
The Sociology of Markets

Michael J. Mauboussin

I have titled this presentation “The Sociology of Markets” to express the idea that the rise and fall of financial institutions leave an indelible imprint on asset prices. I will expand on this conclusion by breaking the discussion into three parts.

First, I will ask the question, Do financial institutions matter? Interestingly, the theoretical answer is no, but of course, I will argue that the practical answer is yes. Second, I will provide three specific case studies to show how institutions have mattered in the past. Finally, and I think most importantly, I will consider where we might go from here—that is, where the money flows are, what the incentives look like, and what those two things may mean for future asset prices.

Do Financial Institutions Matter?

In Franklin Allen’s presidential address to the American Finance Association in 2001, he pointed out what he thought was a puzzling dichotomy: In corporate finance, the idea of agency theory is well understood and has been explored quite extensively for about 75 years, beginning with Berle and Means (1932) and certainly well codified with Jensen and Meckling (1976). Yet, agency theory is nearly absent in asset-pricing theory. Although a few recent papers have been written on the topic (Allen 2001; Cornell and Roll 2005), they are overwhelmed by the number of papers that assume away the role of institutions and asset pricing.

Putting It in Context

What triggered you to write this piece? And how do you think it should be helpful to professional investment practitioners?

Classic finance theory suggests that the demand curve for stocks is nearly horizontal, and hence financial institutions do not matter. But what we observe from the real world is that demand curves are downward sloping and that institutions do matter. This assertion is backed by three case studies, each of which shows that demand by a specific group of institutions (large mutual fund companies, Asian central banks, and hedge funds) had an impact on asset returns and valuation.

This article is helpful for investors because it underscores the importance of understanding who has the money, how their incentives drive where they invest, and what that means for asset prices. Classic theory overlooks this very real-world consideration.

This presentation comes from the Next Generation Asset Management conference held in Washington, DC, on 12–13 June 2008.

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Importantly, a handful of individuals, including John Bogle, Charles Ellis, and David Swensen, have been vocal in pointing out that agents, professional money managers and others, have incentives that may have led to some questionable behaviors, but to the best of my knowledge, none of them has discussed specifically the role and implications of agents on asset pricing.

So, the question is: Why haven't financial institutions and related agency cost issues been central to asset-pricing theory? Several very good reasons can be found. The first reason is that until fairly recently, no principal-agent problem existed. As recently as 1980, individuals owned almost three-quarters of all stocks in the United States. Only recently have institutions come to own a majority of that asset class. When asset-pricing theory was being developed in the 1950s and 1960s, individuals absolutely dominated agents. Agency theory was not in the asset-pricing models because agents basically were not in the picture.

The existence of efficient markets, or the acceptance of the efficient market hypothesis (EMH), can be explained in two standard ways. The first is mean-variance efficiency. Rational investors understand their preferences and the distribution of asset prices. They rationally trade off risk and reward. Most academics and practitioners, however, do not strictly believe the assumptions of the EMH, so the second way to explain it is to recognize the absence of arbitrage opportunities, which allows one to relax the assumption of investor rationality. All that is really needed to achieve market efficiency is a handful of smart arbitrageurs who can find price-to-value gaps and then close those gaps and generate some small returns in the process. But it is believed that the benefits they enjoy are roughly equal to the costs they incur.

Both of these approaches lead to efficient asset pricing. Almost all the literature in asset pricing—the capital asset pricing model, Black-Scholes options pricing, the Modigliani and Miller invariance proposition—uses one or the other of these approaches as a foundation for their arguments. And note that under these models, agents do not matter.

But times change. First, agency theory is relevant because agents now control the market, and not surprisingly, agents have very different incentives in many cases from the ones the principals have. And because the investment management business is close to a zero-sum game, the more the agent extracts, the lower the return for the principal. Second, as is well known, a number of challenges have been raised against classical theory, some going so far as to question the practical usefulness of some of these approaches.

Taken together, these two factors argue that financial institutions absolutely do matter, just as Allen argued in his speech in 2001. As a result, one needs to understand where the money is, who will invest it, and what the incentives look like all around.

