The Board of Directors in Hedge Fund Governance

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Abstract

Hedge fund boards have historically been overlooked as an institution lacking relevance and substance. Directors are indeed appointed by the fund manager, mostly supplied by the fund's service providers and director services, and often lacking in skills and incentives to monitor the fund. Nonetheless, they face growing pressure post-crisis from both investors and regulators to fulfill their fiduciary duties. This paper investigates the role and effectiveness of hedge fund boards for the first time, using hand-collected data from hedge fund documentation previously unavailable for academic research. We find several important results, including evidence that (i) board independence leads to improved fund performance, (ii) directors with risk management experience reduce fund risk without affecting returns, and (iii) funds deliver superior returns and lower risk when they give voting rights to investors (including to elect directors). We conclude that the board can be a very useful source of control in hedge funds, whose traditional governance model fundamentally focuses on the realignment of managerial interests.

JEL classification: G11, G23, G32, G34, G38.

Keywords: Hedge funds, board of directors, investor rights, operational risk, agency problems, corporate governance.

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1. Introduction

Since the modern hedge fund was conceived by Albert W. Jones in 1949, hedge funds have moved from being a cottage industry to being major players in financial markets. Today, an estimated 20,000 hedge funds operate in over 45 countries, managing about US$2 trillion of assets around the world. The industry has also become a key concern for policymakers, as the occasional violent hedge fund collapses have transmitted substantial systematic risk throughout the financial system. The Global Financial Crisis unfolded in August 2007 with the collapse of two Bear Stearns hedge funds, which brought down the investment bank and sent shockwaves through asset-backed securities markets. This paralleled the collapse of Long Term Capital Management (LTCM) a decade earlier, which had already triggered about the potential for systemic risk if a hedge fund failure led to the failure of its counterparties.

Such hedge fund failures are important reminders of the significant conflicts of interest that exist between hedge fund managers and their investors. The governance issues confronted by investors range from excessive leverage and risk taking, strategy drifts, suspension of redemption and fund gating to performance and portfolio valuation manipulation and outright fraud. Whether these concerns can be adequately addressed within the existing corporate governance model of hedge funds is a key area of the post-crisis debate on hedge fund regulation[1]. The remarkable failure of regulators and fiduciaries to prevent the US$80 billion Madoff Ponzi scheme[2] has certainly spelt the crisis of this model, with regulators and investors increasingly turning their attention to those technically responsible for hedge fund governance – the board of directors.

The relevance of the board in hedge fund governance is a controversial issue that, up until now, has not been investigated in the academic literature. While hedge fund boards are faced with growing pressure to fulfill their fiduciary duties and take an active role in the governance process, they were previously overlooked by both investors and regulators as an institution lacking relevance and substance. The governance model of hedge funds is designed to provide managerial flexibility to achieve flexible, tax efficient structures circumventing on-shore tax regulations[3]. Fund managers argue that in this context, corporate governance is an irrelevant process and the board is an operational constraint; the emphasis being on the realignment of managerial interests through ownership, incentive fees, and the use of third party service providers. Then, the board serves only to fulfill minimum requirements set forth by the company laws and regulations of off-shore jurisdictions.

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1 In explaining its December 2004 decision to introduce hedge fund registration (Rule 203 (b)(3)-2), the SEC suggested that the very structure of hedge funds creates the motivation and opportunity for fraud and other misconduct – with their lack of transparency and incentive-based fee structures being primary risk factors. The SEC cited 51 enforcement cases on fraud allegations against hedge funds, and said that over 400 hedge funds and 87 fund advisors were under investigation.

2 The Bernard L. Madoff Investment Securities LLC was formally not a hedge fund. However, it was described as the world's largest unregistered hedge fund organized as a fund of funds The Madoff scheme is also an example of the failure of fiduciaries such as funds of funds and professional managers who conduct due diligence and select investments for investors.

3 Hedge funds are most commonly set up by the fund manager in an off-shore tax-exempt jurisdiction, through the establishment of an investment fund and an investment management company. The latter is then engaged in an investment advisory service agreement with an on-shore investment management company, which manages the fund's assets from an on-shore regulated jurisdiction such as the US.

