

**The Virtues of Flexible Financial Markets: A Central Banking
Perspective**

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I. Introduction

It is a privilege and an honour to open the 2006 CFA Institute Annual Conference. The outstanding speakers that follow reflect the rich history and the standing of the CFA Institute. As a leading global financial centre, Zurich is proud to be the host city to your 59th Annual Conference. On behalf of my colleagues on the Governing Board of the Swiss National Bank, let me therefore extend a warm welcome to all of you.

By virtue of implementing monetary policy, central banks are active financial market participants. In the case of the Swiss National Bank, market operations extend beyond the implementation of monetary policy. Our National Bank Act mandates us to manage our currency reserves in accordance with the principles of modern asset management. New developments in financial markets therefore directly affect us as an active market participant. Moreover, the Swiss National Bank is required by law to contribute to financial stability. It therefore has a strong incentive to try to gain an understanding of the rapid evolution of financial markets to the extent that this evolution influences the outlook for financial stability.

In my remarks this morning, I will first discuss the remarkable evolution of global financial markets in recent years. I will then focus on the virtues of flexible financial markets. In closing, I will make some tentative suggestions about some of the potential risks associated with modern financial markets.

II. The evolution of global financial markets

Global financial markets have grown dramatically over the past three decades. According to recently published data, the total value of the global financial stock – including bank deposits, government and private debt securities and equities – has increased more than tenfold, from 12 trillion USD in 1980 to 136 trillion USD in 2004.¹ This represents more than three times the value of current global GDP. As illustrated in Figure 1, the ratio of the global financial stock to GDP has tripled since 1980. Rapid technological change and market liberalization are the two forces that have been instrumental in driving the remarkable evolution of global financial markets during the last quarter of a century.

Technological change has several facets. The use of new technologies has enhanced product innovation. It has also facilitated and lent support to breakthroughs in our

I would like to thank Caesar Lack and Nicole Brändle for their valuable inputs.

¹ Cf. McKinsey & Company, "\$118 Trillion and Counting: Taking Stock of the World's Capital Markets", February 2005, and "Mapping the Global Capital Market 2006, Second Annual Report", January 2006. The data do not include real estate.

understanding of the theoretical foundations of financial markets. Finally, technological change has vastly improved our ability to disseminate information, which in turn has revolutionized the way financial markets function.

In parallel, a series of political choices reshaped many of the fundamental organizing principles of global financial markets and the world economy. Ronald Reagan in the United States, Margaret Thatcher in the U.K., the push towards the Single European Act in the European Union and, of course, the collapse of the Soviet Union provided crucial political momentum for market liberalization and deregulation in the 1980s. Governments and legislative bodies throughout the developed world gradually but increasingly committed themselves to free and open financial markets. Finally, as a corollary of a growing commitment to market forces in the developed world, the so called “Washington Consensus” on the benefits of capital account liberalization began to shape economic policy debates in favour of liberalization and deregulation in many of the key emerging economies.

The consequences of rapid technological change and increasing political momentum towards liberalization and deregulation of capital markets have been far-reaching. They relate to geography, products and market participants. Let me briefly touch upon each of these three dimensions.

Geography

We are likely still at the beginning of a geographic rearrangement of global capital markets. The four most important financial markets, the U.S., the Eurozone, Japan and the UK, currently account for more than 80% of the global financial stock. However, the financial stock of regions with currently much smaller shares like China or Eastern Europe is growing rapidly. Their average annual growth rates for the period from 1993 to 2003 amounted to 14.5% and 19.3%, respectively, compared to 8.4% for the global financial stock. Another indicator for the ongoing geographical shift in global financial markets is the evolution and distribution of countries' currency reserves. Table 1 illustrates that in 1980, the ten largest reserve holders were all developed nations. Today, eight of the ten largest holders are Asian emerging economies.²

The developed economies still account for the bulk of the world's financial stock. Equally, capital flows between developed economies account for the overwhelming majority of total flows. Nonetheless, as the currency reserve numbers indicate, change in the geographic

² These figures on foreign exchange reserves do not include gold.

make up of the world's financial markets is under way and may have important repercussions in terms of how the global economy functions as well as in terms of what kind of financial architecture is required to manage it.³

Products

Beyond geography, capital market liberalization and technological progress have deeply affected the evolution of financial products. New types of products such as asset backed and mortgage backed securities or collateralized debt obligations have been established and are utilized successfully. In addition, a variety of derivative products are employed in the management of a wide range of risks.

