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## A Critical Review of Principal-Agent Relationships and the Inefficiency of Financial Markets

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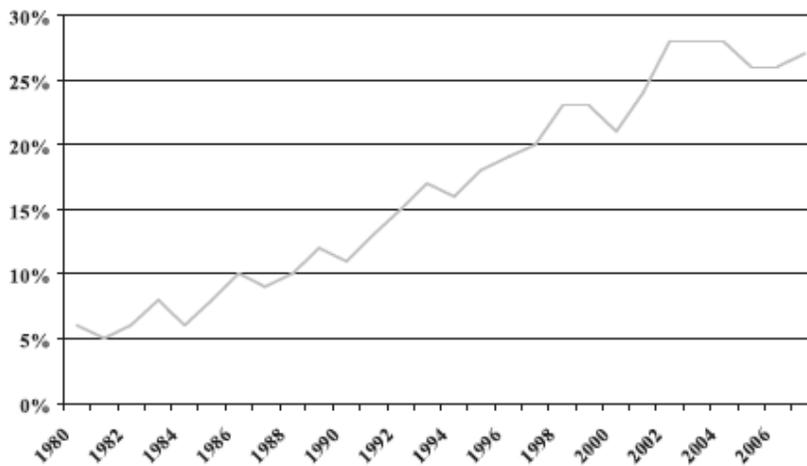
As a group [the investment management industry], we've veered off course almost 180 degrees from stewardship to salesmanship, in which our focus turned away from prudent management and toward product marketing. We moved from a focus on long-term investment to a focus on short-term speculation. The driving dream of our adviser/agents was to gather ever-increasing assets under management, the better to build their advisory fees and profits, even as these policies came at the direct expense of the investor/principals whom, under traditional standards of trusteeship and fiduciary duty, they were duty-bound to serve.

- John C. Bogle<sup>1</sup>

The Efficient Market Theory asserts that asset prices are informationally efficient and that capital markets are self-correcting. The finance sector is seen as fulfilling a utilitarian role in facilitating transactions, channelling savings into investments and making a secondary market in financial instruments. At the same time the roles played by financial intermediaries are ignored in asset pricing and the allocation of capital, as if they are merely innocent bystanders and conflict of interest is not even a remote possibility in the market place.

The past decade, however, has dealt a cruel blow to the credibility of the basic tenets of finance theory. First, we had a massive IT stock bubble and the misallocation of capital. When the bubble burst, central banks reacted with ultra-low interest rates to artificially stimulate the economies that in turn fuelled the surge in debt, asset prices and risk-taking. By 2007 the profits of the financial sector accounted for the lion share of corporate profits across all sectors in the U.S. and U.K., even after paying hefty bonuses to key employees. But that all ended in tears in 2007 and 2008 with the collapse of the mortgage-backed securities market which in turn led to the demise of major investment banks and spun the global economy into turmoil and a deep recession.

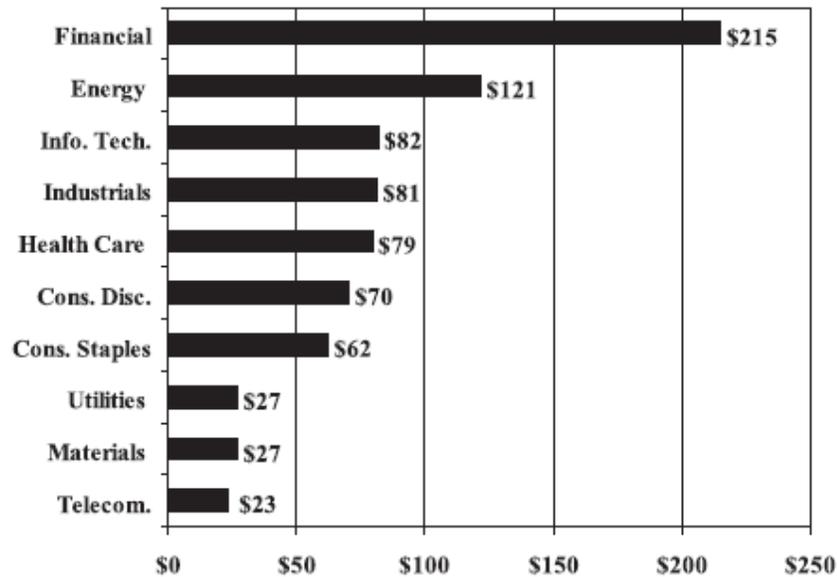
### Financial Sector's Share of S&P 500 Earnings, 1980–2007



*Source: Standard & Poor's Corporation.*

John Bogle, 2008.