For a number of reasons, the economic relevance of the board also appears to be negligible in practice. First, in most hedge funds, only management shares have voting rights, with investors holding participating non-voting shares. Thus, directors are appointed by the fund managers themselves and are pervasively supplied by fund administrators, legal advisors, prime brokers and other related entities providing overlapping services. This presents a major source of potential conflicts of interest. Fund directors also often come from within a close network of the hedge fund community, and there is a prevalent use of fund director services, where some professional directors sit on hundreds of hedge fund boards. Second, directors are often ill-qualified in the first place to assume the fiduciary duties of monitoring, advising and disciplining the fund manager, with no accounting and fund administration skills or risk management and buy-side experience to understand fund trading[4]. Third, directors may to a limited extent participate in policy discussions on performance and risk management, but board meetings are usually infrequent, informal and held at the discretion of the fund manager. Finally, due to tax considerations, fund directors are generally located in offshore jurisdictions away from the management company.

These issues are relevant because the corporate governance of hedge funds is being more closely examined today than at any other time in their history. Moody's Investor Service (2011) points out two key reasons for this trend. Firstly, regulators around the world are introducing more demands on fund managers from both a compliance and risk management perspective. While it is too soon to gauge the full impact of new regulations such as the Dodd-Frank Act in the US and AIFMD in Europe, they are certain to challenge fund managers with respect to their depth of reporting and standards of accountability. And secondly, the investor base of hedge funds has shifted from high net worth individuals to institutional investors. Institutions spend much more time and resources on due diligence, and aside from analyzing investment performance, they put great emphasis on evaluating fund governance and oversight. Indeed, institutional investors have been lobbying both individual fund managers and regulators – even the Cayman Islands Monetary Authority – for governance reform.

This paper examines the role and effectiveness of hedge fund boards for the first time, relying on data from hedge fund documentation provided by a fund of funds and previously unavailable for academic research. While the analysis is highly preliminary with additional work underway, it already delivers a number of important findings. First, independent directors with relevant skill-sets are a non-trivial source of hedge fund governance. Funds with independent boards perform considerably better, while the presence of directors with risk management experience reduces risk-taking without affecting performance. Second, when fund investors are given voting rights, there is both an improvement in fund performance and a reduction in risk. This confirms Brown, Fraser and Liang's (2008) earlier result that hedge funds benefit from sophisticated investors performing due diligence. Finally, we show significant erosion in fund performance in the presence of managerial incentive problems, caused

4 As a guideline, the Alternative Investment Management Association (AIMA) suggests that a fund board include "a diversity of skills, experience and backgrounds". It says that in addition to accounting and administration skills, directors "must have the necessary collective expertise to understand the Fund's trading". AIMA also describes "best practice for any Fund would be to have a majority of independent offshore directors and to avoid appointing directors who represent the advisers or service providers to the fund because of the potential for conflicts of interest" (http://www.hedgedirector.com/white%20paper.pdf).

by low incentive fees and managers running multiple funds. Interestingly, the simultaneous management of multiple funds also leads to lower risk taking. This suggests that diversified fund managers lack the incentive to manage performance and risk effectively.

2. Background

2.1 The hedge fund governance model

A hedge fund consists of the fund itself and a separate investment management company. The fund has no employees or assets other than its investments, and is commonly set up in a low tax offshore jurisdiction. The portfolio is typically managed by the fund manager from an onshore financial center. The fund's day-to-day functions are mostly delegated to third party service providers, including prime brokers, fund administrator, auditors and legal counsels[5].

Hedge funds are mostly incorporated[6] and, like any corporation, have a board of directors to oversee the operation of the business and ensure that corporate policies are followed. Nonetheless, hedge fund boards are normally attributed little relevance and substance in the fund governance process. In a typical hedge fund structure, managerial agency concerns are mitigated by incentives that are far stronger than those seen in mutual funds or public corporations. Fund managers receive the bulk of their compensation from high-powered incentive fees typically subject to high-water mark provisions and/or hurdle rates. They also tend to be substantial owners in the fund, with exit restrictions limiting their redemption rights at least to some extent.