Case Studies

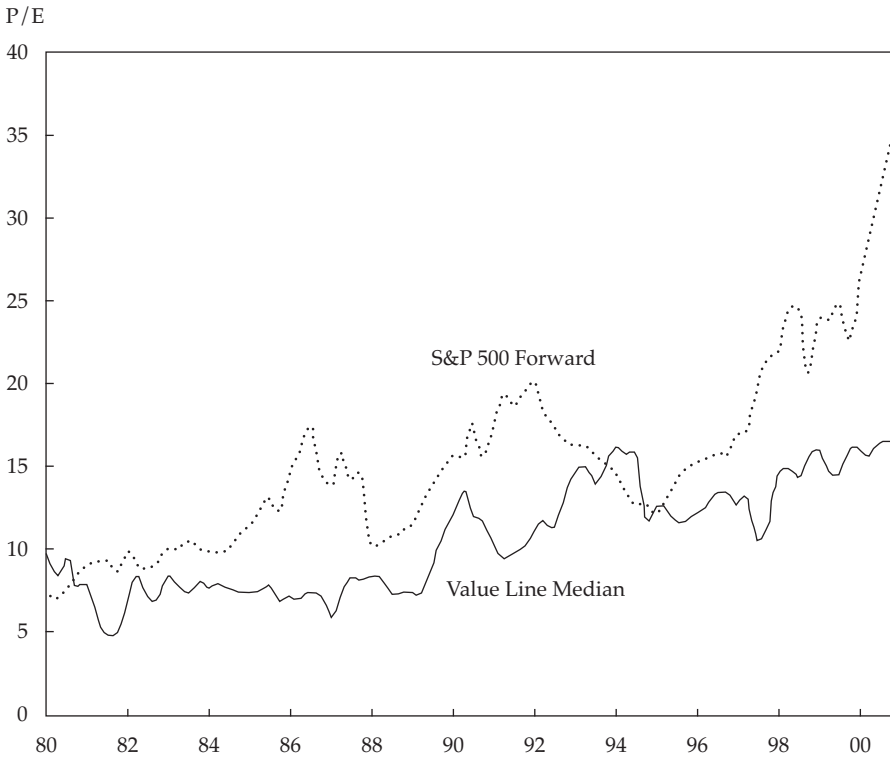
Before I delve into the case studies, I need to spend a moment on theory. One of the crucial implications of mean–variance analysis and the absence of arbitrage opportunities is a nearly horizontal demand curve for stocks. The rationale is very straightforward from a theoretical perspective: For a stock, price equals the present value of future cash flows. If price deviates from that value, arbitrageurs will step in and bring it back into line. In the real world, however, demand curves are downward sloping. The key point is that if demand curves are downward sloping, then demand shocks will change asset prices. In fact, importantly, they may lead to asset prices that are different from the present value of future cash flows.

Case 1. The first case study is the story of large institutions and large-capitalization stocks. Early 1980s research showed that from 1926 to 1979, small-cap stocks outperformed large-cap stocks by about 400 bps annually (Banz 1981). This was the first in-depth research showing that small caps outperformed large caps. This finding, of course, did not hold for the 1980s or the 1990s; large-cap stocks trounced small-cap stocks during those two decades. Gompers and Metrick (2001) noted a large increase of flows into mutual funds beginning in the early to mid-1980s. Between 1980 and 2000, large institutions effectively doubled their market share.

How did the large institutions invest the money? Not surprisingly, they showed a preference for large-cap stocks that were liquid. In addition, large-cap stocks were cheap in the early 1980s. Large institutions realized that investment management is a scalable business. In fact, estimates suggest that large fund groups have expense-to-asset ratios that are roughly 40 percent lower than those of smaller funds. Gompers and Metrick argued that these institutions created a demand shock that, combined with this downward-sloping demand curve for stocks, drove the prices of large-cap stocks higher. For the 20 years ended 1999, large-cap stocks outperformed small-cap stocks by about 430 bps (17.6 percent versus 13.3 percent) annually. The Gompers and Metrick analysis suggests that up to 230 bps of that outperformance is attributable to that flow into large institutions.

