

# What Japan Can Gain from Sound Innovation

*Masazumi Ishii and Derek Scissors, PhD*

# *What Japan Can Gain from Sound Innovation*

*Masazumi Ishii and Derek Scissors, PhD*

---

## About the Authors

**Masazumi Ishii** is a managing director of AZCA, Inc., a California corporate-consulting firm specializing in the Asia–Pacific markets.

**Derek Scissors, PhD**, is Senior Research Fellow in Asia Economic Policy in the Asian Studies Center at The Heritage Foundation.

Riley Walters, Research Assistant in the Asian Studies Center, contributed to this report.

This paper, in its entirety, can be found at:  
<http://report.heritage.org/sr138>

Produced by the Asian Studies Center

**The Heritage Foundation**  
214 Massachusetts Avenue, NE  
Washington, DC 20002  
(202) 546-4400 | heritage.org

Nothing written here is to be construed as necessarily reflecting the views of The Heritage Foundation or as an attempt to aid or hinder the passage of any bill before Congress.

---

# *What Japan Can Gain from Sound Innovation*

*Masazumi Ishii and Derek Scissors, PhD*

## **Abstract**

*In Japan, four decades of economic success have been followed by more than two decades of stagnation. Genuine economic growth in any country is derived from labor, land, capital, and innovation. An aging society limits the returns from labor, and Japan is short of natural resources. The returns from capital would improve with reduced public borrowing from the domestic private sector, but this has proved very difficult politically. Innovation may be the most promising route to revitalization. Innovation for a specific technological goal, such as space flight, can be led by the government; innovation that drives sustained economic growth cannot. This kind of innovation requires tumult; it requires non-performing firms to fail and new firms to easily replace them. Growth is what Japan needs—and it can only be led by firms that must innovate to survive.*

It has been increasingly forgotten over the past 20 years that Japan has a great deal to offer the United States and the world. In security affairs, a vibrant Japan and healthy Japan–U.S. alliance will help stabilize an otherwise volatile East Asia for another generation. In economics, post war Japan was a major force for greater global competition and the increasing prosperity seen around the world from 1950 to 1990.

Japan is being forgotten because four decades of economic success have been followed by more than two decades of stagnation. Genuine economic growth in any country is derived from labor, land, capital, and innovation. An aging society limits the returns from labor, and Japan is short of natural resources. The returns from the use of capital would improve with reduced public borrowing from the domestic private sector, but this has proved very difficult. Innovation may be the most politically promising route to start the revitalization process.

The foundation of this paper is that all innovation requires tumult; it requires non-performing firms to

fail and new firms to easily replace them. Innovation toward a specific technological goal, such as space flight, can be led by the government; innovation that drives sustained economic growth cannot. The innovation that drives sustained growth—what Japan needs—is led by firms that must innovate to survive. The government’s role is to create and maintain the proper conditions for this, not to direct, fund, or take other dramatic short-term action.

This is not what the environment in Japan looks like. Japan has certainly pursued innovation, but in flawed fashion, overly concerned with existing firms, worker seniority, and the government role. In contrast, existing firms should be allowed to die, compensation should be tied more closely to performance and labor mobility should be increased, and deregulation should encourage private-sector financial specialization and durable support for entrepreneurial activity. Such steps will bolster innovation, long-term economic expansion, and Japan’s global role.

## The Sources of Growth

From the preeminent example of an “economic miracle,” Japan has become the preeminent example of stagnation. There is not one lost decade, there are now more than two—dating back roughly to 1991, and with no end in sight. Japan is hardly the only economy facing problems, but its failures have unfortunately proved to be the world’s most durable.<sup>1</sup> The policies have been debated for centuries, but the fundamental sources of long-term growth are plain. For Japan, the prospects for land and labor are mixed, at best, and the contribution of capital has been erased by an addiction to government borrowing. Innovation is properly and widely understood to be vital.

The growth boosted by innovation does not necessarily refer to gross domestic product (GDP). Genuine, sustained economic expansion is about household wealth, whereas GDP is an accounting tool for annual production or expenditure. In particular, GDP mistreats government borrowing and imports. Because the private sector is better at creating wealth than the public sector, net government borrowing harms long-term prosperity even while adding to current GDP. Greater competition and choice for individuals to buy foreign goods and services boosts prosperity even while it may reduce current GDP.

A main reason for Japanese stagnation is that policy has been geared to artificially support short-term GDP, effectively at the expense of genuine prosperity. One error is the obsession with the balance of payments and exchange rates. Utilizing a cheap yen for GDP gains through net exports reduces purchasing power and makes Japan artificially and unnecessarily dependent on foreign markets.<sup>2</sup> External surpluses provide a pile of foreign money to invest overseas even while trillions are being borrowed at home.