The striking evolution of derivative products provides a sense of the extent to which product innovation has been a force in recent years. According to the statistics of the Bank for International Settlements, the value of the assets underlying exchange-traded derivatives increased at an annual rate of more than 25% over the last two decades to reach about 58 trillion USD in 2005.⁴ The value of the assets underlying OTC derivatives attained approximately 270 trillion USD, more than six times the amount of global GDP.

Even more impressive is the outright explosion currently occurring in the market for structured credit derivatives. The value of outstanding credit derivative contracts has more than quadrupled over the past two years to reach an estimated 17 trillion USD at the end of 2005.⁵ It now exceeds the stock of corporate bonds and loans. The market for credit derivatives has overtaken the market for commodity derivatives and has reached approximately the size of the market for equity derivatives. Most of the recent growth has occurred in the area of the most complex products such as credit default swaps (CDSs). Collateralized debt obligations (CDOs), which synthetically package derivatives to adjust credit exposure, have also grown rapidly in recent years.

Market participants

Global capital market liberalization has also had a profound effect on the nature and composition of financial market participants. The forces of increasingly liberalized and global financial markets have blurred many of the distinctions between traditional categories of financial firms. In many countries, notably in the Anglo-Saxon world, capital needs are increasingly financed through capital market operations, at the expense of

³ See, for example, Larry Summers, "Reflections on Global Account Imbalances and Emerging Markets Reserve Accumulation", *L.K. Jha Memorial Lecture*, Reserve Bank of India, March 2006.

⁴ BIS, Quarterly Review, March 2006.

⁵ IMF, Global Financial Stability Report, April 2006.

traditional lending from the banking sector. Moreover, in many industrialized countries, savings and investments are increasingly made via “new” intermediaries such as insurance companies, pension funds, and other investment vehicles like mutual funds, private equity partnerships or hedge funds. Let me illustrate these developments with a few figures.

During the last decade, the hedge fund industry has grown in size at an annual pace of 20%. Currently, an estimated 10'000 hedge funds manage assets in excess of 1.2 trillion USD. The global private equity market is estimated to be around 2.5 trillion USD and made up of roughly 8000 funds. Institutional investors, including insurance companies, pension funds and investment companies, have also recorded significant increases in their assets. Assets under management by global institutional investors nearly doubled between 1995 and 2003 to reach 47 trillion USD.⁶ Investment companies grew more than three times as fast as insurance companies. Pension funds have also grown dramatically in recent years. They now constitute the largest institutional investor category in the OECD and manage assets amounting to more than 40% of world GDP. Indeed, in countries such as Switzerland and the Netherlands, total assets managed by pension funds exceed 100% of GDP, as can be seen in Figure 2. Pension funds in the Euro-zone hold nearly 40% of the long-term government bonds outstanding. In light of these numbers, it is not surprising that a forthcoming report refers to pension funds as the “New Giants”.⁷

To sum up, the effects of increasingly liberalized global financial markets have been far-reaching, integrating new regions, driving financial product innovation and deeply impacting the financial landscape in terms of market participants. As a result, the depth and flexibility of global financial markets has increased dramatically since the beginning of the liberalization process of financial markets.

III. The virtues of flexible financial markets

Let me now turn now to the benefits of flexible financial markets. Broadly speaking, financial markets have three functions. First, they facilitate the accumulation of capital by transforming short-term savings into long-term investment. Viewed from a saver's perspective, financial markets make it possible to decouple income from consumption and therefore to smooth consumption over the life-cycle. Viewed from a producer's perspec-

⁶ IMF, Global Financial Stability Report, September 2005.

⁷ "Geneva Report on the World Economy, Dealing with the New Giants", International Center for Banking and Monetary Studies, forthcoming 2006. On the effects of pension funds on monetary policy, see recent speech by Lorenzo Bini-Smaghi, "The Growth of Pension Funds and Financial Markets: Implications for Central Banks", May 2006.

tive, financial markets provide access to capital and allow for a large-scale and efficient production of goods, which enhances prosperity.

The second function of financial markets is to facilitate the transfer of risk. Financial markets allow to diversify, to insure and to hedge risk: Investors can diversify the risk they are able and willing to bear and thus decrease their overall risk. Individuals and corporations can insure themselves against a wide range of adversities and risks, ranging from personal disability to natural disasters. Producers can hedge against future price changes in input factors and in their future production, thus reducing inherent business risk.

