" hypothesis - long periods of low real rates driven by excess saving and lackluster investment – which reflected a reversal of this process.

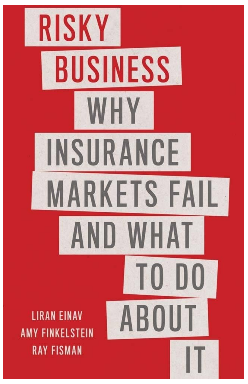
Fast forward to 2023…academia and industry are once again trying to figure out what is behind high real interest rates and high stock prices. This time around Blanchard and Summers find themselves on opposing sides of the debate. Summer's view has changed (*i.e.*, **high real rates** are now here to stay) while Blanchard's has not (*i.e.,* **low real rates** will soon return). Both still adhere to the same framework they outlined 40y earlier – that the saving-investment balance is core to the determination of real rates. So, how to reconcile their now opposing views?

Summers sees a regime change post-Covid. Similar to the post-WWII period, habits have changed as low saving (aging consumers "dissave" and the Federal government is running large deficits) and high investment (new tech; green energy; reshoring, defense) will persist, supporting higher real rates. In this view, real rates of 2% seem reasonable. In contrast, Blanchard sees a reemergence of the long-term "deep forces" that will keep saving high and investment demand low. For Blanchard, real rates are temporarily high due to the Fed's inflation fight and it simply takes time for markets to "turn the page." with real rates returning to the 0.5% range.

So, what about today's high stock prices? For Summers the answer remains the same: high profitability and strong investment demand. For Blanchard, it remains a mystery as the demand for low-risk assets seems in conflict with a low equity risk premium – "an open issue that we need to think more about."

CIO Takeaway: It is fascinating to see how the thinking of two prominent macroeconomists has evolved over the last 40y. While there is consistency in their thinking about the fundamental drivers of real rates, their *predictions for the future* differ. The wide divide in views on where the economy is going reflects how little consensus there is within the economics profession and perhaps also why the economics profession has had little impact on public policy.

--Bruce P.



Risky Business: Why Insurance Markets Fail and What to Do About It

By Liran Einav, Amy Finkelstein, and Ray Fisman
Yale University Press, 2022

Insurance is a unique good. Sellers of insurance care not only about how many policies they sell – *the "quantity" of their buyers* – but also about the characteristics of who buys policies and why – *the "quality" of their buyers.* In this regard, sellers are at an informational disadvantage; after all, who has better information about the buyer of an insurance policy than the buyer themself!

In modern economic jargon, this informational asymmetry is called the *"selection problem,"* and the insurance market is a prime example of a *"selection market,"* a market that controls 4% of US financial assets.

In this highly readable book, Professors Einav, Finkelstein and Fisman draw on anecdotes, statistics, and just enough economic theory to decode the features of selection markets, explaining why some insurance markets exist (*e.g.,* auto, health, life, and pet insurance), why some do not (*e.g.,* divorce, house-price-decline, and job loss insurance) and why some insurance markets are expensive (*e.g.,* dental insurance and annuities).

The core feature of a selection market like insurance is that buyers tend to be those that most need the insurance, which increases expected coverage payments, which drives up the price, which then further shrinks the pool of buyers to those willing to pay the higher price because they expect to file even higher claims, and so on. This feedback loop can lead to a death spiral – the price of a policy rises and the number of policies sold shrinks – potentially making insurance unavailable at any price. In some cases, the spiral can be broken and stabilized by reducing informational asymmetry between buyer and seller; in come cases insurers are permitted to learn about policy holders and charge accordingly, or government regulations can keep a market from collapsing by mandating that everyone buy insurance at the average price.

The annuity market is a selection market of particular interest to financial market participants. Annuities date back to Roman times, with episodic catastrophic market failures over the centuries due, in large part, to the inherent features of selection markets. Even in modern times, although annuities can effectively mitigate risk for retirees, they are unpopular in the US. Evidence shows that those that buy annuities tend to live longer than those that do not buy them, forcing annuity sellers to increase their price, and the spiral begins. In short, annuities are expensive and unattractive to many, owing to the selection problem.

CIO Takeaway: When thinking about what products to offer and what investment activities to undertake, CIOs ought to consider if they are venturing into the world of selection markets, and if so, do they understand where the information asymmetries lie in wait, and what the potential implications may be for prices and quantities.