Not surprisingly, this asset price performance also had very clear implications for valuation. The forward P/E for the large-cap-dominated S&P 500 Index ended the 1990s at a multiple roughly four times higher than where it started in 1980 and more than two times the average multiple over that same period, as shown in **Figure 1**. Said differently, a substantial part of the total return of large caps in the 1980s and 1990s is attributable to multiple expansion.

Figure 1. Value Line Median and S&P 500 Forward P/E, 1980–2000



Sources: Based on data from Value Line, Standard & Poor's, and Raymond James & Associates.

Meanwhile, the small- and mid-cap universe, represented in the figure by the Value Line median multiple, ended the two decades with a P/E multiple about 30–40 percent higher than where it started, which is not bad but certainly is not as dramatic as for large caps. At the peak of the NASDAQ in March 2000, the S&P 500 forward-looking multiple was about 26, but the Value Line median P/E in March 2000 was just 12.7. Thus, of the 1,700 Value Line companies with earnings, about 850 companies had a multiple of 12.7 or lower. At that point, it was truly a tale of two markets.

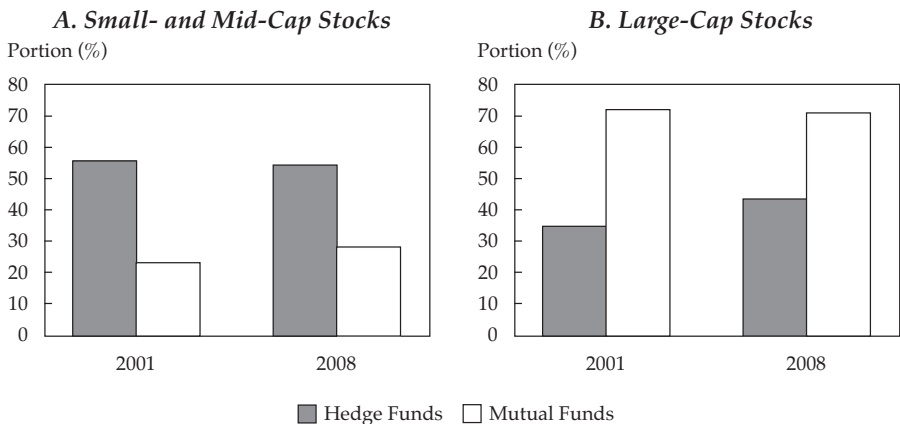
Case 2. If the 1980s and 1990s were the decades of the mutual fund, the 2000s have certainly been the decade of the hedge fund. Hedge fund assets have exploded from about a half trillion dollars in the year 2000 to nearly \$2 trillion today. And because hedge funds use leverage, their purchasing power is quite a bit larger than the assets under management may suggest. In fact, some

estimates suggest the aggregate purchasing power of hedge funds today is close to \$6 trillion. To provide some sense of the purchasing power of hedge funds, consider that they represent only about 3 percent of global equity assets but about 30–40 percent of the trading volume of the average Wall Street trading desk. To be clear, not all this capital is dedicated to equities. Still, equities represent a very large, if not the largest, component of hedge fund assets.

Seeing the large-cap/small-cap valuation disparity in 2000, and being generally much smaller than large institutions, hedge funds gravitated toward the logical part of the market for them, small- and mid-cap stocks. As shown in Panel A of Figure 2, hedge funds have a much higher percentage of their assets in small- to mid-cap stocks than mutual funds do. Furthermore, as Panel B shows, hedge funds have a much smaller percentage of their assets under management in large-cap stocks than mutual funds do. So, the hedge fund move into small caps again created a meaningful demand shock for that group, paving the way for small-cap returns. Indeed, small caps have trounced large caps in the 2000s, providing 710 bps (8.8 percent versus 1.7 percent) of annual outperformance. Estimates suggest that roughly one-third of that outperformance, or 250 bps, is attributable to hedge fund demand.

