Doing Capitalism in the Innovation Economy: Investing at the Frontier of Technological Change | Bill Janeway

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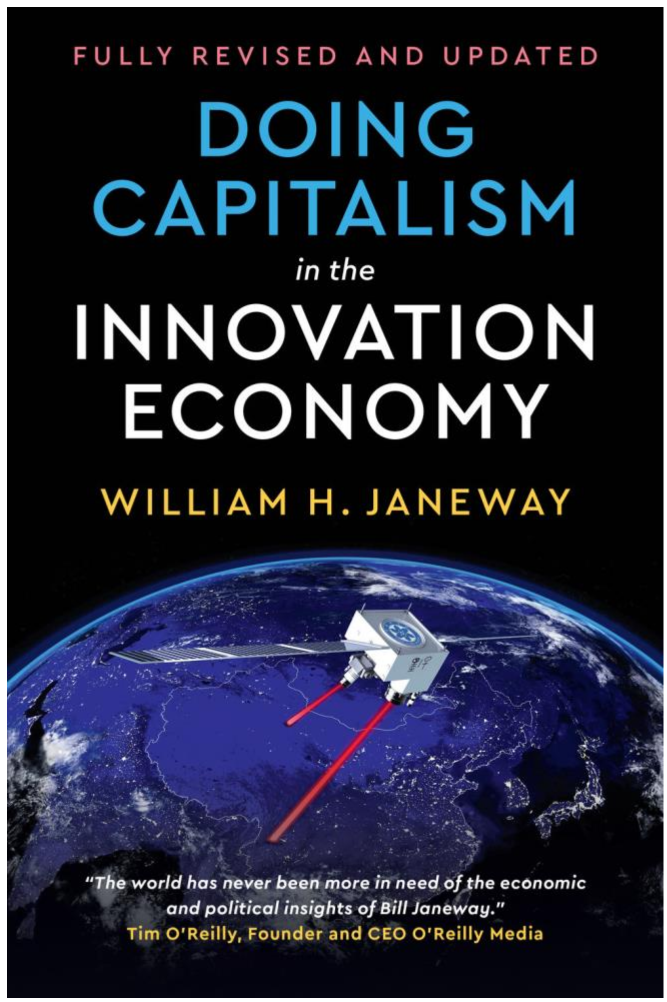
It's not enough to understand the forces of disruption; we must develop a deeper understanding of the world that is being disrupted. – William H. Janeway

INTRODUCTION

William H. Janeway is a Senior Advisor and Managing Director of Warburg Pincus. He joined Warburg Pincus in 1988 and was responsible for building the information technology investment practice. Previously, he was executive vice president and director at Eberstadt Fleming. Dr. Janeway is a director of Magnet Systems and O'Reilly Media. He is an Affiliated Member of the Faculty of Economics at Cambridge University and a co-founder and member of the board of governors of the Institute for New Economic Thinking. Bill is a board member to several non-profit organizations. He is the author of Doing Capitalism in the Innovation Economy: Reconfiguring the Three-Player Game between Markets, Speculators, and the State, the substantially revised and extended new edition of the book initially published by Cambridge University Press in November 2012. Dr. Janeway received his doctorate in economics from Cambridge University where he was a Marshall Scholar. He was valedictorian of the class of 1965 at Princeton University.

WHY DO I CARE?

Perhaps the only redeeming contribution of the 2008 financial crisis is the creative destruction of sixty years of bad economic theory built on models that borrowed recklessly from the physical sciences. The failure of neoclassical economics with its dynamic stochastic equilibria and Gaussian-based models like VaR and MPT - peddling false promises of mean regression - have forced academia to rethink the entire edifice upon which our understanding of market economics is built, encouraging an interdisciplinary approach to economic thinking that was once unimaginable. Insights from behavioral psychology, moral philosophy, complex dynamic systems research, non-linear dynamics, Bayesian statistics, and inductive reasoning, have been incorporated into a new tapestry of economic thought.