This gigantic debt is another obvious example of flawed policy. The Heritage Foundation’s *Index of Economic Freedom* ranks Japan as the world’s 24th (of 176) freest economy, and falling. That rank would be far higher and Japan far more prosperous were it not for the stunningly low rank of 141 in fiscal freedom.<sup>3</sup>

Most capital transactions within the country involve the government borrowing or spending. There are vital public goods to be provided—the justice system, national defense, environmental conservation. Beyond those, borrowing relocates money,

transferring it from the private sector to the public sector. This can be worthwhile, such as in the case of certain transfers from rich to poor, but it inhibits growth. Again and again, Japan has repeated the error of Keynesian “stimulus” for the sake of a short-term GDP boost.<sup>4</sup> When the economy is weak, which is all too often, spending is hiked as if there are always beneficial programs available. Instead, huge sums are wasted.

---

**One reason for Japanese stagnation is that economic policy has been geared to artificially support short-term GDP, effectively at the expense of genuine prosperity.**

---

In addition, interest rates have been subverted by the need to make public finance cheap. As a result, the return on capital in Japan is impossibly distorted.<sup>5</sup> This is not about a higher price due to government intervention in capital markets. Any such “crowding out” has been prevented by excess liquidity provided by monetary authorities. This is about quantity. The government has become increasingly dominant as both user and provider of capital. It borrows and spends hugely during all-too-frequent downturns, while the size of the economy remains fixed.<sup>6</sup> That would damage growth if the market power were concentrated in a private actor. (No private actor would be allowed to be so large.)

But a private actor would at least seek profit, creating wealth. The government spends for many reasons, including extremely valuable goals such as enforcing contracts. It can create the conditions for wealth accumulation, but it does not seek wealth. Rather than financial return being the primary factor, capital is borrowed and spent without regard to return. The absence of foreign capital only makes matters worse,<sup>7</sup> since yet more domestic capital is drained off for low-return initiatives. Public borrowing blunts the contribution of capital to the economy.

This failure is crippling in light of a relatively poor land endowment and shrinking labor force. It is well understood by now that fast-rising property values do not make a sustainable contribution to growth. If money supply is pushed high enough, land prices will rise, but the wealth effect will be temporary and

the inevitable contraction will be painful.<sup>8</sup> Japan has few natural resources to contribute to growth—in stark contrast to the U.S.—and land is further wasted on inefficient agricultural output and unneeded infrastructure projects.

The aging population leads to a smaller workforce, both in absolute terms and as a share of the population, which is less productive in certain sectors. This continues to harm growth prospects and will do so indefinitely. Traditional labor practices that emphasize job security, though they are becoming less pervasive, also lower labor productivity.<sup>9</sup>

The Keynesian response to the original property crash was to support GDP through public outlays and loose money. Whatever its value as a crisis response, it has utterly failed as a long-term economic strategy. Sadly, there appears to be no end in sight.<sup>10</sup> In contrast to the dismal prospects for fiscal and monetary policy, reforms that promote innovation have universal support, at least in principle. This makes encouraging innovation a top national priority.

## Innovation and the State

Innovation's role as a source of growth clarifies that the term is often understood too narrowly. Innovation applies to the whole economy, not just to the technology sector. It is not limited to introduction of technological gadgets or even technologies themselves. It is not limited to engineers and physical scientists. It includes services as well as manufacturing, business model and organization changes as well as new machines.

These features have powerful implications for policy. Governments can direct innovation toward specific goals (whether those goals are truly valuable or not). Governments cannot themselves drive the kind of broad innovation that pushes the entire economy forward. For one thing, innovation does not always respond positively to government assistance—such assistance may instead blunt the drive to innovate. This appears to have been part of what happened recently in the U.S. energy sector where “green” energy has been outperformed by shale gas.<sup>11</sup>

Moreover, not all activities can be subsidized as ostensibly desirable “winners.” Even when playing favorites brings short-term benefits, it runs directly contrary to encouraging innovation. Directing innovation rather than generally encouraging it brings the obvious risk of a bad choice. The narrower and more concrete the goal, the less likely government

intervention is to distort a country's technological and economic path. Yet while such narrow projects can be very valuable, they do not constitute the economy-wide innovation that brings prosperity. With its other sources of growth hampered, the latter is the kind of innovation that Japan needs.

---

## In open, fair competition, firms will and should fail. Their failure creates space for other firms, with more successful innovations.

---

Such innovation cannot be generated by yet another government project; it can only be generated by the private sector, which certainly includes foreign companies. The government's proper role is to foster the right environment for the private sector. This can be done more effectively, or less. Three guiding principles for effectiveness are:

- Innovation occurs throughout the private sector, not just in areas of advanced technology;
- The government avoids pre-selecting specific outcomes; and
- Innovation is driven by competition; it is therefore harmed when the government elevates certain firms or technologies above others.

The third principle has a critical implication: Innovation relies on instability and failure. Open, fair competition, again including foreign players, is indispensable for sustained innovation. The competition that breeds innovation is tumultuous, even chaotic. This is not a sign of trouble, far from it. In open, fair competition, firms will and should fail. Their failure creates space for other firms, with more successful innovations.