The third function of financial markets is to facilitate the financing of trade. Trade, and in particular international trade, is heavily dependent on well-functioning financial markets. Financial markets ensure mutual payment and allow for the bridging of temporary trade imbalances. In the absence of financial markets, exports would always have to equal imports, as there would be no way of transferring a country's aggregate claims or obligations into the future. In effect, it would be impossible to run trade surpluses or deficits which allow a country to smooth its aggregate consumption.

Financial markets have, of course, existed for centuries, if not millennia and their functions are by no means new. However, the recent evolution of financial markets has meant that the benefits associated with the traditional functions of financial markets have undergone a quantum leap. The point is this: *New* participants in *new* markets have access to *new* products which allow them to save, invest, share and transfer risk, and finance trade to a much greater extent than ever before in history. Let me now be more specific about the benefits associated with these remarkable recent financial market developments.

Allocative efficiency

Perhaps most importantly, financial markets have become much more efficient in allocating capital in the last 30 years. Standardization, high turnover and diminishing marginal costs, together with new information technologies, have strongly reduced the cost of accessing financial markets. Nowadays, financial capital can very easily be deployed to places where its return is highest, i.e. where it is most needed and therefore most efficient. Capital is hunting investment opportunities in distant corners of the world or is financing ideas of young entrepreneurs, which would have been untapped only some decades ago.

Enhanced risk management

The emergence of new innovative products has meant that risk can now be intermediated to a much greater extent than ever before. Every imaginable kind of risk is now routinely deconstructed, reassembled and then transferred to those who are willing to bear these risks at the lowest cost. In other words, virtually every type of need can be catered to in terms of product design. These innovative products ultimately make it possible to redistribute existing risks such that the risk borne by each individual is significantly reduced.

Liquefied assets

New financial market instruments have liquefied previously illiquid assets. Think of mortgages and loans which can now be pooled, securitized and traded as asset backed securities. There are several benefits of this evolution: Banks' balance sheets are freed up so that they can assume other and more profitable risks. This allows banks to develop new products, which, in turn, allow prospective house owners to get easier and cheaper access to mortgage loans, and current house owners profit by being able to extract equity from their houses in order to smooth consumption over their lifetime. Furthermore, higher liquidity reduces the illiquidity risk and thus decreases the risk premium. While the liquefaction of mortgages and other loans is already highly advanced in the United States, this trend is still in its infancy in Continental Europe. In the years to come, I expect further innovation in this area in Europe. Augmented possibilities in the area of equity extraction in Europe's housing market presumably have the potential to boost domestic consumption and thereby contribute to global rebalancing.

Transparency and market efficiency

New financial instruments have increased market transparency, by providing an efficient and timely price discovery process for many assets and risks which were in the past simply not priced by markets. Thus, financial markets now gather and process more information, better evaluate and monitor firms and managers and should therefore also exert more control on corporate governance. An increase in transparency reduces problems of asymmetric information like moral hazard and adverse selection inherent in most financial transactions and may therefore have played a role in the reduction of risk and a corresponding compression of risk premiums in recent years. Along with heightened transparency, one would also expect a higher degree of market efficiency, to the extent that assets are now more accurately priced. New information technologies allow more

diverse opinions to be expressed in the marketplace which should, in turn, result in asset pricing that is more in line with fundamentals.

Higher economic growth

Improved allocation of capital, better risk-sharing, more liquid assets and more transparency are all possible channels through which economic growth is enhanced. The knowledge on the finance-growth nexus is admittedly still incomplete. Nonetheless, there is strong empirical evidence that greater activity in the financial sector enhances the performance of the economy as a whole.⁸ The current rapid pace of innovation and strong economic growth in most parts of the world can therefore at least partly be attributed to rapidly growing financial markets. Figure 3 illustrates a strong relationship between income and financial depth. Clearly, this relationship is no proof of causality. Nonetheless, it is intriguing to observe how closely financial and economic evolution appear to be related.

Network Externalities

The actual benefits provided by financial markets are arguably growing even faster than the growth of financial markets would suggest. This is because financial markets exhibit network externalities. In other words, the access of new participants does not only benefit the new participants, but all participants, because every new participant is a potential counterpart for all existing participants and increases market liquidity for all participants.