In the initial years after the crisis, mainstream economics came under attack, both from the outside, as well as from within its own ranks. The baby of Keynesianism was thrown out along with the bathwater of Samuelsonian economics. A renewed interest developed among libertarians and anarchists around the nature of money and the role of prices, interest rates, and the business cycle. Meanwhile, a civil war has been raging among Neoclassicists, New Keynesian, and Modern Monetary Theorists, all of whom are fighting to reclaim the mantle of progressive economics and save the discipline from becoming irrelevant.

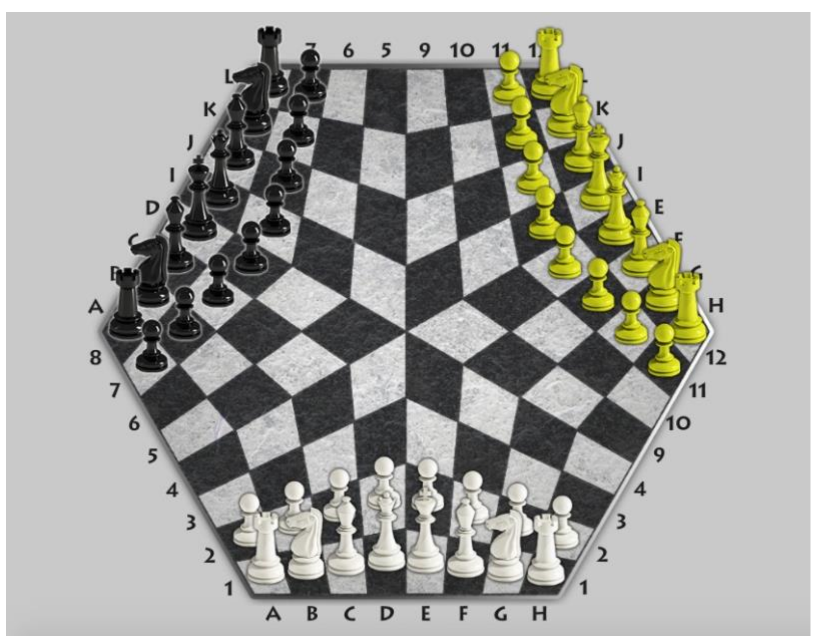
What Bill Janeway calls "The Three Player Game," is the most comprehensive, theoretical framework that I have seen put forward in the last 10 years. Instead of viewing government as a countercyclical force upon which free markets must rely in times of crisis, Janeway's "mission-driven state" is integral to the process of capitalism itself and to the credit cycle from which all paradigm-shifting innovations are spawned.

Rarely does a book come along that brings together all the major ideas of an intellectual revolution into a framework for moving society forward. Bill Janeway's book is the closest thing I've found, yet. It should be mandatory reading for every policymaker in the western world.

> The Innovation Economy turns on the ability of the economic system to tolerate waste. The systemic cost is less to the extent that speculative excess is limited to the equity markets and does not spill over to infect the credit system on which routine economic activity relies. - William H. Janeway

THE THREE PLAYER GAME

1. **The Mission-Driven State** — Is the key insight of your book that paradigm shifting innovations – innovations that when deployed at scale, move society forward – require a level of investment capital, time, labor and resources that often lies beyond the reach and capacity of market actors? By the state, do you mean the political entity that has sufficient coercive authority to establish the rules for the other players to follow? The state is not monolithic. At any point, it can be captured by economic or financial interests and their agents. Is there a correlation between a government's ability to formulate and execute on a mission and the its regulatory capture (or lack thereof)? What are some examples of effective mission-driven governments?
2. **Capital Control, Return, & Risk Tolerance** — Is the mission-driven state important, because in a functioning, market economy, no single actor or group of actors (1) controls enough capital and (2) is able to deploy that capital consistent with its need to attain a rate-of-return over some reasonable time horizon (i.e. not multi-generational)? Is access to sufficient capital and its deployment at scale the bigger bottleneck for market actors or is bigger issue one of risk tolerance (i.e. a mission-driven state can tolerate massive risk taking)? How important is it that the state can develop non-proprietary technologies, whereas profit seeking enterprises traditionally seek to maximize ownership and control? Do you fully reject the notion that a well-functioning market can, on its own, produce the types of innovations under discussion, or is it that they can't produce them with the same speed and at scale, because they would be proprietary?
3. **Escape from Efficiency** — Another great insight from your book is that the very thing that markets are lauded and rewarded for – efficiency in the allocation of capital, labor, and resources – is a detriment when applied towards the endeavor of creating civilization level, paradigm shifting innovations. Can you elaborate on this a bit? What is it about the efficient allocation of capital that is inconsistent with investing at the frontier of technological innovation?
4. **The Importance of Bubbles** — The "escape from efficiency" is achieved by both "upstream" and "downstream" forces that you label, respectively as the mission-driven state and financial bubbles. In the case of the later, how do financial bubbles aid in the process of technological maturation? Where do they factor into the three-player game? At what stage of the business cycle do bubbles appear and what is their contribution?