Fund managers argue that these incentive schemes are sufficient to ensure effective governance, while allowing the managerial flexibility and informational opacity to pursue complex and adaptable investment strategies and achieve flexible, tax-efficient structures. Thus, the typical fund manager chooses a flat governance structure that provides little scope for internal or external monitoring. Investors tend to be issued participating shares that carry no voting rights. Exit restrictions are primarily in place to discourage short-term investing and redemptions that may compromise the fund's operations and strategy mandate, and include notice and redemption periods, lockup provisions, fund gating, and restrictions on the transfer of shares[7]. The board itself is viewed as an operational constraint, which only serves to fulfill minimum requirements set forth by company laws and regulations.

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[5] The prime broker provides the operational infrastructure and bundled services including brokerage, securities lending, financing and leverage facilities, and clearing and settlement. The administrator maintains the books, and performs related back office functions including portfolio accounting and valuation, and shareholder registry and servicing. The fund may also have a distributor responsible for marketing to potential investors. It also appoints an auditor, and outside law firms (both lead and jurisdictional) to provide legal services.

[6] Hedge funds aimed at taxable US investors are an exception. These funds are typically organized onshore in an uncorporate form, as limited partnerships or limited liability companies (LLC).

[7] Funds typically restrict the transfer of shares, and provide that investors can only withdraw capital on a periodic basis and subject to prior notice. In addition, "lockup" provisions prohibit the immediate redemption of new capital contributions. A "gate" may also be applied, which limits the amount of capital (typically a percentage of NAV) that can be withdrawn on a given date.

The academic literature shows that the unconventional option-like fees of hedge funds have significant performance benefits. Hedge funds are shown to outperform both mutual funds (Ackerman, McEnally and Ravenscraft, 1999) and hedged mutual funds (Agarwal, Boyson and Naik, 2009), which cannot use the same fee structures. Fund performance has been positively related to both incentive fees and their deltas, high-water mark provisions and managerial ownership, as well as the managerial flexibility afforded by exit restrictions such as lockups and restriction periods (Liang, 1999; Agarwal, Daniel and Naik, 2009). Goetzmann, Ingersoll and Ross (2003) argue that high-water marks are particularly useful as a substitute for increasing managerial compensation through fund growth, naturally limited by diminishing returns to scale. Aragon and Qian (2010) add that they also help alleviate inefficiencies arising from asymmetric information, including by encouraging quality managers without established reputations to enter the market and reducing inefficient fund liquidations[8].

Several papers report however that hedge fund incentive schemes can lead to adverse performance manipulation and risk-shifting. The opacity of fund performance and portfolio decisions does not necessarily reflect managerial agency problems (Agarwal, Fos and Jiang, 2011; Aragon, Hertzel and Shi, 2011). There is also evidence that managerial incentives and flexibility reduce perverse risk-taking provided the incentive contract horizon is indefinite (Panageas and Westerfield, 2009), the immediate risk of fund liquidation is low, and the manager's personal investment in the fund is significant (Aragon and Nanda, 2012)[9]. Nonetheless, there is significant evidence that fund managers manage returns opportunistically in order to earn higher fees (Bollen and Pool, 2009; Agarwal, Daniel and Naik, 2011). Under specific scenarios, managerial risk-taking can also increase dramatically in the level of incentive fees (Starks, 1987; Kouwenberg and Ziemba, 2007) and the distance from high-water marks (Hodder and Jackwerth, 2005; Chakraborty and Ray, 2010). Most recently, Teo (2011) shows that funds tend to load up excessively on liquidity risk in order to generate returns and draw investor capital.

Risk-shifting and other managerial agency problems are important concerns because the operational risk of hedge funds is generally greater than that of traditional asset managers. Feffer and Kundro (2003) report that the majority of hedge fund collapses actually relate to operational failures stemming from a lack of transparency and control, including excessive risk-taking, strategy drifts, unauthorized trading, valuation and performance manipulation, and outright fraud. Such failures are often caused or amplified by managerial conflicts of interest that are common in hedge funds. Managers have significant discretion in choosing fund directors and delegating functions to third party service providers, and often have some form of affiliation with them. Managers can also manage multiple funds that compete for investment opportunities, or have incentives to favor some accounts over others[10].

[8] Deuskar et al. (2012) also find evidence that hedge funds use their incentive schemes as a signaling device. They show that new funds in small fund families tend to charge higher incentive fees and lower management fees, which then leads to better performance and higher survival rates.