Once again, one can see a large demand increase leaving its footprint on valuation. After spending the vast majority of the time in the 1980s and 1990s at a P/E multiple less than that of the S&P 500, the Value Line P/E now has risen consistently above the S&P 500 since 2003. The massive valuation

Figure 2. Aggregate Assets for Hedge Funds and Mutual Funds, 2001 and 2008

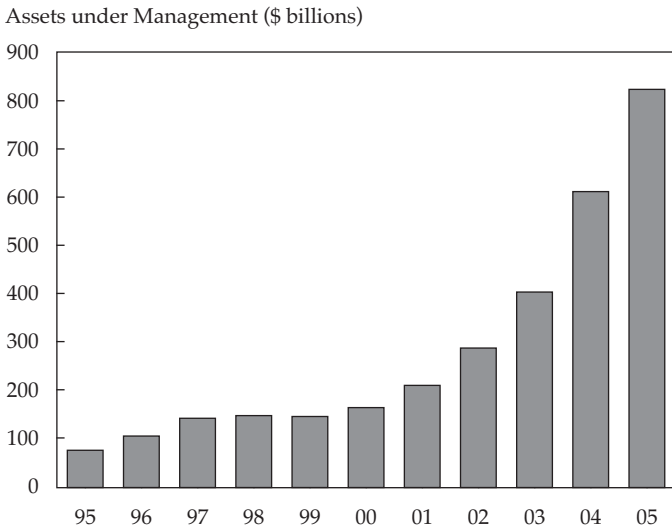


Source: Based on data from *Hedge Fund Trend Monitor*, Goldman Sachs Research (20 May 2008).

disparity of March 2000 is certainly a distant memory at this point. Where we go from here, of course, would be anybody's guess, but it is probably fair to say that the market for large-cap stocks has atoned for its valuation sins of the late 1990s by delivering, in this decade, returns below the returns on T-bills.

Case 3. This last case study is from the world of fixed income and addresses Alan Greenspan's interest rate conundrum. During the 2003–04 period, as the U.S. Federal Reserve was raising short-term rates, long-term interest rates went down. So, the question was: Why did long-term rates come down as short-term rates were going up? The answer again is demand. The source of that demand was foreign central banks, most notably from Asia, and in particular from China. At that time, China followed a mercantilist strategy, which typically has three components. One is a strong export strategy, which resulted in large trade deficits with the United States. The second aspect is a pegged and undervalued currency. The third is low-cost labor. So, a natural outgrowth of China's policy was a surge in foreign exchange reserves, as shown in **Figure 3**. As can be seen, Chinese foreign exchange reserves nearly doubled from 2001 to 2003 and effectively doubled again from 2003 to 2005. In fact, from 2005 to mid-2008, they have effectively doubled once again, to about US\$1.5 trillion.

Figure 3. Chinese Foreign Exchange Reserves, 1995–2005



Source: Based on data from Chinability.com.

China is not the only country in this story, but it is the most significant one. The Chinese government and others invested in U.S. Treasuries to manage foreign exchange risk and to shelter against shocks. This demand was not insignificant. Foreign ownership of U.S. Treasuries basically doubled from US\$1 trillion in 2001 to US\$2 trillion at the end of 2005. Put differently, foreign ownership of U.S. debt rose from 17 percent in 2001 to about 25 percent in 2005. Although this analysis is not without controversy, it has been estimated that strong foreign demand dampened the yield on the 10-year Treasury note by 50–150 bps. In the absence of that large demand, instead of the 4.1 percent yield that prevailed in the spring of 2005, it would have been between 4.6 and 5.6 percent—once again a very material impact that also played a central role in encouraging leverage in the United States.

Summary. The same pattern can be seen in every one of these cases. First, a certain set of conditions creates a flow of money. Second, the beneficiaries of those flows have incentives to invest that money in a certain way. Third, the money and the incentives combine to create a demand shock, which finally leads to asset price performance and, in many cases, asset price revaluation. Although none of these case studies included commodities, this approach is a reasonable way to assess the activity in the commodity markets as well.

Where Do We Go from Here?

In October 2007, the McKinsey Global Institute published a fascinating report titled “The New Power Brokers” (Farrell, Lund, Gerlemann, and Seeburger). That report quite logically points to four power brokers. Two of them—Asian central banks and holders of petrodollars—can be thought of as sources of capital, and two others—hedge funds and private equity—as agents or intermediaries that will invest the money. How big a factor might these power brokers be?