Higher resilience to shocks

Finally, more flexible financial markets have likely made economies more resilient to shocks. The more flexible financial markets are, and the more risks are diversified, the more our financial markets will be able to absorb these shocks, and the less severe will be the impact of such shocks on the real side. In this context, let me ask you a simple question. How many of you would have predicted in the spring of 1997 that the U.S. economy would go through the Asian crisis, the Russian default, the LTCM crisis, the bursting of the Internet bubble, the corporate governance scandals, the terrorist attacks of September 11, the wars in Afghanistan and Iraq and a near quadrupling of the oil price without any discernable disruptive impact on the growth performance of the economy? Of course, we cannot know for sure, but the flexibility of financial markets likely played an important role in making the U.S. economy as resilient as it has proven to be during the last decade.

⁸ See, for example, King R.G. and Levine R., "Finance and Growth. Schumpeter Might Be Right", Quarterly Journal of Economics, 1993, or Levine R., "Finance and Growth: Theory and Evidence", Handbook of Economic Growth, 2005, edited by Aghion P. and Durlauf S.

IV. Conclusion

So far, the story is an excellent one. But central bankers are paid to worry even in good times. Let me therefore conclude these reflections on the virtues of flexible financial markets with some brief comments about the potential risks associated with modern financial markets. For central banks with responsibilities to promote or contribute to financial stability, these risks are particularly relevant.

Given the growing significance of global financial markets, the economic consequences of a major financial crisis could obviously be severe. Moreover, the dramatic efficiency gains in financial markets also mean that modern financial markets are potentially capable of transmitting a regional financial crisis rapidly throughout the global financial system. In other words, through contagion effects, modern financial markets could themselves become a potential source of systemic risk.

A second concern that preoccupies many central banks is the liquidity risk associated with the fact that market participants assume that financial instruments behave in particular ways with respect to their price and liquidity dynamics. In reality, we know that our genuine understanding of the price and liquidity dynamics of increasingly complex and sophisticated financial instruments can only become more accurate through the effect of time and experience, and to the extent that we are able to monitor the behaviour of these instruments under different economic and market conditions. As a result, we face the risk that fat tail events, not sufficiently captured by risk management models, could cause an unexpected drying up of market liquidity. Such sudden shortages of liquidity could have serious repercussions in a heavily securitized market where credit risk is managed on the premise that liquidity is available and securities can be traded readily.

There are other risks associated with modern financial markets. They range from infrastructure and settlement risks associated with some of the new instruments to the potential links between new market participants and extreme levels of price fluctuation and market volatility. One thing many of these risks have in common is that they elicit calls for increasingly far-reaching regulation of financial markets. While some regulation may indeed be required to guarantee the integrity of financial markets, the threshold for such regulation should be set high.

Let me leave you with two simple criteria which might guide us in determining whether new regulation should be considered as a response to the rapid evolution of global financial markets. To my knowledge, former Fed Chairman Alan Greenspan first elaborated these

criteria in 1997. Arguably, they have lost nothing of their relevance nine years later.⁹ First, we should be clear about the objective of any new regulation. Are we trying to protect retail investors? Are we trying to minimize systemic risk or are we trying to avoid fraudulent behaviour on the part of market participants? Once we are able to agree on a clear objective for any new piece of regulation, we should consider actual regulation only if there is overwhelming evidence that market participants lack the incentives or the capability to manage adequately potential new risks associated with financial innovation.