[9] There is evidence that high incentive fees and exit restrictions also make fund managers less likely to opportunistically close the fund (Liang and Park, 2010), including despite a significant performance loss (Liang and Schwarz, 2011).

[10] Nohel, Wang and Zheng (2010) find that managers that manage multiple funds are at best on par with their primary strategy peers.

Brown et al. (2008) are the first to provide evidence on governance issues manifest in operational risk, using SEC Form ADV Part 2 disclosures that hedge funds with significant US interests had to file in February 2006[11]. The authors identify problem funds with a history of criminal charges, regulatory or civil judicial actions, or arbitration. The results show that problem funds are more likely to have weak incentive schemes, non-independent service providers, and conflicts of interest in accounts management. Brown et al. (2009) later show that these funds underperform and are less likely to survive. More recently, Bollen and Pool (2011) find that problem funds are more likely have anomalous patterns in their reported returns, indicating a heightened risk of fraud.

2.2 Mechanisms mitigating managerial agency concerns

There is some evidence that sophisticated investors are a relevant source of external control in hedge funds. Brown, Fraser and Liang (2008) find that due diligence performed by funds of funds increases the alpha of investee funds. However, the authors point out that effective due diligence has high costs in terms of time and money, which only large enough funds of funds can fully absorb.

Other mechanisms mitigating agency concerns are largely self-imposed by fund managers to signal their quality to investors. Liang (2003) finds that funds that are open to the public, choose to be audited, and are listed on exchanges report better quality return information. Bouges (2011) and Agarwal, Fos and Jiang (2011) respectively show that less reputable managers are significantly more likely to choose big name auditors and self-report to commercially available hedge fund databases. Bollen and Pool (2009) and Brown et al. (2009) confirm that audited funds survive longer. Cassar and Gerakos (2010) use a proprietary database of due diligence reports to examine the relevance of internal controls including the use of reputable service providers, independent portfolio valuation, and signature protocols for transferring funds from bank and prime brokerage accounts. The authors confirm that fund managers adopt such internal controls for reputational reasons and in return for higher incentive fees. The results show that internal controls significantly reduce operational risk, including the likelihood of future investigations against the fund.

Several recent studies examine whether the choice of domicile affects fund performance, operational risk and governance quality. Onshore funds face significant regulatory restrictions including minimum investor requirements and constraints on marketing channels and service providers. These are shown to reduce operational risk in the form of returns manipulation (Cumming and Dai, 2010 EFM), but they also constrain capital flows, reduce flow-performance sensitivity (Aragon, Liang and Park, 2011) and erode fund performance (Cumming and Dai, 2010 FM). Wong (2012) add that taxation of both the fund and the fund manager is a deadweight cost on investors, affecting both performance and survival rates. Nonetheless, he also shows that all else

[11] SEC rules introduced in 2004 but vacated by June 2006 required the managers of funds with significant US interests to register as investment advisors. SEC Form ADV disclosures had to be filed by fund managers who were based in the US and had assets of at least US$25 million, or were based outside the US but had at least 14 US-based clients.

equal, funds based in jurisdictions with better governance and legal standards have better returns and lower risk.

There is some evidence that the regulated setting and investor proximity of onshore jurisdictions substitute for the adoption of explicit internal controls. Teo (2009) reports that onshore funds based in the US and the UK can actually raise more capital, charge higher fees, and set tighter redemption restrictions. Cassar and Gerakos (2010) confirm that in order to compete for onshore investors, offshore funds tend to adopt stricter internal controls such as independent portfolio valuation and the use of dealer and exchange-based pricing sources, signature protocols and reputable auditors and administrators.

2.3 The role and effectiveness of hedge fund boards

The board of directors theoretically has a pivotal role in mitigating operational risk and the agency conflicts that arise between investors and the fund manager. According to AIMA (2008), the board's responsibilities include (i) reviewing the fund's investment performance, (ii) ensuring compliance with the fund's strategy mandate and risk management guidelines, (iii) monitoring net asset value (NAV) calculations; (iv) appointing and supervising service providers, (v) approving the fund's prospectus, constitutional documents and material contracts, (vi) providing adequate and accurate information to investors, (vii) monitoring marketing and investor relations, and (viii) detecting fraud and misconduct. In short, the board is ultimately responsible for the management of the fund and has a fiduciary duty to fund investors.