I will start with the sources of capital. Asian central banks today represent more than US\$4 trillion of capital, with China and Japan representing the majority of that total. Estimates suggest this sum will swell to US\$5 trillion to US\$7 trillion in the next five years, depending on what scenario unfolds. The petrodollar inflows are even more impressive. From its current US\$4.5 trillion base, forecasts suggest these assets may surge to US\$6 trillion to US\$8 trillion over the next five years. The bulk of that change, not surprisingly, will flow to Gulf countries, such as Saudi Arabia and Kuwait, but other countries, such as Norway and Russia, will be large beneficiaries as well. Currently, the United States sends US\$1 billion a day overseas to pay for petroleum.

Who will invest this money? McKinsey points to continued growth in hedge funds and private equity. Hedge funds currently have about US\$1.9 trillion of assets under management. Projections suggest that this amount will grow to US\$3.5 trillion to US\$4.5 trillion in the next five years. Private equity today is much smaller, about US\$700 billion, but estimates here call for a doubling or perhaps even a tripling of assets under management over the next five years. Also, both hedge funds and private equity use a substantial amount of leverage, which will amplify their impact.

Even if the current account surpluses of Asian economies moderate, which many economists anticipate, reserves will continue to grow. Although Asian central banks have historically invested quite conservatively, evidence suggests that Asian governments are starting to seek much higher returns. This shift in asset appetite could have very important implications for markets. In his book *When Markets Collide*, El-Erian (2008) describes a four-step process for countries as they evolve. The first phase is what the author calls “benign neglect,” which suggests that most countries are slow to recognize the change in their external accounts. But in phase two, what he calls “sterilization,” countries start to realize that they have this money and elect to invest it in safe assets to manage their exchange rate risk and protect against shocks. This mentality has translated into buying high-quality securities, such as U.S. Treasuries.

Step three is what he calls “liability and asset management,” which takes some of these excess reserves and invests them in riskier assets or uses them to refinance government debt on more favorable terms. The final step is what he calls “embracing change,” which encourages more domestic demand. Large Asian central banks are probably somewhere between stage two, the sterilization phase, and stage three, the liability and asset management phase, right now. But each transition will have a big impact on world markets.

Naturally, the petrodollar flow story hinges largely on the price of oil, and under almost any price scenario, the dollar sums are very large. According to McKinsey’s calculations, US\$70 a barrel roughly equals US\$3 trillion of petrodollars available to be invested over the next five years. At US\$90 a barrel, that figure rises to US\$4 trillion. Every additional US\$20 a barrel change is roughly another US\$250 billion in annual net capital inflows. Although predicting the price of oil is extremely difficult, as the last few years have shown, it is hard to see a scenario over the next 5–10 years in which petrodollar capital flows will not be extremely material to the world.

An important item to consider at this point is the return demands of U.S. pension funds. Many large corporations try to strike a balance between provisioning for their future liabilities and maximizing short-term earnings. But when the provisioning and the short-term earnings meet head to head, it is often the provisioning that loses. In his 2007 letter to shareholders, Warren

Buffett noted that the 363 S&P 500 companies with pension funds had about an 8 percent rate of return assumption for those funds. With 28 percent of their assets invested in cash or fixed income with an estimated 5 percent rate of return, the other 72 percent has to earn a 9 percent rate of return to get to the overall 8 percent return assumption. Not surprisingly, this dynamic has led to a meaningful move into alternatives, including hedge funds, private equity, and most recently, commodities. Rightly or wrongly, many pension managers are looking to these alternatives to help solve their liability problem. Many pension funds expect high—in some cases, double-digit—returns from some of these alternative asset classes. According to a Greenwich Associates survey, roughly 45 percent of pension funds indicate that they expect to substantially increase their asset allocation to hedge funds and private equity. At the same time, about 20 percent expect to substantially decrease their allocation to U.S. equities and about 10 percent expect to substantially decrease their fixed-income allocation.

As I mentioned earlier, evidence clearly shows that both central banks and petrodollar countries are shifting away from conservative investments and moving toward more risky assets. These funds are going to be big enough to move the needle. Sovereign wealth funds today are estimated to be US\$3.7 trillion, and some projections suggest they could get as large as US\$12 trillion by the year 2015. Also, U.S. pension funds seem to be looking for higher returns to satisfy their liabilities. One could argue that hedge funds and private equity stand to benefit from these trends.