--Noah W.

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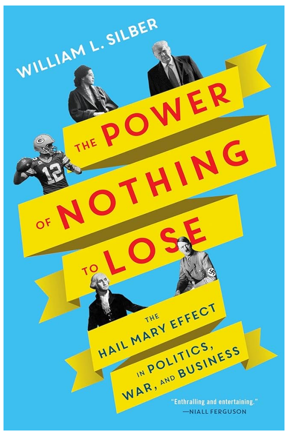
WHAT WE'RE READING (CONTINUED)



The Power of Nothing to Lose

By William L. Silber
HarperCollins Publishers, 2021

Optionality, limited loss, asymmetric payoffs, externalities, and market failures are well-known concepts from the intersecting worlds of economics and finance. Combined, they provide a powerful framework to better understand risk-taking in a wide range of settings: sports, politics, sociology, military strategy, and of course, finance.

The Power of Nothing to Lose advances the thesis that people are emboldened to take risks when they feel – either objectively or subjectively – that they have *"nothing to lose"* and when they are shielded from any potential negative fallout from their decisions. Such downside protection often shifts the ultimate cost away from the individual risk-taker and onto the collective, a classic unpriced "externality" and "market failure" in the jargon of economics, with often unforeseen and long-reaching consequences.

A whirlwind tour of the last several decades offers numerous instances that demonstrate the prevalence and impact of these forces. In eleven tightly spun tales, author William Silber uses concepts from economics and finance to illustrate that "the power of nothing to lose" can embolden even the risk-averse to take outsized risks, which can lead to outsized benefits but also to outsized costs, often born by others.

For example, in Silber's telling, the feeling of "nothing left to lose" motivated Rosa Parks to refuse to give up her seat on a Montgomery, Alabama bus in late 1955, setting into motion a chain of events (including the ascension of The Reverend Martin Luther King Jr. to the forefront of the civil rights movement) that ultimately culminated in the passage of breakthrough national legislation – the Civil Rights Act of 1964 and the Voting Rights Act of 1965.

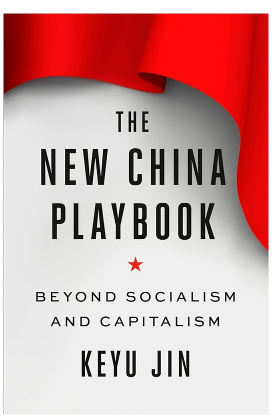
At the opposite end of the moral spectrum, following the successful Allied landing at Normandy and the subsequent advance eastward, a sense of desperation motivated Adolf Hitler to launch a daring but flawed counteroffensive in late 1944. The German advance, now named "The Battle of the Bulge," failed after just six weeks of intense warfare but not before inflicting considerable damage to Allied matériel and manpower. Hitler's gambit delayed the end of the war in Europe, lead to hundreds of thousands of additional casualties, and saw the German army perpetrate war crimes against US POWs.

Other issues that lend themselves to this framework include, terrorism, prison violence, President Woodrow Wilson's delayed entry into World War I, and the deluge of pardons issued by President Bill Clinton and Louisiana Governor Haley Barbour in the waning days and hours of their terms.

The exploits of trader Nick Leeson that brought the venerable Barings Bank to its knees perhaps make for the most natural anecdote and are a case study of the impact that asymmetric payoffs have on financial risk taking. The asymmetry between the potential upside of a trader's compensation relative to the limited downside makes the relationship between an individual trader and asset owners particularly fraught, highlighting the importance of aligning incentives properly and the limitations in the ability to do so.

CIO Takeaway: For CIOs, financial risk management is their bread and butter. But this telling of history is a useful reminder that risk-taking is inherent in nearly all our activities and that an organizational or management structure that does not properly align incentives can lead to unanticipated outcomes.

--Noah W



The New China Playbook

By Keyu Jin
Viking, 2023

China's remarkable economic growth over the past 50y is well known. Dr. Jin, born in China, educated in the West and now an LSE professor, provides an overview of what changed in China to make this happen and, importantly what has not, and will not, change.