## 2006 Earnings of S&P 500 Sectors (billions)



*Source: Standard & Poor's Corporation.*

John Bogle, 2008.

In 1970 an economist, Eugene Fama developed the Efficient Market Hypothesis (EMH) which lay the foundation how academics and regulators perceived financial markets for many decades. Basically the theory says that the price of an asset reflects all relevant information that is available about the intrinsic value of the asset. A financial security represents a claim on future cash flows, and thus the intrinsic value is the present value of the cash flows the owner of the security expects to receive. Theoretically, the profit opportunities represented by the existence of “undervalued” and “overvalued” stocks motivate investors to trade, and their trading moves the prices of stocks toward the present value of future cash flows.

Thus, investors' search for mispriced stocks and their subsequent trading make the market efficient and cause prices to reflect intrinsic values. Because new information is randomly favourable or unfavourable relative to expectations, changes in stock prices in an efficient market should be random, resulting in the “random walk” in stock prices. Above all, investors cannot earn abnormally high risk-adjusted returns in an efficient market where prices reflect intrinsic value. Market prices thus will equate to the consensus of investors' expectations about the discounted value of future cash flows.

After all, the theory seemed plausible: Who would pass up the opportunity to profit from exploiting any mispricing on offer? Thereby prices will always trade towards fair value. The randomness of prices and the inability of professional managers to achieve returns

consistently above those of the benchmark index were taken as validation of the theory. The EMH formed a comprehensive framework for understanding asset pricing and risk.

Paul Woolley, highly acclaimed economist, academic and chairman of the *Paul Woolley Centre for the Study of Capital Market Dysfunctionalities* at the London School of Economics and Political Science (LSE) was one of the contributing authors to a recent report issued by the LSE, titled: *The Future of Finance*.<sup>2</sup> For the remainder of this discussion I will quote from Woolley's chapter – "Why are Financial Markets So Inefficient and Exploitative - And a Suggested Remedy". The excerpts are thought-provoking indeed and deserve to be studied by any serious investor:

*The crucial flaw [in the efficient market theory] has been to assume that prices are set by private investors, or the 'representative household'. Households are assumed to invest directly in equities and bonds and across the spectrum of the derivatives markets. Theory has ignored the real world complication that investors delegate virtually all their involvement in financial matters to professional intermediaries—banks, fund managers, brokers—who therefore dominate the pricing process.*

*Delegation creates an agency problem. Agents have access to more and better information than the investors who appoint them, and the interests and objectives of agents frequently differ from those of their principals. For their part, principals cannot be certain of the competence or diligence of the agents.*

*Central to the analysis is that investors have imperfect knowledge of the ability of the fund managers they invest with. They are uncertain whether underperformance against the benchmark arises from the manager's prudent avoidance of overpriced stocks or is a sign of incompetence. As shortfalls grow, investors conclude the reason is incompetence and react by transferring funds to the outperforming managers, thereby amplifying the price changes that led to the initial underperformance and generating momentum.*

*The technology bubble ten years ago provides a good illustration of this process [how momentum arises] at work. Technology stocks received an initial boost from fanciful expectations of future profits from scientific advance. Meanwhile, funds invested in the unglamorous 'value' sectors languished, prompting investors to lose confidence in the ability of their underperforming value managers and to switch funds to the newly successful growth managers, a response that gave a further boost to growth stocks. The same thing happened as value managers themselves began switching from value to growth to avoid being fired.*

*Through this conceptually simple mechanism, the model explains asset pricing in terms of a battle between fair value and momentum. It shows how rational profit-seeking by agents and*