What does all this mean for asset prices? Following is a concrete estimate of the impact that sovereign wealth funds may have. Morgan Stanley economists Miles and Jen (2007) argued that as sovereign wealth funds shift their asset allocation away from bonds more toward equity, they are going to express lower risk aversion (i.e., be more tolerant of risk). This lower risk aversion will dampen the equity risk premium and ultimately increase valuation multiples. If true, this analysis suggests an upward repricing and would be fairly constructive for global equities.

What about the intermediaries? Although the lure of hedge funds is certainly undeniable, it remains to be seen whether they will deliver the market-beating returns that investors want. After all, there are about 7,500 hedge funds. And because of the rapid growth in assets under management, concentration has increased. Estimates suggest that the top 100 funds today control 70 percent of the assets, up from 55 percent of the assets just a few years ago. Concentration also forces the large funds to invest more heavily in large-cap stocks. As a result, they may look more like the market, be more correlated with the S&P 500, and as a result, not achieve the return objectives they set out to reach. In private equity, currently, the buyout business has, of course, quieted greatly since the

credit crisis started. But these firms are still capital rich and will certainly be opportunistic, as evidenced by the number of distressed funds being started.

Another aspect of opportunism is the recognition that it is a very big world out there. Although the United States still has a dominant share of the global equity market, most economists believe that the U.S. share will decline in years to come. In this context, I recommend Zakaria's book *The Post American World* (2008). His argument is not that the United States is in decline but, rather, that the rest of the world is in ascent, which is a very different dynamic. Jeremy Siegel's (2008) work, as shown in **Figure 4**, suggests that the United States will dip well below 20 percent of the global equity market cap by the middle of the century and China and the rest of the world will grow sharply.

In thinking about where future returns may come from, it is instructive to look at recent performance, shown in **Figure 5**. For return data, mean reversion is the concept that asset classes that are in vogue, that have fared well recently, will tend to cool and those that are unloved, that have been sluggish, will tend to do better over time. This figure shows 10 years of returns in a few selected asset classes. The globalization theme is evident, as seen in the returns of emerging markets and commodities. At the same time, the excesses of the 1990s put a damper on the returns of U.S. large-cap equities. The combination of large pools of capital to be invested, a growing appetite for risk, and a greater concentration in the favored investment vehicles (hedge funds and private equity) suggests that the future for large-cap equities could be brighter.

Conclusion

First, financial institutions/agents do matter. Interestingly, this reality has not seeped into the asset-pricing literature yet, which is a divergence between the real world and theory.

Second, new power brokers are emerging. Intellectually, most people know this, but the numbers are probably bigger than they realize. The foundation is clearly in place for the Asian central banks and petrodollar pools to play a major role in markets, at least for the next three to five years.

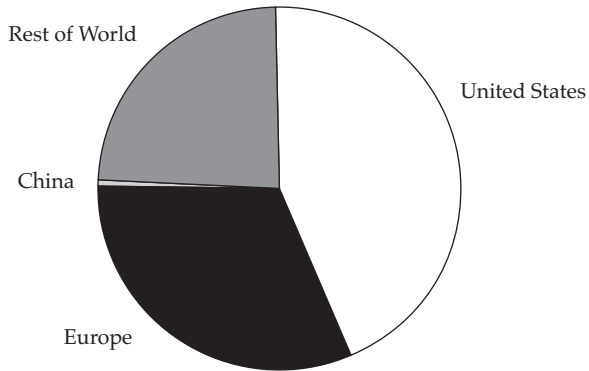
Third, money flows can alter asset prices. Demand curves, unlike in theory, are not horizontal for equities, as my examples showed. This perspective may also be relevant for today's commodity markets given the increasing role of indexing in commodity markets.

Finally, I will conclude with the key point of the sociology of markets: Follow the money and consider the role of incentives.