The New China Playbook devotes a chapter to each sector of the economy (Consumer, Firm, Government, Finance, Technology and Trade), describing how each has evolved and contributed to China's growth. In some sectors, cultural traditions influence economic actors in China behave differently than typical (*i.e.,* Western) economic agents. For example, given Confucian tradition, the consumer behaves more collectively than individually, affecting spending and saving behavior; businesses try not to just maximize profits but to also have a balanced relationship with the State.

A recurrent theme is "political *centralization* and economic *decentralization.*" While the State sets broad policy goals, local political agents (the "mayor economy") have wide latitude in deciding how best to achieve these goals, including working with private firms operating in China's market economy. Since the political rewards are great, "mayors" are highly incentivized to encourage a dynamic market economy.

Another major theme is that the State views its chief responsibility as providing economic stability, which has influenced the development of China's financial system. Regulatory efforts focus on protecting the Chinese financial system from Western market volatility. Oddly, heavy internal regulation has made the domestic Chinese stock market one of the worst performers globally, even though Chinese firms that list oversees – with more lenient listing requirements – perform much better.

Dr. Jin's volume has many insights. One example is the generational divide *vis-à-vis* views of the West. Younger Chinese, despite being *au courant* with Western fashion and culture, admire their country and its leadership, while older generations, still familiar with earlier hardships, retain more respect for Western ways.

Despite a successful half century of advancement, the author highlights several challenges ahead facing China. Can China escape the "middle income gap" and transition to high per capita income status? Dr. Jin suggests that to do so, China will have to improve its productivity via fundamental innovation which may be hindered by political centralization and emphasis on "self-sufficiency." Another challenge is to move the economy beyond simply increasing consumption to improving overall welfare (*e.g.,* healthcare, equality) that a well-educated and informed populace will demand. Nevertheless, China will proudly continue to forge its own path.

CIO Takeaway: Dr. Jin's book provides a well-researched and succinct overview of how China became what it is today, and where it is heading. Very helpful for the CIO pondering how to engage with this important economy.

- Bruce P.

IN CONVERSATION WITH IAS

IAS's Aili Chen discusses recent trends, risks and opportunities in the secondary private equity market with Christoph Jäckel, Managing Partner of Montana Capital Partners. PGIM acquired Montana Capital, a leading secondaries player, in 2021.

Dr. Christoph Jäckel
Managing Partner
Montana Capital Partners AG
PGIM

Christoph is a Managing Partner of Montana Capital Partners. Before joining mcp, Christoph was a research assistant at the Department of Financial Management and Capital Markets of the Technical University of Munich. His dissertation dealt with the computation and evaluation of alternative expected return proxies for stocks and was partly written during his stay as a Visiting Scholar at UCLA Anderson. In addition, Christoph gained international work experience at Kolbenschmidt Pierburg in Shanghai, Capital Dynamics in Zug, and Lehman Brothers in London. Christoph holds a Dr. rer. pol. in finance from the Technical University Munich and a diploma degree in business administration specializing on capital markets and operations research at the Technical University of Munich.

Aili Chen, CFA
Vice President
PGIM IAS

Aili Chen is Vice President in the Institutional Advisory & Solutions (IAS) group, focusing on asset allocation and portfolio construction research using systematic, data-driven methods. Before joining PGIM in October 2021, Aili was Vice President and Quantitative Investment Strategist within Morgan Stanley's Global Investment Office. She developed asset allocation, portfolio construction, and security selection recommendations for financial advisors and clients. Before Morgan Stanley, Aili was a Senior Associate in the Quantitative Advisory Services of EY. Aili earned her BA degrees in Economics and International Relations from China Foreign Affairs University and her MA in Economics from Cornell University.

AC: Secondary Private Equity (PE) investments play an increasingly important role in institutional portfolios. Could you provide an overview of how the private equity secondary market operates? Who are the main participants in this market?

CJ: I always like to use the metaphor that we in the secondary market of private equity are essentially the "stock exchanges" of the private equity markets. We allow owners of private equity funds (*i.e.,* limited partners or LPs) to trade their assets – but their assets aren't stocks – they are private equity fund shares.

The differences are that this market is much less liquid and much less regulated than the public market. If you want to sell a share of Apple stock, you can do so by a push of a button. If you want to sell a share, say, in a Blackstone private equity fund, it's not as straightforward. The process takes much longer. It often takes weeks, if not months, to go from the decision to sell to actually selling.