THE TRANSFORMATION OF FINANCE

> Contrary to the central dogma of neoclassical economics, efficiency is not the virtue of a market economy whose growth is a function of the creative destruction identified by Joseph Schumpeter as the engine of economic development. – William H. Janeway

5. **De-Regulation & Equity Markets —** You came to Wall Street at a very interesting time. The stock market had failed to follow the trajectory of retracements seen since the end of World War II and was in the process of taking out its 1966 low. The decades that followed would challenge the orthodoxies of economic thinking, lead to massive deregulation of the financial sector, and posed challenges to the authority of the state. Are there lessons to be learned from the 1970's stagflation and the deregulation of the 1980's and 90's? Are there comparisons to be draw? What impact did these changes in finance have on the availability of capital and our ability to it in the pursuit of society-wide innovation? How did this period impact the playing of the three-player game? Why do you not address the role played by central banking and the breakdown of the international monetary system under Bretton Woods?
6. **Wealth Transfer & Private Placements —** The deregulation of the financial system and the lowering of trade barriers on the one hand and the use of monetary policy on the other have worked together to herd capital into the hands of a smaller number of people. The bubbles have now moved from the equity markets to the market for private placement. Companies are flush with financing at earlier and earlier stages. Is the absence of the mission-driven state a consequence or a driver of the widening wealth gap? How has the deployment of capital by the "1%" fared in comparison to what a mission-driven state would have done with this capital? Can you give us some examples (i.e. blockchain, unicorns, etc.)?

ATTACKING THE LEGITIMACY OF THE STATE

7. **Maturation of the Cycle —** You have made the point that in the absence of a mission-driven state willing to allocate sufficient capital towards the creation and development of paradigm shifting innovations, the efficiency of market capitalism leads to an exhaustion of efficiency as companies attempt to extract diminishing returns from an already mature technological paradigm. How has this extended investment cycle manifested in the economy?
8. **Populist Volatility —** Has the electoral cycle expressed the illegitimacy of the state as an economic actor? How is the market and the economy eating the state? Is the mania in cryptocurrencies an expression of the market's loss of faith in the legitimacy of the state as an economic actor?

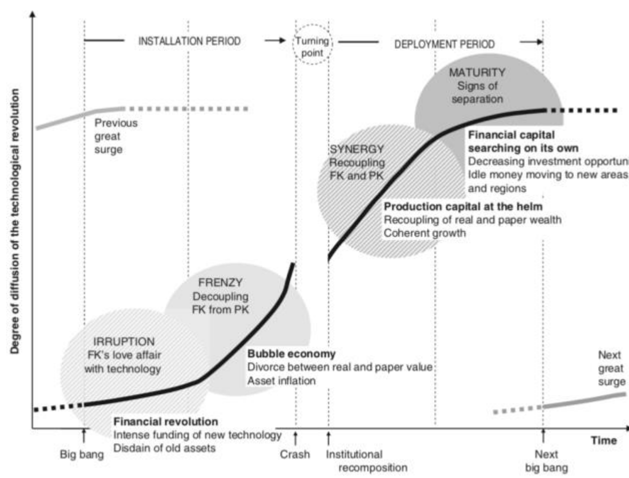
BROKEN MODELS

9. **<u>Creative Destruction of Ideas</u> —** You say that, although the financial crisis did not result in a liquidation of assets or a writing down of bad debt, it did lead to a liquidation of bad ideas and has made room for the proposal of new ones. What are some of the most interesting frameworks for thinking about the economy that have emerged, post-crisis? Is there a common thread that runs through all of them? Where have they been adopted? How have they been received in academia? Is there anyone in the policy world that is employing these models?