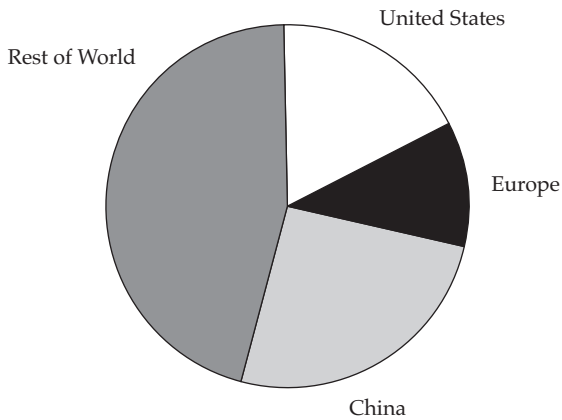
Michael J. Mauboussin is a chief investment strategist at Legg Mason Capital Management, Baltimore.

Figure 4. Characteristics of World Equity, 2007 and 2050

A. 2007 World Equity

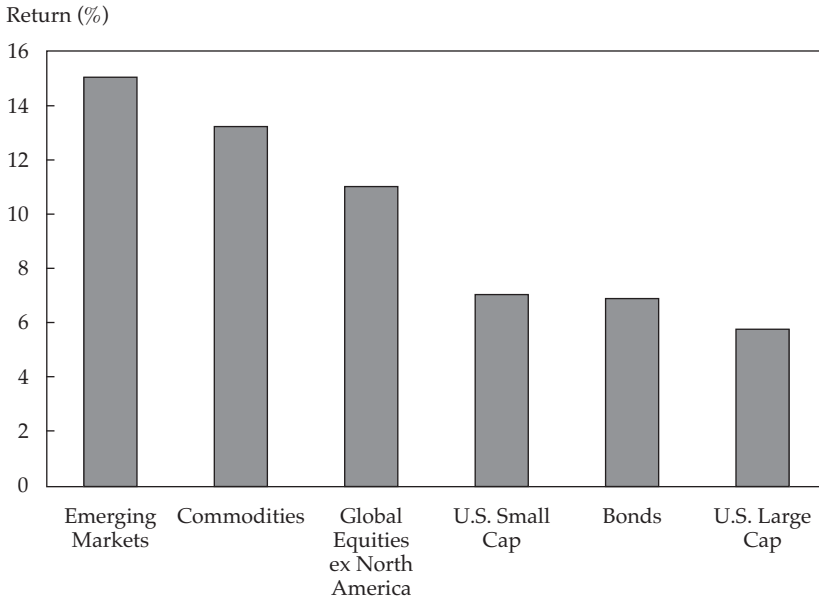


B. 2050 World Equity



Sources: Based on data from Siegel (2008), MSCI Blue Book, and author estimates.

Figure 5. Annual Return by Asset Class, 1998–2007



Sources: Based on data from Callan Associates and Bloomberg.

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Question and Answer Session

Michael J. Mauboussin

Question: How will these institutional flows play out?

Mauboussin: The problem is that it gets very crowded very fast. The most applicable example today is commodities. Demand growth in the rest of the world has led to legitimately higher prices. At the same time, studies have supported investing in commodities as an asset class because of their attractive and uncorrelated returns. But the conditions that prevailed in the past in commodity markets (such as the backwardation in market prices) are not the conditions that prevail today. Instead, speculators have been an important reason for the price swings in commodities, in general, and oil, in particular.

The problem is that markets tend to be efficient when there is a diversity of opinion operating. When diversity breaks down, markets become inefficient. I think it would be fair to say we have diversity breakdowns in some commodity markets.

Question: How “smartly” do you think sovereign wealth funds are being run?

Mauboussin: I suspect that the managers of sovereign wealth funds are following a learning curve. At present, I believe there is a wide range of sophistication in sovereign wealth fund managers. In many respects, it is not unlike winning the lottery. In a short time, one goes from modest resources to an abundance of them. As a result, most do not have a premeditated game plan for how to proceed.

Question: What are the implications for stock pickers if stocks are not fairly priced based on their fundamentals?

Mauboussin: I believe that over long periods of time, stock markets are basically efficient. But for markets to be efficient, there must be diversity of opinion and properly functioning incentives. If this is not the case, markets can be mispriced for substantial periods of time, perhaps even years, before fundamentals come back into line.

The only answer I can offer is to maintain a long-term orientation without too much leverage, and have a lot of patience. Ultimately, I believe that price and value tend to converge.