*the investors who appoint them gives rise to mispricing and volatility. Once momentum becomes embedded in markets, agents then logically respond by adopting strategies that are likely to reinforce the trends. Indeed, one of the unusual features of a momentum strategy is that it is reinforced, rather than exhausted, by widespread adoption, unlike strategies based on convergence to some stable value.*

*Explaining the formation of asset prices in this way seems to provide a clearer understanding of how and why investors and prices behave as they do. It throws fresh light on why value stocks outperform growth stocks despite offering seemingly poorer earnings prospects. The new approach offers a more convincing interpretation of the way stock prices react to earnings announcements and other news.*

*It shows how short-term incentives, such as annual performance fees, cause fund managers to concentrate on high-turnover, trend-following strategies that add to the distortions in markets, which are then profitably exploited by long-horizon investors. Moreover, when the pricing of the primary market is flawed, it follows that the corresponding derivative market will also be mispriced. All the options and futures which are priced by reference to the underlying assets will be subject to the same momentum-based distortions. In short, it will no longer be acceptable to say that competition delivers the right price or that markets exert their own self-discipline.*

*It seems self-evident that the way forward must be to stop treating the finance sector as a pass-through that has no impact on asset pricing and risk. Incorporating delegation and agency into financial models is bound to lead to a better understanding of phenomena that have so far been poorly understood or unaddressed.*

*A second consequence of delegation is the ability of financial agents to capture rents. If a fund manager spots an investment opportunity with a known and certain payoff, he can finance it directly from his own or borrowed funds and enjoy the full gain for himself. His client might like to participate and would be prepared to pay close to the full value of the gain in fees for the privilege. The client would be in pocket so long as the investment, net of fees, gave him a return above the riskless rate.*

*First consider the frictionless benchmark case in which principals and agents have access to the same information. The principals are a set of rational, competitive investors and the agents are a set of similarly imbued fund managers. A financial innovation is introduced but there is uncertainty about its viability. As time goes by, investors and managers learn about this by observing the profits that come from adopting the new technique. If it generates a stream of high profits, confidence grows that the innovation is robust. This leads to an increase in the scale of its adoption and therefore the size of the total compensation going to*

*managers. Because of the symmetry of information, these gains are competitively determined at normal levels and the innovation flourishes.*

*Alternatively, profits may deteriorate, market participants come to learn of its fragility and the innovation withers on the vine. In both cases, while learning generates dynamics, with symmetric information there is no crisis.*

*In practice, innovative sectors are plagued by information asymmetry. It is hard for the outsider to understand everything the insiders are doing and difficult to monitor their actions. They can exert effort to reduce the probability that the project will fail, even though such effort is costly. Alternatively they can cut corners (shirk). When agents shirk they fail to evaluate carefully and to control the risks associated with the project. The handling of portfolios of CDOs [collateralised debt obligations] in the run-up to the recent crisis illustrates this well. Fund managers could either scrutinize diligently the quality of the underlying paper or they could shirk by relying on a rating agency assessment and pass the unopened parcel on to the investor.*

*After a period of consistently high profits, managers become increasingly confident that the innovation is robust. They are tempted to shirk and it becomes correspondingly harder to induce them to exert continuing effort. As the need for incentives grow, the point is reached where agents are capturing most of the gains from the innovation.*

*The past decade has seen a surge of new products and strategies, such as hedge funds, securitization, private equity, structured finance, CDOs and credit default swaps. Each came to be regarded as a worthwhile addition that helped to 'complete' markets and spread risk-bearing by offering investors and borrowers new ways of packaging risk and return. Most of these innovations have been accompanied by increased opacity, creating the scope for elevated moral hazard.*

*Asymmetric information is responsible for creating the twin social bads of mispricing and rent capture. Mispricing gives incorrect signals for resource allocation and, at worst, causes stock market booms and busts that lead to macroeconomic instability. Rent capture causes the misallocation of labour and capital, transfers substantial wealth to bankers and financiers and, at worst, induces systemic failure. Both impose social costs on their own, but in combination they create a perfect storm of wealth destruction.*