In practice, however, it is strongly debated whether hedge fund boards are able to perform these responsibilities. Firstly, directors tend to be non-independent. They are appointed by and fundamentally loyal to the fund manager, and are pervasively supplied by administrators, prime brokers and other service providers. Directors that meet the independence requirement[12] also tend to be sourced from professional director services, with some directors sitting on hundreds of boards. Secondly, directors are often ill-qualified to monitor and discipline the fund manager. The board must have the collective expertise to understand the fund's operations and trading, but directors often have no fund administration and accounting skills, or risk management and buy-side experience. Thirdly, board meetings are usually infrequent, informal, and held at the discretion of the fund manager. Directors should technically oversee the fund's affairs in-between meetings, but they tend to be located offshore and away from the fund manager[13]. And finally, the monitoring incentives of the board tend to be limited due to low director fees, typically ranging between US$10,000 and US$15,000 per annum. Directors also tend to be indemnified by liability insurance policies paid by the fund.

Due to regulatory and investor pressure, hedge funds have moved towards greater disclosure and improved their governance arrangements significantly in recent years. Nonetheless, concerns about director standards remain echoed by two recent surveys

[12] By definition, an independent director has no executive function with the fund manager and its affiliates or service providers.

[13] Funds incorporated in certain jurisdictions are required to appoint one or more locally resident directors. These jurisdictions include Bermuda, Ireland, the Isle of Man and Jersey.

of institutional investors. Ernst & Young (2011) finds that 45% of investors think hedge fund boards are effective, and only 19% believe that boards are empowered to challenge management. Carne Global Financial Services (2011) reports that more than 70% of investors have concerns about director independence and expertise and the frequency and agenda of board meetings, while 90% feel independent directors have too many directorships. Most investors also want greater transparency on the number of directorships held and the relationship between directors and the fund manager. These are relevant issues that potentially limit capital flows to hedge funds. Carne Global Financial Services reports that 91% of investors would not invest in a hedge fund with poor governance, and 76% have taken such a decision already.

While hedge fund boards are not examined in the existing academic literature, some relevant evidence is available on the role and effectiveness of mutual fund boards. Effective mutual fund boards are shown to be relatively small and independent, leading to both better performance and lower fund fees (Tufano and Sevick, 1997; Del Guercio, Dann and Partch, 2003; Adams, Mansi and Nishikawa, 2010). Nonetheless, Ding and Wermers (2009) find that inside directors are also important for controlling the hidden actions of fund managers, and conclude that while board independence improves fund performance, excessive independence is actually harmful. The authors add that independent boards are more likely to replace underperforming fund managers. However, this bears little relevance in the context of hedge funds, where the fund manager appoints and cannot be removed by the board. It is useful to point out that unlike in hedge funds, directors in mutual funds can also hold significant ownership in the funds they oversee. Director ownership is shown to have a positive effect on fund performance (Chen, Goldstein and Jiang, 2008; Cremers et al., 2009).

3. Data description

We investigate the role and effectiveness of hedge fund boards using a proprietary database constructed from three primary sources. Firstly, we hand-collected data over the three years between 2008 and 2011 from hedge fund documentation provided by a fund of funds and previously unavailable for academic research. These documents included private placement memorandums (PPM), due diligence questionnaires (DDQ)[14], memorandums, articles of association, fund presentations, newsletters, agreement and subscription documents, and annual audited financial statements. Secondly, we obtained SEC Form ADV Part 2 disclosures for the funds with both a PPM and a DDQ, by matching the fund managers with the SEC's Investment Adviser Public Disclosure database[15]. And thirdly, we retrieved fund performance data from the Eurekahedge global hedge fund database. The consolidated database is still under

[14] DDQs are a key source of data on fund operations, business practices, and conflicts of interest. They are updated frequently and reviewed on a regular basis by stakeholders performing due diligence. DDQs include detailed data on fund owners, including names, ownership percentages, and any roles they have in the company.