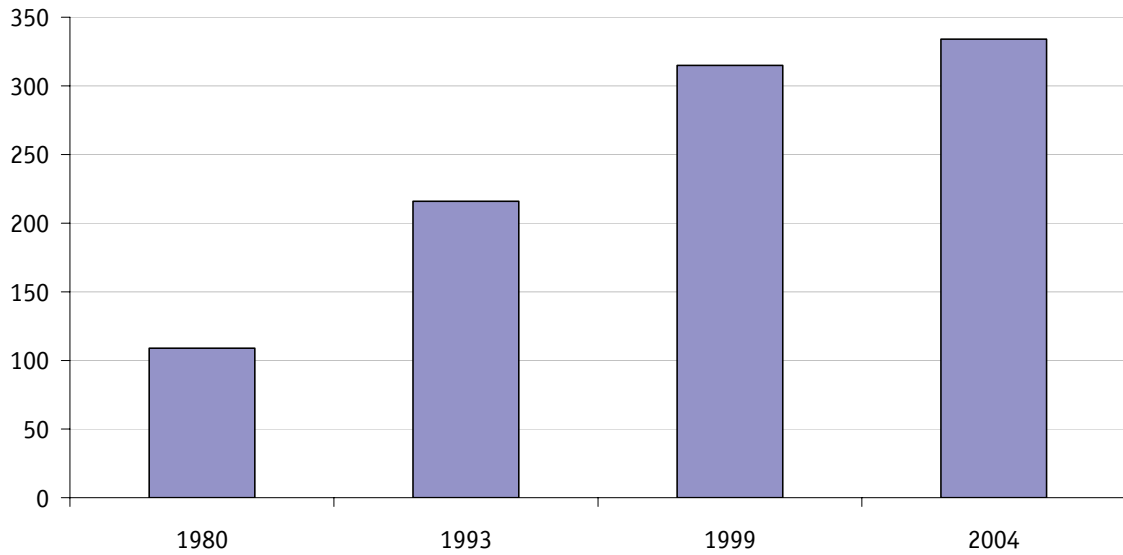
By applying this yardstick, I suspect we will find that, in many cases, new regulation will not be an adequate response to innovation in financial markets. Indeed, additional regulation will often risk stifling the kind of innovation that has proven so beneficial in recent years. Rather than seeking regulation, market participants, central banks and regulators should focus on strengthening an already active dialogue with the aim of furthering our understanding of new types of risk associated with modern financial markets. As I have argued elsewhere, a focal point should be the risk management systems and processes of the world's largest and most complex financial firms.¹⁰ The better these firms understand and effectively manage and control their risks, the more we will be able to enjoy the benefits of modern financial markets while minimizing their potential adverse effects. The lessons of the recent past are encouraging. Global financial markets have proven to be remarkably resilient in their ability to absorb large shocks and thereby minimizing their effects on the real economy. At the same time, the evidence of recent years is no guarantee for a benign future.

An important contribution central banks can make to help preserve the virtues of flexible financial markets is to remain firmly committed to maintaining price stability. Ultimately, financial markets are shaped by market participants. By setting high standards of professionalism for current and future generations of financial market participants, the CFA Institute makes an important contribution to preserving the integrity and therefore the flexibility of financial markets. I want to commend you for that effort and wish you a successful annual conference here in Zurich.

⁹ See remarks by Alan Greenspan, "Government regulation and derivative contracts", February 1997.

¹⁰ See speech by Philipp M. Hildebrand, "Finanzmarktstabilität und Hedge Funds: wirksame und unwirksame Überwachungsansätze", 2005.

Figure 1: Global financial stock as % of GDP
(including equity, private and government debt, bank deposits)



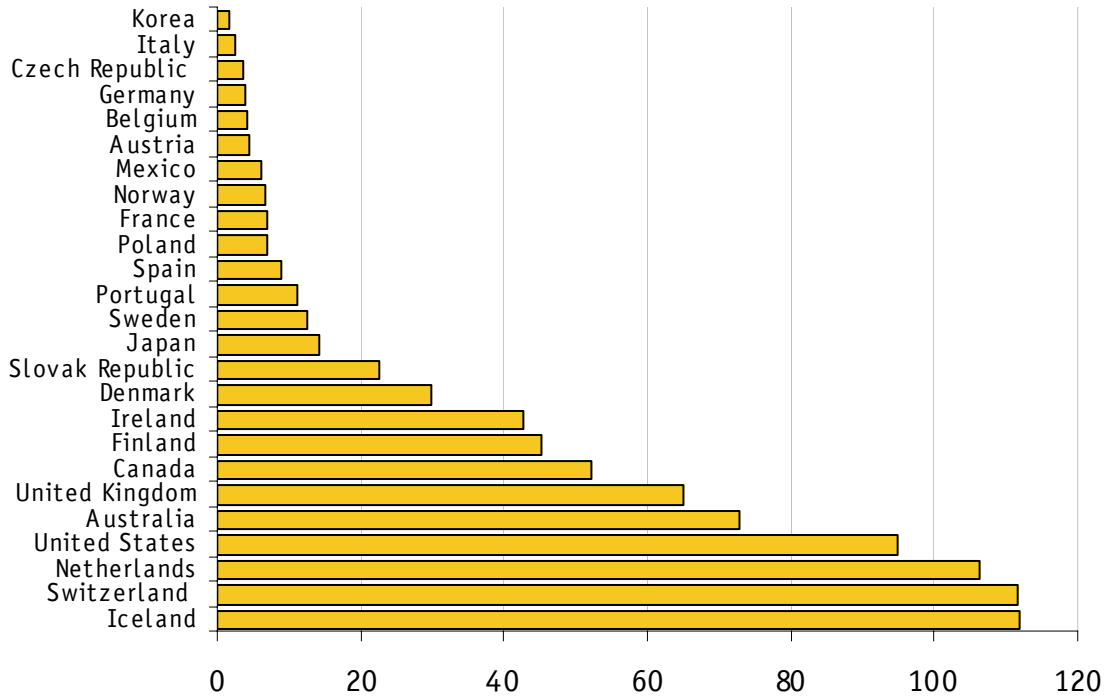
Source: McKinsey Global Institute, Mapping the Global Capital Market 2006.