Government intervention to preserve failing firms, for the sake of preserving jobs or some other reason, runs directly counter to fostering innovation. New, often small, companies innovate more than their better-established competitors.<sup>12</sup> It is not enough to merely have small companies operating. If government intervention keeps failing companies afloat (typically the large ones), it blunts the

incentives to innovate and leaves the corporate sector populated by inferior players. The proper task of government is to offer regulations that enable new firms to rise up quickly, whether due to breakthrough innovation or stagnation at existing firms.

Intervention that suppresses competition can take multiple forms; it is not limited to financial handouts. For example, regulations can be damaging when they introduce bias toward industrial integration. This may arise naturally, but absorbing competitors through acquisition will otherwise stunt innovation. Even vertical integration can be harmful if artificially encouraged. Specialization should be permitted to the greatest extent possible, both in terms of firms and in terms of individual skills. Barriers to foreign entry plainly suppress competition.

Perhaps more telling, the number of patents is not informative regarding the environment for innovation. If patent registration and protection permits large companies to file endless patents and easily claim infringement, it discourages innovation. Government patent review should reward those who incurred high fixed costs, not add to future fixed costs.<sup>13</sup>

A positive government role is to encourage a deep, versatile financial system, including but certainly not limited to an active stock market. The gross amount of liquidity available matters in supporting innovation, of course, but too much liquidity helps weak firms survive and may not be helpful. Monetary policy itself therefore has little value.

Instead, the key is a financial system that can properly identify and assess risk, and is specialized enough to have a sufficient number of institutions that engage high-risk endeavors. For any given monetary policy, the more liberalized the system, the better it is at identifying risk. Loose money hides risk, and government intervention, say, to drive down mortgage payments, distorts it.<sup>14</sup> Venture capital and other firms that respond to high-risk projects are most flexible when neither inhibited nor bolstered by tax policy or other government action. These firms, too, will often fail, and should be permitted to do so.

Government research and development is secondary to private finance in supporting innovation. The government can promote basic research that has little or no short-term commercial return. When the government ventures into applied research, it

competes harmfully with the private sector. The harm is that public finance does not respond appropriately to risk, so that public-sector financing will skew to firms where the commercial return is inadequate compared to the risk.<sup>15</sup> This is one implication of the second principle—the government should not pre-select outcomes.

The appropriate quantity of government research spending is thus limited. This holds even when high and sustained research spending is called for in certain sectors, as many are calling for in green energy now and is frequently true in basic materials, which have multiple uses. When a new field for innovation materializes, or seems to, the government's role is already concluded. Either it has created conditions for successful innovation, such as a well-functioning financial market, or it has not. Direct government intervention does more harm than good.

The government can also help foster long-term conditions that promote broad innovation. The more tangible effort is in education. As noted in the first principle—innovation is not just about technology—education should be strong in as many aspects as possible. If graduate training in science or engineering is found to be inadequate, government support is entirely reasonable. However, the same is true for other aspects of the education system.

---

## Labor mobility, including transnational mobility, is a major boon for innovation.

---

Less tangible, but as important, is an environment of openness. This applies to the corporate sector, but, in light of the importance of education, it also applies more extensively. The government should leave the corporate and education sectors as open to competition (domestic and foreign) as possible, and individual firms and research institutions should be open to cooperation.<sup>16</sup> In this light, labor mobility, including transnational mobility, is a major boon for innovation.

### Japan's Innovation Gaps

Japan is eighth in the world in the number of Nobel Prizes received. Dr. Shinya Yamanaka won the Nobel Prize for Physiology or Medicine in 2012, the 19th Nobel Prize a Japanese citizen has won,

as compared to nine for India, Taiwan, China, and Korea combined.<sup>17</sup> On another dimension, Japan is competitive with the U.S.—Japan’s top universities file as many patents as the top U.S. universities.<sup>18</sup> In this sense, Japan’s raw capability in science and technology is top-notch.

The ensuing question is whether these capabilities have been translated into innovative activities generating employment and wealth. The answer here is unfortunate. According to the competitiveness index published by Switzerland’s Institute for Management Development, Japan was first in the world in 1990 but fell all the way to 27th by 2012.<sup>19</sup> Among other things, this had a (delayed) impact on annual national income: In 1990, Japan ranked third in the world in GDP per capita, in 2000 it ranked eighth, in 2010 it ranked 17th.<sup>20</sup> If adjusted for purchasing power, Japan’s present annual income ranking is no higher than 24th.

The recent poor performance is reflected in the broad types of Japanese firms: comparatively old and large; newer but established; and true start-ups.

By the end of the 1970s, Japan had a set of large corporations that had emerged during the high-growth era. Most began as start-ups. They thrived by introducing management and operating systems that encouraged high-quality, low-cost manufacturing. Employee creativity was not encouraged in this kind of environment. Creativity has been suppressed for an extended period, and the original entrepreneurial spirit has been lost. The result is a risk-averse corporate culture with a natural tendency to continue or return to past successes, and where top management rejects genuinely new strategies.