In addition to the LPs buying and selling, fund managers (*i.e.,* the general partners or GPs) are important participants in the process. They facilitate the process by sharing information and they must approve the transfer.

Intermediaries, usually bank divisions or independent firms, also play a role to help source deal flows, especially for larger portfolios in well-known funds.

AC: When would an LP consider selling its PE fund interests in the secondary market? And when would a GP initiate a "GP-led" secondary transaction?

CJ: On the LP side, we have come "full circle" in the secondary world. Initially, the main reason was for liquidity – when LPs need to convert their investments into cash to meet unexpected cash requirements. The 2007-2008 financial crisis acted as a great catalyst for the growth of the secondary market by creating a strong need for investors to sell their private assets for liquidity.

This has changed over the years as other drivers for secondary transactions emerged: portfolio management, change of investment strategy or getting rid of non-core positions.

However, according to our 2023 Annual Investor Survey, liquidity has again become the No. 1 reason for selling in the secondary market, which hasn't been the case for several years. In 2023, around 25% respondents cited liquidity as the main reason to sell their PE holdings and another 16% respondents said that they are over-allocated to PE – so back to the traditional reason of selling in the secondary market – liquidity. That's why I called it a "full circle."

In a "GP-led" secondary transaction, bear in mind that the GP is not the one selling. There are different types of GP-led transactions (*e.g.,* a tender offer), which the GP facilitates for an external buyer (*e.g.,* a secondary fund) to buy fund interests from existing LPs.

Currently, the most common GP-led secondary transaction is when the GP creates a "continuation vehicle" and sells a fund's portfolio assets into the new vehicle. In such a transaction, the GP is essentially "fund-raising" to hold onto the underlying assets for longer. This is because, if you, the GP, see a lot of upside in an asset, why would you want to sell it after only four or five years? You may want to keep those great assets for longer. In addition, selling a business would incur huge costs including fees to lawyers, M&A firms and due diligence providers. Also, for the portfolio company's management team, they have to get used to a new owner. A continuation fund can provide solutions to these challenges.

In short, the motivations for the GP in these GP-led transactions are to provide additional time and capital for these assets to mature and reach their full value potential while minimizing the cost of selling.

AC: What is the role of secondary PE investments in an investor's portfolio, and what are the liquidity characteristics of these investments?

CJ: Secondary PE investments have several advantages for an investor's portfolio compared to primary PE investments. A secondary PE investment typically has shallower and shorter "J-curve effect" with quicker distributions than traditional PE funds. This is because when the investor buys a secondary investment, the fund has already held onto the underlying portfolio companies for a few years. This is also attractive for an investor who wants to ramp up their PE exposure quickly, because they get access to prior vintage years that they otherwise would not be able to access. You get diversification across vintage years, sectors, geographies, strategies, and managers.

A secondary fund is typically well diversified across a dozen of primary funds and several hundreds of underlying portfolio companies. And you can argue that secondary funds can be counter-cyclical. 2023 is a good example when IPO and M&A activity fell drastically compared to secondary deal volume. When liquidity is needed and distributions dry out, secondary funds can provide liquidity to sellers and offer a great liquidity premium for buyers. Historically, secondary fund returns have been less volatile compared to those for primary funds and the "return band" – the range of possible return outcomes – has been much narrower.

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IN CONVERSATION WITH IAS (continued)

AC: Could you explain how valuation works in the PE secondary market, and how it differs from the primary market?

CJ: Let's start with the primary PE market. Interestingly, valuation in the primary PE market is generally more complex and more difficult to understand compared to the secondary market. Going back to the example of Apple. It's not that Apple, the company, issues an opinion every quarter on how the company should be valued. Instead, the price of Apple stock is determined by trading in the secondary market.

In private equity, however, since you don't have a secondary market that trades frequently, investors rely on the GP to provide them with a valuation. Though there are guidelines, the GP has a lot of leeway in how they arrive at a valuation.

How does a secondary buyer price a fund? The first step is for the buyer to come up with a cash flow profile of each underlying company investment by running a valuation exercise to predict the proceeds from the investment. To do so, they look at the business model, growth options, financials, peers, *etc.* The second step is for the buyer to take into consideration everything that happens at the fund level (*e.g.,* fees, carried interest, unfunded commitments). Together, this gives the buyer a full picture of all cash flows that they can expect from the fund, with which they can decide how much they are willing to pay for the fund. That price is communicated as a discount or premium to the NAV that the GP is providing to investors.

