

## On Financial Innovation and Economic Growth

Robert C. Merton



There is an important causal relation between the effectiveness of the financial system and development and long-run economic growth. Nearly a half century ago, Robert Solow's fundamental work on the long-run determinants of economic growth concluded that it was technological progress, not high rates of saving or population growth, that account for the vast bulk of growth. A large body of recent research work suggests that well-functioning financial institutions promote economic growth. These conclusions emerge from cross-country comparisons, firm-level studies, time-series research and econometric investigations that use panel techniques. A number of economic historians including Douglas North and Ross Levine have concluded that those regions—be they cities, states, or countries—that developed the relatively more sophisticated and well-functioning financial systems were the ones that were the subsequent leaders in economic development of their times.

An integrated picture of those findings suggests that in the absence of a financial system that can provide the means for transforming technical innovation into broad implementation, technological progress will not have significant and substantial impact on the economic development and growth of the economy. Therefore, China, which needs to radically restructure its financial system, should consider an approach that looks beyond traditional emphasis on relatively short-run monetary and fiscal policies, and their impact on national saving and capital formation, to recognize how changes in its financial institutions and financial system performance will affect its prospects to realize its full potential for long-term economic development.

While an often-recommended path is to replicate the design of successful existing financial systems such as in the United States, it must be taken into account that such systems evolved during a time when financial and physical technologies were considerably more limited than they are today. If instead a revised financial system is designed around the most-up-to-date financial technology, then China can "leap-frog" over existing systems in terms of efficiency. The designers should thus take a prospective focus on how financial practice is likely to evolve in the impending future instead of focusing on how it is carried out at the moment.

Consider a single example to demonstrate how modern financial technology can be used to address a major economic issue: Among the more important developments within any financial system is the capability to efficiently measure and manage major risk exposures for the economy. A suggestion for innovation is to use relatively simple country swaps to vastly improve the national risk profile at little risk.

To illustrate the country swap hypothetically, consider two countries: Country A is heavily exposed to electronics but has no automobile industry and Country B with large concentrated exposure to automobiles and no high tech electronics industry. Suppose Country A makes the policy decision that it should diversify. A traditional implementation of that policy would be to create an automobile industry requiring huge investment and causing substantial social disruption including training large numbers of employees. Because it is not an industry of comparative advantage for the country's labor skills and resource base, it will require protections or other subsidies.

Instead with currently available market-accepted financial technology, Country A could enter into a swap where it would pay the total return on an index of a world portfolio of electronics firms and receive the total return on an index of a world portfolio of automobile firms. If the notional amount of the swap were say \$10 billion, then Country A would have reduced its risk exposure to electronics by \$10 billion and replaced it with a diversifying risk of \$10 billion of automobiles. Country B is a natural counterpart to this contract because by paying the returns on automobiles and receiving the returns on electronics, it too diversifies \$10 billion of concentrated automobile risk.

Thus, both countries have diversified and improved their risk profiles but did so without pursuing economic activities that are inconsistent with their respective comparative advantage. By using swaps, countries can pursue comparative advantage in their industrial strategies and remove the risk of concentrated dependence on a few industries. They can manage the risk characteristics of their national balance sheets without engaging in industrial policies that disrupt people's lives and can waste huge resources on developing non-competitive industries in the name of risk diversification. The use of contractual agreements instead of physical investment to manage risk gives a country the flexibility to quickly and easily reverse a decision once made, without disrupting anything other than entering into an offsetting contract.

These financial tools offer the prospect to mitigate, if not outright eliminate, the classical tradeoff between the principle of comparative advantage that calls for a country to concentrate

in relatively few related economic activities and the principle of risk diversification that calls for participation in a large number of relatively unrelated economic activities.

The application of swaps to managing country risk is not yet being practiced. It is however entirely feasible today. The learning curve experience of using swap contracts across geopolitical borders over the last two decades has resulted in standardized contracts that are reliable and enforceable. Financial institutions, firms, sovereigns including central banks routinely use these contracts to manage risks. There is estimated to be \$170 trillion of notational amounts of derivative contracts outstanding. While it is surely not the only means for managing country risk, it is feasible across a wide-range of financial system designs. In sum, using widely accepted financial technologies, nation states can manage and diversify their national risk and pursue the path of exploiting comparable advantage and do so without changing a physical thing. As China designs and develops its financial system, it should keep in focus the opportunities to apply finance science and modern financial tools as an integral part of that design.

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