Once business stalwarts, many of these companies are in danger of failing, missing opportunities to recover lost market share. It appears unlikely that most can change their management approach. A few will make radical changes, such as choosing outside CEOs and undergoing radical restructuring, others will be acquired, many will vanish. Those that survive will not just repeat the mantra of greater innovation, they will implement it.

The second category, newer but established companies, grew up primarily in the 1990s and 2000s. They are free of many past constraints, such as those imposed by the Keiretsu system of tight-knit corporate alliances, and they retain an entrepreneurial approach to management and operation. This has enabled them to succeed in the harsh climate of the

past 20 years. However, these firms must continue to respond to the rapidly changing global marketplace or they could find themselves in the same position as their older cousins.

The third group is the current set of Japanese start-ups. These are typically spun out from research institutions such as universities or, less often, established corporations. Many possess the world-class technology that Japan develops and thus have high commercial potential. What they frequently lack is management skill to create a successful business, as well as financial resources. Because of this, they all too often marry up with larger firms, ceding technology and ultimately gaining little in return.

These corporate characterizations point to the bottlenecks that separate Japan’s technological capacity, seen in the start-ups, from the economic benefit that should be generated by successful, growing firms. Corporate features play out in four major ways:

1. Venture capital should operate independently, with a tight link between performance and compensation, run by officers with entrepreneurial backgrounds. Japanese venture capital firms, however, typically are not distinct entities. “Venture” capital usually flows from subsidiaries created by banks and securities firms. Officers are rewarded with bonuses doled out by the parent company. Venture capital firms often sign deals with entrepreneurs requiring that shares be bought back if a firm does not perform as anticipated in the prospectus, effectively turning the investment into a conventional loan.
2. Employees of large corporations are discouraged from creating spin-offs. Traditionally, Japanese corporate compensation is designed to foster lifetime employment. Employees are encouraged to stay, to win higher salaries purely by climbing corporate ladders over time. Also, while a Japanese-style 401(k) retirement-savings plan exists, barely 6 percent of the 65 million-strong workforce have accounts.<sup>21</sup> And, the plans are not truly portable. Talent can be found in large corporations but is not leveraged to foster innovation.
3. Start-ups with advanced technologies frequently cannot bring in the variety of skills necessary to continue to expand. Since employees are not as



mobile as they would ideally be, start-ups often do not have the necessary personnel to deal properly with potential investors, including venture capital firms. This may explain why preferred stock options are not widely utilized; start-ups cannot manage them.

4. Perhaps most important, exit avenues are limited. Inadequate initial public offers (IPOs) and mergers and acquisitions (M&A) harm entrepreneurship by eliminating the main exit options. If people cannot leave a business, they are less likely to start one.

Recently, IPO share prices have risen.<sup>22</sup> But this is primarily due to the liquidity injection component of “Abenomics”—Prime Minister Shinzo Abe’s growth strategy. While promises have been made to encourage start-ups, structural reform has yet to be offered, much less implemented. Examining a longer time period, the IPO market has not functioned properly. One issue is accounting scandals focused on false earnings reports, which are hopefully a thing of the past.<sup>23</sup> More important, there is insufficient specialization in underwriting. Securities firms treat IPOs as a risky side business because they lack the necessary expertise to reduce the risk.

---

**Japan does not have a pressing jobs problem requiring that large employers be protected; it has a pressing stagnation problem requiring more dynamism.**

---

The other avenue for exit is acquisition by large corporations. In the U.S., after the Internet bubble burst in 2000, the IPO market shrank considerably. The enforcement of the Sarbanes–Oxley Act in 2002 deterred companies from going public because the cost of compliance sharply increased and trade secrets were less protected. Even so, the total number of exits has been stable, as the vast majority of exits since 2002 have been buyouts.<sup>24</sup> Thus, capital mobility has been retained.

In contrast, Japanese M&A is stunted. Large corporations are not especially interested in fully acquiring ventures. Rather than seeing new firms

as an opportunity, large firms tend to use their resource advantages to extract technology, and the new firms simply die. When a small firm is acquired, its technology is quickly deployed but entrepreneurship is smothered.

### **Fostering Japanese Innovation**

It is common to emphasize the importance of the entrepreneurial spirit but, whether in Japan, the U.S., or elsewhere, people naturally hesitate to act in more difficult settings. In this sense, Japan would be well served by the fostering of an environment where job mobility is high and barriers to new ventures are low, an ecosystem where people can more easily “make things happen” instead of bracing themselves for hardship when undertaking a new venture.

In light of the weaknesses in the innovation ecosystem, there are three sets of improvements that need to be made.