Table 1: Foreign exchange reserves

1980			2005		
Rank	Country	bn USD	Rank	Country	bn USD
1	Germany	44.5	1	Japan	829
2	France	25.3	2	China	819
3	Italy	21.6	3	Taiwan	253
4	Japan	21.6	4	Korea	210
5	Saudi Arabia	20.8	5	Russia	176
6	United Kingdom	18.8	6	India	131
7	Switzerland	15.3	7	Hong Kong	124
8	Libya	12.8	8	Singapore	115
9	Spain	11.3	9	Mexico	73
10	Netherlands	10.4	10	Malaysia	70
	Total	202.4		Total	2800

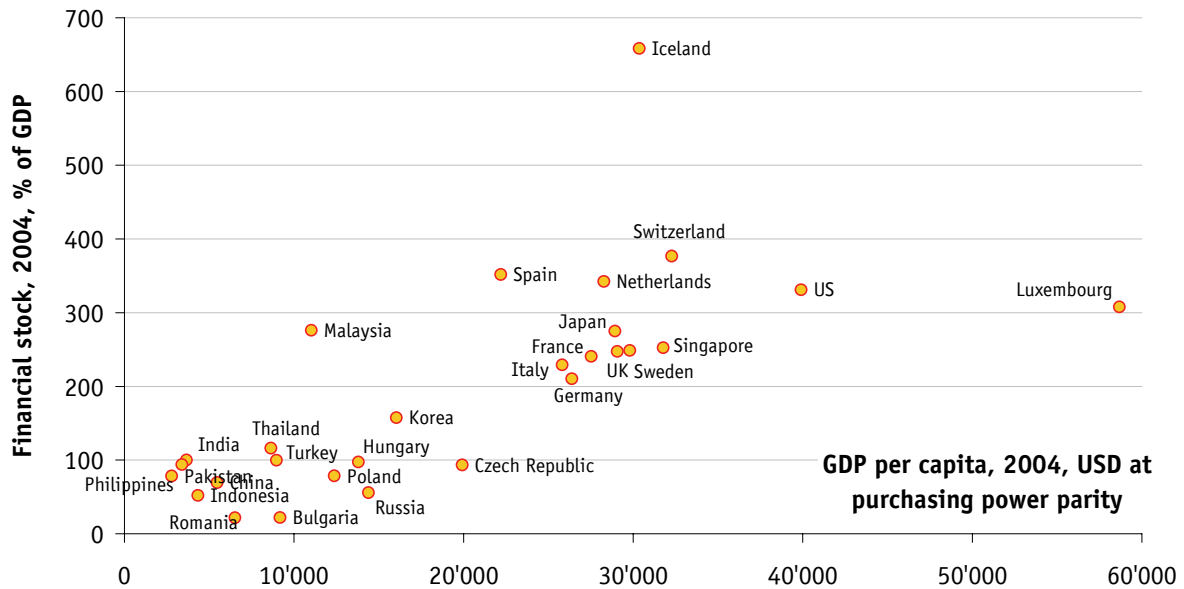
Source: National sources, IMF.

Figure 2: Pension fund assets as % of GDP



Source: OECD, Pension Markets in Focus 2005.

Figure 3: Link between financial depth and income



Source: McKinsey Global Institute, Mapping the Global Capital Market 2006.