*The demand for most goods and services is limited by the physical capacity of consumers to consume. Yet the unique feature of finance is that demand for financial services has no such boundaries. Take the case of a pension fund seeking to meet its long-run objectives expressed in terms of risk and return. The trustees observe a market subject to significant*

*price distortion. They eschew passive investment on the grounds that the market portfolio is inefficient, and instead hire active managers to exploit the mispricing. Because of agency problems, active investing does nothing to resolve the mispricing. The cycle of hiring, firing and price distortion therefore continues unabated.*

*Investors' attempts to control risk have similar results. Observing volatile conditions, the investor decides to reduce his downside risk by buying a put option on his portfolio. The seller of the put seeks to neutralize his own risk by shorting the underlying stock, thereby triggering the decline from which the investor sought protection in the first place. The sequence continues because volatility has now increased and the original investor reacts rationally by raising further his level of protection. There is a similar effect where principals specify tracking error constraints on the divergence of the portfolio return in relation to the benchmark return. The agent is obliged to close down risk by buying stocks that are rising and selling those that are falling, thereby amplifying the initial price moves.*

*The shortening of investment horizons has been a feature of capital markets over the past two decades. The best indicator of short-termism is the length of time investors hold securities. Turnover on the major equity exchanges is now running at 150% per annum of aggregate market capitalization which implies average holding periods of eight months. The growth in trading of derivatives, most of which have maturities of less than a year, is also symptomatic of shortening horizons.*

*In most equity markets the optimal momentum strategy is to buy stocks that have risen most in the preceding 6–12 months and to hold them for a further 6–12 months. Fund managers have a choice between investing based on fair value, momentum investing or some combination of the two. Those who are impatient for results or who have no ability or desire to undertake the hard work of fundamental analysis to find cheap stocks will use momentum. In fact, in the short run, momentum investing is usually the best bet. There is a self-fulfilling element here because the more investors use momentum strategies, the more likely it is to work.*

*The design of the contract between principal and agent influences how agents manage money. Fee structures based on short-term performance encourage short horizons and momentum trading and are the reason this is the dominant strategy among hedge funds. Transaction costs also have a bearing on turnover levels. The move from fixed to competitive brokerage commissions in the US and UK in the late 1970s was a watershed in this respect and the relentless expansion of turnover dates from this period.*

*Momentum trading, and the distortions to which it gives rise, are part and parcel of the trend towards the increasing short-termism and high trading volumes in finance. Both have their*

*origins in principal–agent problems and both contribute to the loss of social utility. There is one justification that is always wheeled out to support the case for increased trading. It is that trading raises liquidity and liquidity is an unalloyed benefit because it enables investors to move in and out of assets readily and at low cost. That is true as far as it goes, but it ignores a crucial point. Liquidity is undeniably welcome in an efficient market, but the case becomes more problematic in one subject to mispricing. Lowering the frictional costs of trading opens the door to short-termism and momentum trading which distort prices.*

*The investor is happy to know he can always trade, but the ability to trade may have come at the cost of increased volatility. In an inefficient market, therefore, liquidity should never be assessed in isolation from the volatility of the asset. High turnover comes at a heavy cost to long-term investors. Active management fees and its associated trading costs based on 100% annual turnover erode the value of a pension fund by around 1.0% per annum. Pension funds are having their assets exchanged with other pension funds twenty-five times during the life of the average liability for no collective advantage but at a cost that reduces the end-value of the pension by around 30%.*

*One tangible measure of the impact of all this on the end investor is the declining trend in pension fund returns. The annual inflation-adjusted return on UK pension funds for the period 1963–2009 averaged 4.1%. For the most recent ten years, 2000–2009, the average real return collapsed to 1.1% per annum with high year-to-year volatility. The performance of pension funds in the US and globally reveals a similar decline.*

In summary, principal–agent relationships in the financial industry lie at the heart of mispricing (through momentum effects) and excessive fees or rent extraction (asymmetrical information). Woolley is of the opinion that the group of principals best placed to change the way they interact and contract with agents are the world’s biggest public, pension and charitable funds, or alternatively known as the Giant funds. Obviously they should represent the interests of their beneficiaries, but often these Giant funds have been failing to act in ways that advance and protect their beneficiaries and have instead been acting more like another tier of agents.