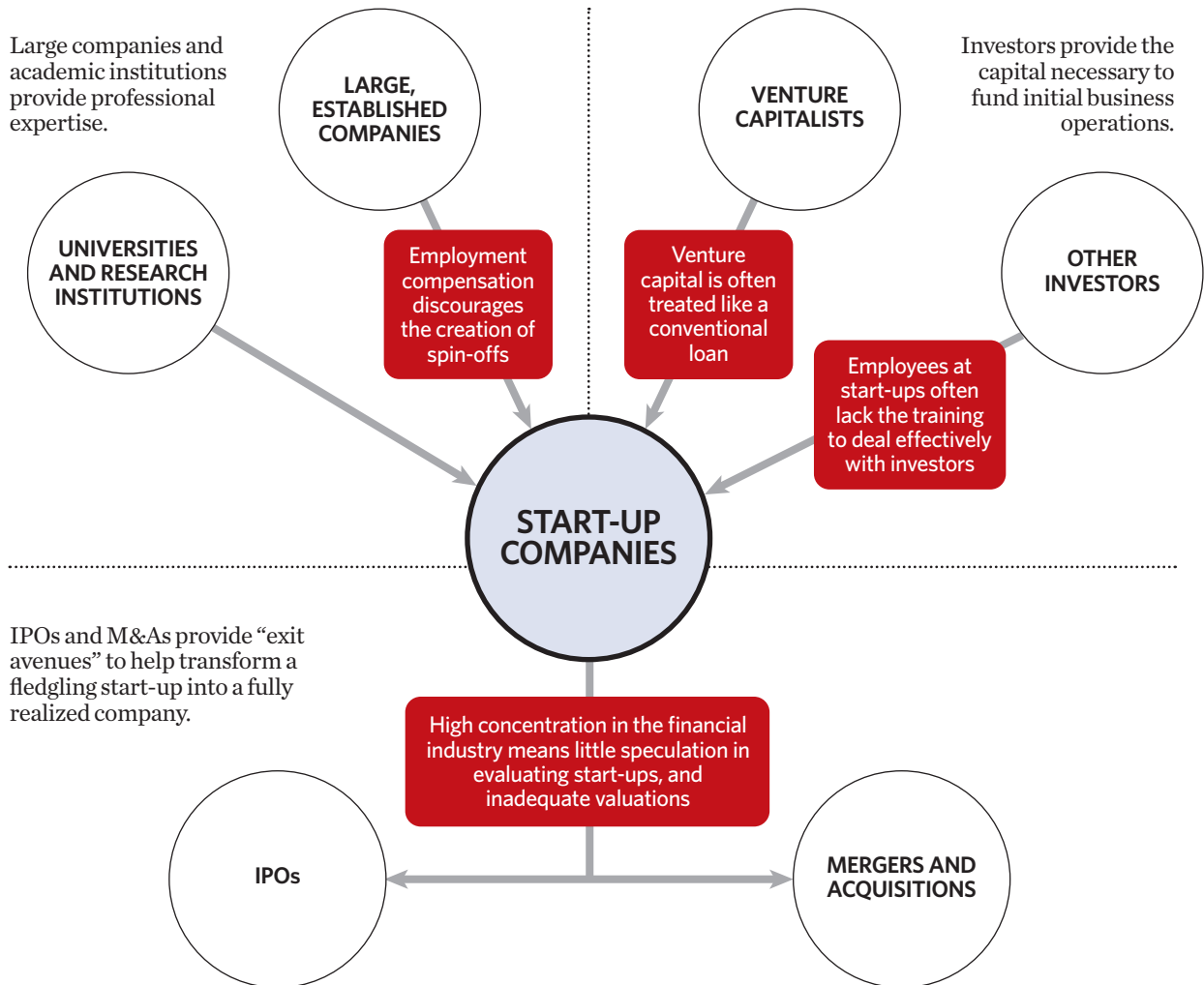
The overarching set of improvements that needs to be made is in the realm of ideas and attitudes: The government must stop paying for the past and instead invest in the future. That is, it should stop subsidizing firms, and if that means letting them die, so be it.

This seems the most difficult aspect for people to accept. But Japan does not have a pressing jobs problem requiring large employers to be protected; it has a pressing stagnation problem requiring more dynamism. If failure is not punished, it will continue (and has). If market share is not available for potentially superior firms, the incentives to innovate are dulled. At the other end, and in the spirit of making life a bit easier for entrepreneurs, it should be as simple as possible in terms of regulation to create new firms. Most of these will fail very quickly—and that is exactly the kind of churn that foments entrepreneurship.

A second set of improvements has to do with people. Some changes will have a quick impact, others will require a decade or more. One step along these lines can be taken fairly quickly: increasing labor mobility. Human capital at the scale of a country cannot be built up quickly, but measures can be implemented quickly to permit human capital to respond better to new opportunities. Silicon Valley is said to foment high labor mobility.<sup>25</sup> In contrast, the labor market in Japan is widely considered to be segmented and in need of fundamental reform.<sup>26</sup> There is scope for government action here: Regulations should be as encouraging as possible for

FIGURE 1

## Roadblocks to Innovation in Japan



SR 138 heritage.org

portable pension schemes. Not only should individuals be able to take pensions with them if they switch jobs, the process should be as painless as possible.