[15] The requirement that hedge funds file Form ADV Part 2 disclosures with the SEC was reintroduced under the Dodd-Frank Wall Street Reform Act passed in July 2010. Managers of private pools of capital exceeding US$150 million were required to register with the SEC as investment advisors by July 2011. The managers of offshore funds with more than 15 US investors and managing assets of more than $25 million were required to register by March 2012.

construction; the present analysis includes 307 hedge funds, while the final sample will contain around 400 observations.

Descriptive statistics on the variables used in the present version of the paper are provided in Table 1. We measure fund performance by the Sharpe ratio, the CAPM alpha, and the Fama-French-Carhart alpha. Fund risk is measured by the historical volatility of monthly returns and maximum drawdown. Finally, we use the problem fund variable proposed by Brown et al. (2008) as measure of operational risk. Table 1 shows that the sample funds have a historical mean and volatility of monthly returns of 0.97% and 4.31%, respectively, a Sharpe ratio of 0.274, and a maximum drawdown of -22.4%. The problem fund variable shows that 11% of the sample funds have had legal proceedings against them as reported in Item 11 of Form ADV Part 2.

(Insert Table 1)

Thus far, we have developed eight variables hand-collected from PPMs and DDQs to proxy for board quality. The *board size* variable shows that hedge funds have an average 2.3 directors, with the typical board having just two members. *Independence* captures the proportion of board members that are unaffiliated with the fund's key service providers. In the sample funds, only 23% of directors meet the independence requirement on average. The *meeting provision* and *fee provision* variables proxy for the monitoring activity and incentives of the board. The variables are dummies equal to one if the fund has a provision on regular board meetings and the maximum annual cost of director fees, respectively, and zero otherwise. Table 1 shows that 27% of the sample funds have meeting provisions and 30% have fee provisions.

The board experience variables, collected from the director biographies, are developed to capture the board's ability to monitor and expertise in fund operations and trading. *Total experience* is the cumulative experience of the board, expressed in years, in the banking, financial services, asset management or other related industries. In the sample funds, directors have a cumulative 28.1 years of professional experience. The *risk management experience* and *buyside experience* variables show the number of directors on the board with the corresponding experience. The variables show that while most directors (an average 1.7) have buyside experience, very few have experience in risk management (0.2). The final *professional education* variable shows the number of directors who hold Chartered Accountant (CA) or Certified Practicing Accountant (CPA) qualifications, or Bachelor of Laws (LLB) or Juris Doctor (JD) degrees. The descriptive statistics show that around half of board directors (an average 0.9) hold a relevant professional qualification.

To control for the rights of fund investors, we have thus far developed two variables previously not used in the literature. *Transfer restrictions* is a dummy equal to one if the fund restricts share transfers without the consent of the board, and zero otherwise. Similarly, *voting rights* is a dummy variable equal to one if fund investors have been issued voting shares and may thus participate in director elections, and zero otherwise. Both these variables were hand-collected from PPMs. Table 1 shows that almost all funds (98%) restrict the free transfer of shares, while voting rights are afforded to investors in 55% of the sample funds. We finally control for managerial conflicts of interest with the *multi manager* variable. The variable is equal to one if the fund manager manages two or more funds, and zero otherwise.

We use the variables customarily used by previous studies to proxy for managerial incentives and discretion. The incentive contract variables show that the sample funds charge a *management fee* of 1.6% and an *incentive fee* of 18.7% on average. As many as 90% of the funds have *high-water mark* provisions and 13% use *hurdle rates*. Of the exit restrictions put in place to provide managerial flexibility, *lockup periods* and *redemption penalties* are each used by one third of the sample funds.

The analysis finally includes four variables capturing general fund characteristics. *Fund size* shows that the mean and median value of assets are US$158 million and US$51 million, respectively. The sample funds show huge variation in size, with asset value ranging from US$1 million and US$6.6 billion. The mean and median values for *fund age* are 5.5 years and 4.9 years, respectively. The *leverage* variable shows that contrary to the general perception, only 45% of the sample funds use leverage financing. Finally, *exchange listing* shows that 15% of the sample funds are listed on a stock exchange to widen their exposure and reach retail investors. It is important to point out that hedge fund shares are not actively traded even when they are exchange-listed. The sample funds are all listed on the Dublin Stock Exchange (DSE) due to its minimal registration requirements; however, the DSE requires that listed funds have at least two independent directors on the board.