Woolley proposed a manifesto of ten policies that Giant funds should introduce to improve their long-run returns, but would also help stabilising markets on the aggregate. Each fund that adopted these changes could expect an increase in annual return of around 1–1.5%, as well as lower volatility of return. The enhancement in returns would come from lower levels of trading and brokerage, lower management charges and, importantly, from focusing on fair value investing and not engaging in trend-following strategies. Let us conclude by reviewing some of Woolley’s proposals – and as you may have guessed, it may equally well apply to individual investors:

**Adopt a long-term approach to investing based on long-term dividend flows rather than momentum-based strategies that rely on short-term price changes.**

*Investing on the basis of estimated future earnings and dividends wins in the long run. Investing on the basis of short-term price changes, which is synonymous with momentum investing, may win over short periods but not in the long run. The return on equities ultimately depends on dividends. Historically, the real return on equities in the US and UK has comprised the dividend yield, which grows in line with local inflation, plus a small increment of dividend growth.<sup>3</sup>*

*This has been forgotten in the brash new world of finance. The trend towards short-horizon investing has thrust short-term price changes to the fore and placed dividends in the background in the thinking of most investors. Such has been the shift in emphasis that a third of companies no longer bother to pay dividends but have substituted periodic share buy-backs as an opaque substitute.*

**Cap annual turnover of portfolios at 30% per annum.**

*There is no better way of forcing fund managers to focus on long-run value than to restrict turnover. Capping annual turnover at 30% implies an average holding period of just over three years. Turnover is measured as the lesser of sales or purchases so this limit is not as constricting as it seems, because new cash flows also permit adjustment to portfolio composition.*

**Understand that all the tools currently used to determine policy objectives and implementation are based on the discredited theory of efficient markets.**

*Most investors accept that markets are, to greater or lesser degree, inefficient and devote themselves to exploiting the opportunities on offer. But by a nice irony, they have continued to use tools and adopt policies constructed on the assumptions of efficiency. It is a costly mistake. The volatility and distortions that come with inefficient pricing mean that equity indices do not represent optimal portfolios and are therefore inappropriate benchmarks for passive tracking or active management.*

*Risk analysis based on market prices is flawed. Prices are much more volatile than the streams of cash flows and earnings, meaning that risk estimates using short-run price data will overstate risk for investors such as pension funds with long-term liabilities. In consequence, they will be purchasing unnecessary levels of risk protection. The correct approach is to measure risk using dividends or smoothed earnings as inputs, rather than prices.*

**Do not pay performance fees and insist on total transparency by managers with respect to their strategies, costs, leverage and trading.**

*Trying to assess whether a manager's performance is due to skill, market moves or luck is near impossible. Also performance fees encourage gambling and therefore moral hazard. If funds cannot resist paying them, performance should be measured over periods of several years and with high water marks so that performance following a decline has to recover to its previous best before the managers are eligible for further fees.*

**Do not engage in any form of 'alternative investing'.**

*Alternative investing offers little or no long-run return advantage over traditional forms of investing, carries greater risk, and the lauded diversification benefits largely disappear once they are widely adopted. Currently the most popular categories of alternative investing are hedge funds, private equity and commodities.*

*Any greater levels of manager skill they enjoy, or any advantages conferred by innovation, are swallowed up in higher management fees. Most alternative investing is leveraged which increases the asymmetry of payoffs to investors and therefore moral hazard. Hedge funds mostly emphasize short-term investing, typically momentum strategies, which have a lower return expectation than fair value investing and contribute to market destabilization. Fund blow-ups, suspended redemptions and performance volatility are the result.<sup>4</sup>*

*Commodities as a general asset class offer a long-run return no better than 0% after inflation, and less after fees. The cost of holding commodity positions is bedevilled by the herding of portfolio investors all seeking to roll over their futures positions at quarterly expiry dates. The flood of portfolio investment going into commodities in the past few years has turned their hitherto negative correlation with equities into a high and positive correlation.*

*Before the middle of the last decade the prices of individual commodities could be explained by the supply and demand from producers and consumers. With the flood of passive and active investment funds going into commodities from 2005 onwards, prices have been increasingly driven by fund inflows rather than fundamental factors. Prices no longer provide a reliable signal to producers or consumers.*

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<sup>1</sup> John C. Bogle, founder of The Vanguard Group – one of the world’s largest money managers – and named by the influential Fortune Magazine as one of the investment industry’s four “Giants of the Twentieth Century”. The quote appeared in an article “The Fiduciary Principle” published on IndexUniverse.com , June 5, 2009. A similar article “A Question So Important That It Should Be Hard To Think About Anything Else” appeared in The Journal of Portfolio Management, Winter, 2008 edition.