Beyond government, Japan needs more managerial talent. The spread of business degrees at home needs to continue, and greater efforts made to tap both accredited people and business training overseas. It will also be helpful to better integrate academic research institutions with industry. All these steps will produce more graduates who have the ability to build new companies, improving the quality of human capital in innovation activities. The increased popularity of business plan contests is hardly conclusive but it is encouraging.

Improved human capital and mobility is not enough. Risk-taking is naturally sensitive to the setting—during the post-bubble periods from 2002 to 2003 and 2009 to 2010 the rate of new entrepreneurial activity fell even in Silicon Valley.<sup>27</sup> In Japan, a challenging environment for setting up new ventures is the rule, not the exception. If more innovation is the goal, firms can lead in taking steps to create a better environment. The main step firms can take is internal. A mechanism is needed to tie employment to compensation more on a real-time basis, making the link between compensation and contribution more immediately apparent to the worker. In Japan, employees are often forced to wait years until

the compensation rises to a level commensurate with previous contributions—this encourages tenacity, not innovation. The decoupling in time between work and benefit makes it more difficult to switch jobs as well. This may benefit a company when it comes to existing employees, but it harms the same company when looking for new employees. And it harms the entire economy. An accomplished individual with skills needed elsewhere should not fear to lose time on a job clock if she switches employers.

One method firms can employ along these lines, especially if revenue is tight, is equity options. To the extent that there is a government role, it should encourage variations in employee compensation from the seniority system.

The third set of improvements is financial. The reasons why Japanese venture capital units underperform their American counterparts include the financial side as well as the output side. Tax, regulatory, and legal reform can encourage domestic and foreign money to flow to venture capital and innovation in general.

---

**Given Japan's demographic trends and high technological capacity, it is crucial that investments by pension funds and universities be deregulated.**

---

Financial mechanisms are a crucial element of the innovation environment. Venture capital is needed to help start-ups in their early stages. Specialization of financial entities in venture capital is generally superior to banks and securities houses treating innovation as indistinct from their traditional realms. In general, the financial side needs operational independence from parent institutions focused on other activities. It also needs entrepreneurial experience to better understand and assist innovative companies beyond the mere provision of capital.

Other helpful actions for the early stages include encouraging financial variation. Given Japan's demographic trends and high technological capacity, it is crucial that investments by pension funds and universities be deregulated (not merely retargeted more to the government's liking). Financial

specialization should not be punished through taxation or regulation, thus enabling expansion of so-called angel financing (affluent investors who invest their own money directly in start-ups).

Almost as important as the start is the end. In order for money to move freely, there must be a well-established exit path. The obvious one is an IPO. IPOs need specialized underwriters, not merely securities firms that consider the business a sidelight. Japan's IPO market has performed poorly, but there have been recent improvements, in part encouraged by the Action Plan for the New Growth Strategy,<sup>28</sup> announced in 2011 by the Ministry of Finance. Such reform must occur or the improvement in the IPO market will fade. Also on the exit side, M&A that passes antitrust standards should be made as easy as possible in terms of permits and taxes.

### **A Platform for Revitalization**

Select actions will bolster innovation:

- **Struggling firms should be allowed to fail**, not maintained by government aid. Moreover, the assistance should not instead go to new firms.
- **The seniority system for employees should be weakened and compensation tied much more closely to current productivity**, for example, via stock options.
- **Related, labor mobility should be enhanced** through portable pensions and easier visas.
- **Business education should expand and barriers between academic research and industry reduced**, initially through the use of tax credits.
- **Financial specialization should be encouraged through regulatory reform**, focusing on independent venture capital firms and IPO underwriters.

These are not the only steps that will be needed but they would make a fine start. With limitations on its labor and land supply, and having created a monster in public borrowing, Japan needs innovation in order to reinvigorate. There is no painless, perfect solution, but Japan has the capacity to again be a global economic leader.