VENTURE INVESTING

"Rather than allocate capital to venture funds as if they were an independent asset class that can be expected to yield returns reliably and significantly higher than those available in the public equity market, investors should seek access to that small number of professional venture capitalists who have demonstrated their distinctive skill over multiple funds and across diverse market conditions. If such access is not available, the lesson is simple and absolute: move on." – William H. Janeway

10. **<u>Information Technology vs. Biotech</u> —** In assessing risks and running cost-benefit analyses, you use the example of biotech as an industry where research and development costs are very high, but where market risk is very low. That is to say, once you find the cure for cancer, you don't need to educate consumers on what they can do with it. If you build it in biotech, they will come, so to speak. What are some other examples of such asymmetries across the risk spectrum (technology risk, market risk, financing risk, and business risk)?
11. **<u>Distributed Ledger Technology</u> —** I've heard you speak a bit about blockchain and DLT. One of the interesting points you raise has to do with smart contract execution, and your point is that this notion of "code as law" is actually dangerous, as one can never anticipate every possibility in advance. This is something that Leemon Baird would agree with you on, which is why on Hedera, when you create a smart contract, you can choose to either make it like a smart contract on other ledgers, or you can make it have special keys that allow its behavior to be overridden, when appropriate. This is a mechanism called "<u>binding arbitration</u>" for smart contracts. <u>I'd love to discuss what you think the opportunities for such technologies are</u>.



12. **<u>Evaluate and Invest</u> —** How do you evaluate the merits of an early stage business that may not even have an existing product and no cash flow? Can you give us some examples from your career?
13. **<u>The Evolution of Venture Capital</u> —** How has the landscape of venture capital investing changed since you got into it? How has the absence of an active IPO market affected it?

The first step is to identify clearly the dimensions of risk that face every start-up venture, while taking account of the transformed context in which each must be addressed today:

- Technology Risk: "When I plug it in, will it light up?"
- Market Risk: "Who will pay to buy it if it does work?"
- Financing Risk: "Will the capital be there to fund the venture to positive cash flow?"
- Business Risk: "Will the team manage the transition from start-up to sustainable business, especially given the challenge of building an effective channel to the market?"

GREEN REVOLUTION

14. **The War Against Warming —** One of the most unfortunate facts of the current culture in America is the politicization of scientific research and the loss of trust in "experts." Policymakers and academics bear much of the responsibility for this, in my view. It is not the citizenry's responsibility to simply believe whatever they are told. They must have a reason to trust the experts. That said, we are where we are. What do you think it will take before America mobilizes sufficient resources towards supporting the scientific and technical response to global warming? It seems to me that the real bottleneck has always been finding a way to convey the science to the public in a way that mobilizes them politically.

THE DARK SIDE OF THE THREE-PLAYER GAME

15. **Dual Economy —** Ownership of the American economy through equities, bonds, and real estate has had a predictably destabilizing effect on our politics. What have been the biggest contributors to this shift in ownership? What are the forces that have driven our trade policies, regulatory policies, etc.?
16. **Declining Power —** The Washington establishment has been harping on this idea that America is a "declining power," and that China is a rising one. How true is this, really? They make it sound like a law of physics, when in fact, it is a choice. America remains resource rich, geographically buffered between two oceans, and is still the pre-eminent global superpower. What do you think are the forces driving the decline, to the extent that there is one? How much of this stems from our loss of national purpose and cohesiveness since the end of the cold war? Are you concerned with the language of identity politics that seems to be indulging a tribal mentality as opposed to creating a common, American identity?
17. **China —** How has China learned from the successful playing of the three-player game and how have they exposed the dangers of that game when played in excess? What sorts of investments have they been making in AI and renewable energy and how successful have those investments been? What about all the malinvestment manifest in ghost cities, over capacity, etc.? What is their stated mission?