AC: How has the private equity secondary market evolved over the last decade? What have been some significant changes?

CJ: The most significant change has been the birth of GP-led transactions. A decade ago, secondary transactions were all "LP-led." Now, we see a roughly 50/50 split. The GPs are initiating many more transactions, and this has been the most fundamental change in the secondary space.

In addition, the market has become much more mature with a broader toolset. Initially, we only had simple LP transfers, now you have deferred payment structures, preferred equity, earn out mechanisms, NAV loans, and even more customized structured solutions that involve modification and restructuring of the standard distribution waterfall that dictates the order in which profits are distributed.

In short, the sophistication of the market has increased as has the range of possible solutions that a secondary buyer could offer to a counterparty.

AC: We've had a low-rate environment for a long time but that seems to be changing. What would it mean for private equity if the cost of capital is now persistently higher, with inflation more stubborn?

CJ: Higher rates and higher inflation mean higher expected returns! When we were in a low-rate environment, expected returns were low and realized returns were high. Now we are in this new phase where expected returns have increased with interest rates, while realized returns have come down as asset value has come down. This large increase in the cost of capital due to the unexpected increase in inflation took a few PE participants by surprise, but certain business models are impacted more than others.

As rates increase, so does the cost of financing for M&A transactions, which rely heavily on third-party leverage. Similarly, IPOs have experienced a sharp decline in deal volume since 2021 compared to previous years. To make things worse, since GPs are reluctant to mark down their NAVs in response to higher rates, there's been a gap between a GP's valuation and the price secondary buyers are willing to pay. As a result, the opportunities for fund exits (*i.e.,* sales of portfolio companies) diminished and the distributions to investors consequently dried up.

Interestingly, we saw that capital calls have not decreased in tandem as GPs continued to call capital in order to pay off their outstanding subscription lines of credit used to finance old acquisitions. In combination, many PE investors got much less capital out of their portfolio than expected.

However, this new regime has created opportunities for some players. Some investors in need of liquidity have turned to the secondary market which creates attractive opportunities for buyers.

AC: It's interesting that you mentioned subscription lines of credit. Increased use of subscription lines by GPs to boost returns has been a concern in the primary private equity market. Are they also prevalent in the secondary market?

CJ: Credit lines can be used to inflate returns, but they can also be used to make cash flow management simpler. As a GP, it is a huge relief if you have a transaction closing and you do not have to worry about any delay in receiving called capital from LPs. In my opinion, there will always be a place for credit lines.

For secondaries, that reason is much stronger. Why? Because with more frequent transactions, we need to deploy capital and close deals more quickly than is the case for primary funds. We are not doing three or four investments per annum but eight, ten or 12 investments, and then in several underlying funds.

On top of that, subscription lines have been used for performance enhancement. Economically, it is completely rational with interest rates close to 0% and a hurdle rate of 8% that private equity funds typically must hit. It makes sense to use "costless money" to finance as many portfolio asset acquisitions as possible. This of course will change now, with credit costing close to the hurdle rate.

By the way, I conducted a study on credit lines and found that credit lines improve IRRs meaningfully only in most strongly performing funds and funds early in their life. In the long-term, the effect of a credit line on IRR is limited.

AC: What advice would you give to a new institutional client looking to invest in the secondary market? What should be the key considerations?

CJ: New investors should make sure to pick a secondary fund manager that gives them the traditional benefits of a secondary fund (*e.g.,* diversification and early money back).

The secondary market has become more and more sophisticated with more and more niche strategies. Some of these strategies do not offer the traditional secondary market benefits if that is what the investor is seeking.

Also, make sure to consider the different degrees of leverage. This is very important for a secondary fund to get right. We have leverage on the underlying company level, we also have credit lines on top of that and NAV facilities, whole portfolio leverage or acquisition leverage. Be fully aware of the different degrees of leverage when comparing across secondary funds and make sure you are comfortable taking these risks.

Choose a partner with whom you could build a good rapport and who could help you build your knowledge. These relationships can be a two-way street offering mutual benefits. Good secondary funds often know a lot of good PE managers and they can be your sounding board as you explore this new area.

AC: Thank you, Christoph!