## Endnotes

1. Derek Scissors, "Two Lost Decades? Why Japan's Economy Is Still Stumbling and How the U.S. Can Stay Upright," Heritage Foundation *WebMemo* No. 2307, February 23, 2009, <http://www.heritage.org/research/reports/2009/02/two-lost-decades-why-japans-economy-is-still-stumbling-and-how-the-us-can-stay-upright>.
2. Kalim Siddiqui, "Japan's Economic Recession," *Research in Applied Economics*, Vol. 1, No. 1 (2009), <http://www.macrothink.org/journal/index.php/rae/article/view/218/120> (accessed May 20, 2013).
3. "Japan," in Terry Miller, Kim R. Holmes, and Edwin J. Feulner, 2013 *Index of Economic Freedom* (Washington, DC: The Heritage Foundation and Dow Jones & Company, Inc., 2013), <http://www.heritage.org/index/country/japan>.
4. Sarah Turner, "Japan Unveils \$10.9 Stimulus Package," *MarketWatch*, September 10, 2010, <http://www.marketwatch.com/story/japan-unveils-stimulus-package-2010-09-10> (accessed May 20, 2013).
5. "BoJ Overnight Call Rate-Japanese Central Bank's Interest Rates," Global Rates, <http://www.global-rates.com/interest-rates/central-banks/central-bank-japan/boj-interest-rate.aspx> (accessed June 12, 2013), and Shu-Hwa Chang and Liang-Chou Huang, "The Nexus of Finance and GDP Growth in Japan: Do Real Interest Rates Matter?" *Japan and the World Economy*, Vol. 22, No. 4 (December 2010), pp. 235-242, <http://www.sciencedirect.com/science/article/pii/S0922142510000344> (accessed May 20, 2013).
6. Derek Scissors and Kumi Yokoe, "Japan's National Budget: Time to Give Up on Keynesianism," Heritage Foundation *Special Report* No. 103, March 7, 2012, <http://www.heritage.org/research/reports/2012/03/japans-national-budget-time-to-give-up-on-keynesianism>.
7. Rob Cox and Martin Hutchinson, "Could Japan's Debt Lead to a Crisis?" *The New York Times*, May 26, 2011, <http://www.nytimes.com/2011/05/27/business/27views.html> (accessed June 12, 2013).
8. See, for example, Eldar Shafir, Peter Diamond, and Amos Tversky, "Money Illusion," *The Quarterly Journal of Economics*, Vol. 112, No. 2 (May 1997), pp. 342-374, <http://qje.oxfordjournals.org/content/112/2/341.short> (accessed June 12, 2013).
9. Randall S. Jones and Satoshi Urasawa, "Labour Market Reforms in Japan to Improve Growth and Equity," Organisation for Economic Co-operation and Development, September 6, 2011, p. 30, [http://www.oecd-ilibrary.org/economics/labour-market-reforms-in-japan-to-improve-growth-and-equity\\_5kg58z6p1v9q-en](http://www.oecd-ilibrary.org/economics/labour-market-reforms-in-japan-to-improve-growth-and-equity_5kg58z6p1v9q-en) (accessed June 12, 2013).
10. Mayumi Otsuma, "Abe Stimulus Risks Fizzling as Citigroup Sees Japan Job Gap," Bloomberg News, January 17, 2013, <http://www.bloomberg.com/news/2013-01-16/abe-stimulus-risks-fizzling-as-citigroup-sees-japan-job-deficit.html> (accessed May 20, 2013).
11. Henry Jacoby, Francis O'Sullivan, and Sergey Paltsev, "The Influence of Shale Gas on U.S. Energy and Environmental Policy," *Economics of Energy & Environmental Policy*, Vol. 1, No.1 (2012), [http://globalchange.mit.edu/files/document/MITJPSPGC\\_Reprint\\_12-1.pdf](http://globalchange.mit.edu/files/document/MITJPSPGC_Reprint_12-1.pdf) (accessed June 12, 2013).
12. See, for example, Mark Freel, "Do Small Innovating Firms Outperform Non-Innovators?" *Small Business Economics*, Vol. 14, No. 3 (May 2000), pp. 195-210, <http://www.jstor.org/discover/10.2307/40229075?uid=370313441&uid=2&uid=3&uid=67&uid=25421&uid=62&id=21102316219967> (accessed May 20, 2013), and Todd Zenger and Sergio Lazzarini, "Compensating for Innovation: Do Small Firms Offer High-Powered Incentives that Lure Talent and Motivate Effort?" *Managerial and Decision Economics*, Vol. 25, (2004), pp. 329-345, <http://apps.olin.wustl.edu/faculty/zenger/compensating%20for%20innovation.pdf> (accessed May 20, 2013).
13. Vincenzo Denicolo, "Two-Stage Patent Races and Patent Policy," *The RAND Journal of Economics*, Vol. 31, No. 3 (Autumn 2000), pp. 488-501, <http://www.jstor.org/stable/2600997> (accessed June 12, 2013), and Shih-tse Lo and Dhanoos Sutthiphisal, "Does it Matter Who Has the Right to Patent: First-to-Invent or First-to-File? Lessons from Canada," National Bureau of Economic Research *Working Paper* No. 14926, April 2009, <http://www.nber.org/papers/w14926.pdf> (accessed May 20, 2013).
14. See, for example Viral Acharya and Hassan Naqvi, "The Seeds of a Crisis: A Theory of Bank Liquidity and Risk Taking Over the Business Cycle," *Journal of Financial Economics*, Vol. 106, No. 2 (November 2012), pp. 349-366, <http://www.sciencedirect.com/science/article/pii/S0304405X12000967> (accessed May 20, 2013).
15. Jonathan Lesser, "Gresham's Law of Green Energy," *Regulation*, Vol. 33, No. 4 (Winter 2010-2011), pp. 12-18, <http://www.cato.org/sites/cato.org/files/serials/files/regulation/2010/12/regv33n4-3.pdf> (accessed May 21, 2013), and "Solar Power Eclipse," *The Wall Street Journal*, January 18, 2011.
16. Kaustav Misra, Paul Grimes, and Kevin Rogers, "Does Competition Improve Public School Efficiency? A Spatial Analysis," *Economics of Education Review*, Vol. 31, No. 6 (December 2012), pp. 1177-1190, <http://www.sciencedirect.com/science/article/pii/S0272775712001057> (accessed May 21, 2013), and Pedro de Faria, Francisco Lima, and Rui Santos, "Cooperation in Innovation Activities: The Importance of Partners," *Research Policy*, Vol. 39 (2010), pp. 1082-1092, [http://ac.els-cdn.com/S0048733310001277/1-s2.0-S0048733310001277-main.pdf?\\_tid=b3ed79b6-c24b-11e2-bd1a-00000aacb35d&acdnat=1369164297\\_cf61d54622bcad2e6c5eb0f69698bf0b](http://ac.els-cdn.com/S0048733310001277/1-s2.0-S0048733310001277-main.pdf?_tid=b3ed79b6-c24b-11e2-bd1a-00000aacb35d&acdnat=1369164297_cf61d54622bcad2e6c5eb0f69698bf0b) (accessed May 21, 2013).
17. "All Nobel Prizes: 1901-2012," Nobelprize.org, [http://www.nobelprize.org/nobel\\_prizes/lists/all/index.html](http://www.nobelprize.org/nobel_prizes/lists/all/index.html) (accessed June 12, 2013).
18. News release, "International Patent Filings Set New Record in 2011," World Intellectual Property Organization, March 5, 2012, [http://www.wipo.int/pressroom/en/articles/2012/article\\_0001.html](http://www.wipo.int/pressroom/en/articles/2012/article_0001.html) (accessed June 12, 2013).
19. International Institute for Management Development, "IMD Announces Its 2012 World Competitiveness Rankings," May 31, 2012, <http://www.imd.org/news/IMD-announces-its-2012-World-Competitiveness-Rankings.cfm> (accessed June 17, 2013).