<sup>2</sup> More information about the report and other contributing authors are available at:  
<http://harr123et.wordpress.com/>

<sup>3</sup> The same finding also applies for the South African stock market. See my research paper “Dividends: The Major Source of Real Equity Returns”, January 2011. Available at:  
[http://www.indexinvestor.co.za/index\\_files/researchquants.htm](http://www.indexinvestor.co.za/index_files/researchquants.htm)

<sup>4</sup> For more information, refer to Paul Woolley’s comments on hedge funds in the Appendix Section.

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## APPENDIX

### **Hedge Funds: A Microcosm of Finance**

*The hedge fund industry provides a clear and unflattering insight into the problems of modern-day finance. Hedge funds have the veneer of a worthwhile innovation in several respects. They enjoy the freedom to implement negative views through short selling and to target absolute return instead of return relative to an index benchmark. They are also able to use derivatives and borrowing to leverage fund performance. All this should work to the advantage of their investors and help make markets more efficient. But the bad features of their behaviour outweigh the apparent merits.*

*First, their fee structures encourage short-termism and momentum-type trading. Hedge funds charge a base fee, usually 2% per annum of the value of assets, and a performance fee, typically 20% of any positive return each year. This makes for a classic case of moral hazard; the hedge fund gains on the upside, but receives no penalty for underperformance and even keeps the base fee. To make the most of the lopsided payoff, the manager plays the momentum game because that gives him the best chance of winning quickly and then moving on to the next momentum play. High charges also make investors impatient for success and the performance fees make the manager more so.*

*Hedge funds' use of momentum contaminates pricing in the various asset classes they occupy. In recent years they have accounted for around one-third of daily trading volume in equity markets and are often the marginal investors driving the direction of prices. Their investors receive patterns of return that reflect the risky strategies associated with situations of moral hazard—erratic performance with frequent blow-ups and redemption blocks at times of liquidity stress. Some hedge funds sell volatility instead of buying it, but this can be as risky as momentum strategies since it involves receiving a steady premium in return for crippling payouts in the event of crisis.*

*As discussed in an earlier section, hedge funds display all the features that contribute to a high level of rent extraction. To put this in context requires information on performance. A number of recent studies have sought to calculate the return on indices of hedge funds, making appropriate allowance for the high failure rate among funds. They conclude that the long-run returns have been no better than a passive investment in the S&P or FT indices. These returns are calculated using the conventional time-weighted returns which represent the return per dollar invested. Once allowance is made for investors buying into funds after they have done well and moving out after they have done badly—which a money-weighted return does—investors are shown to have fared worse still. This disappointing performance is largely explained by the high fees charged—all the alpha, or excess returns, that hedge funds*

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*achieve from investing the funds is absorbed in fees, leaving the principals with the residual of indexed performance at best. The successful funds are in effect making more in fee revenue than the customers derive in cash returns from their investments.*

*An unremarked feature of hedge funds is how much alpha they capture from the market. Even to deliver index-like returns net of fees, they have to extract sufficient alpha from the zero-sum game to meet both their fees and their costs. We can observe the investors' returns and we can estimate the managers' fees, but we can only hazard a guess at the costs of the complex trading they undertake with prime brokers, the borrowing costs incurred through leveraging, and investment bank fees in general. Altogether hedge funds probably need to capture three times the return they report simply to meet these overheads. Traditional asset management has to be making losses equal to hedge funds' gross winnings in order to satisfy the identities of the zero-sum game. Hedge funds are far from the innocuous sideshow they often purport to be.*