## WHAT JAPAN CAN GAIN FROM SOUND INNOVATION

---

20. Knoema, "World Data Atlas: GDP Per Capita," April 2013, <http://knoema.com/atlas/ranks/GDP-per-capita> (accessed May 20, 2013).
21. Japanese Ministry of Health, Labor, and Welfare, "Overview of the Corporate Pension," p. 20, <http://www.mhlw.go.jp/english/org/policy/dl/p36-37p4.pdf> (accessed May 20, 2013).
22. Satoshi Kawano and Kana Nishizawa, "Japan's IPOs to Jump 67% on Abenomics Rally, Adachi Says," Bloomberg News, March 12, 2013, <http://www.bloomberg.com/news/2013-03-11/japan-s-ipos-to-jump-67-on-abenomics-rally-adachi-says.html> (accessed May 20, 2013).
23. "The Inglorious History of Japanese Accounting Frauds," *The Wall Street Journal*, November 8, 2011, <http://online.wsj.com/article/SB10001424052970203733504577025753924121354.html> (accessed June 13, 2013).
24. Ellen Engel, Rachel Hayes, and Xue Wang, "The Sarbanes-Oxley Act and Firms' Going-Private Decisions," *Journal of Accounting & Economics*, Vol. 44, Nos. 1-2 (September 2007), pp. 116-145, [http://ac.els-cdn.com/S0165410106000723/1-s2.0-S0165410106000723-main.pdf?\\_tid=b61921ce-c23f-11e2-bfc2-00000aab0f6c&acdnat=1369159147\\_69f4481ca4903c2e3cbe853ca3becb8a](http://ac.els-cdn.com/S0165410106000723/1-s2.0-S0165410106000723-main.pdf?_tid=b61921ce-c23f-11e2-bfc2-00000aab0f6c&acdnat=1369159147_69f4481ca4903c2e3cbe853ca3becb8a) (accessed May 21, 2013).
25. Bruce Fallick, Charles Fleischman, and James Rebitzer, "Job-Hopping in Silicon Valley: Some Evidence Concerning the Micro-Foundations of a High Technology Cluster," Federal Reserve Board, Washington, DC, February 2, 2005, <http://www.federalreserve.gov/pubs/feds/2005/200511/200511pap.pdf> (accessed May 21, 2013).
26. Lex Borghans and Bart Golsteyn, "Job Mobility in Europe, Japan, and the U.S.," Maastricht University School of Business and Economics, September 2011, <http://arno.unimaas.nl/show.cgi?fid=20904> (accessed May 21, 2013).
27. Tian Luo and Amar Mann, "Survival and Growth of Silicon Valley High-Tech Businesses Born in 2000," *Monthly Labor Review*, Vol. 134, No. 9 (September 2011), p. 16, <http://www.bls.gov/opub/mlr/2011/09/art2full.pdf> (accessed May 21, 2013).
28. Japanese Ministry of Finance, Financial Services Agency, "The Action Plan for the New Growth Strategy," December 24, 2010, <http://www.fsa.go.jp/en/news/2011/20110128-1/01.pdf> (accessed June 12, 2013).



214 Massachusetts Avenue, NE  
Washington, DC 20002

(202) 546-4400  
[heritage.org](http://heritage.org)