4. Methodology and empirical results

In the first stage of the analysis we regress the performance, risk and problem fund measures on the set of variables capturing governance quality and general fund characteristics. We optimize model selection and specification using Akaike's information criterion and the variance inflation factor. The preliminary regression results are provided in Tables 2 and 3.

(Insert Tables 2 and 3)

The results confirm that bond quality, investor rights and managerial conflicts of interest all affect fund performance at least to some extent. Table 2 shows that of the board quality measures, board independence has a considerable positive impact on fund performance. The relationship of independence is positive with all three performance measures, and is significant at the 5% level for the Sharpe ratio, which adjusts for both systemic and idiosyncratic risk. This result broadly implies that independent directors are a relevant potential source of internal control.

Fund performance shows no consistently discernible relationship with the remaining board variables. However, the risk regressions in Table 3 confirm the importance of director experience. We find that in the presence of directors with experience in risk management, fund risk is reduced significantly without affecting performance. The experience variable shows a significantly negative relationship with both returns volatility and maximum drawdown. This is an important finding given that few hedge fund directors have risk management experience, and hedge fund failures are often driven by excessive managerial risk-taking.

Beyond board quality, the voting power of fund investors also has a non-trivial impact on fund performance. The voting rights variable is related positively to all three performance measures and negatively to both risk measures, with the coefficients on

the Sharpe ratio and maximum drawdown significant at the 5% and 10% level, respectively. The relevance of investor voice is consistent with Brown, Fraser and Liang's (2008) earlier result that sophisticated investors performing due diligence is an important source of discipline.

We finally find evidence that managerial conflicts of interest lead to a very significant erosion in fund performance. The multi manager variable, which captures managers running multiple funds, is negatively related to all three performance measures, which each coefficient significant at least at the 5% level. Interestingly, we find that the relationship is also negative with the two risk measures as well as the problem fund measure, and statistically significant for returns volatility. This fundamentally suggests that fund managers dividing their attention among multiple funds lack the incentive to manage performance and risk effectively.

Other interesting results also emerge from Tables 2 and 3. Firstly, exchange-listed funds both underperform and are more likely to be problem funds. This clearly indicates that these funds have limited access to capital and use exchange listing to tap a wider investor base. Secondly, there is some evidence that leveraged funds actually deliver both inferior returns and lower risk. And thirdly, when governance quality is controlled for, the performance and risk effects of managerial incentive schemes and exit restrictions are not as obvious as the previous literature find. There is significant evidence that fund performance is positively related to the incentive fee and lockup provisions. However, high-water mark shows consistently negative relationship with all three performance variables, while hurdle rate provisions substantially increase both risk-taking and operational risk proxied by the problem fund variable. These last two results imply endogeneity between managerial incentive structures, and governance quality, and leverage choice, and require further investigation.

Extensions of this preliminary investigation are currently underway. The most immediate task is the finalization of the database to increase the number of observations in the sample. We are also in the process of using the rich data of PPMs and DDQs to collect further explanatory variables on the board quality, the fund manager, the efficiency of fund operations, as well as performance manipulation. The next iteration of the analysis will also include additional performance variables including the appraisal ratio, short fall, stochastic dominance, and Cox hazard rates capturing fund life cycle.

5. Conclusion and future research

Hedge fund boards have historically been overlooked as an institution lacking relevance and substance. Directors are indeed appointed by the fund manager, mostly supplied by service providers and director services, and often lacking in skills and incentives to monitor the fund. Nonetheless, they face growing pressure post-crisis from both investors and regulators to fulfill their fiduciary duties.

This paper has investigated the role and effectiveness of hedge fund boards for the first time, using hand-collected data from hedge fund documentation previously unavailable for academic research. We have found several important results. We conclude that the board can be a very useful source of control in hedge funds, whose

traditional governance model fundamentally focuses on the realignment of managerial interests.

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Table 1
Descriptive statistics

This table presents descriptive statistics for the 307 sample funds. *Return mean*, *return volatility* and the *Sharpe ratio* use monthly returns and are measured over the life of the fund. *Maximum drawdown* is measured over the life of the fund. *Problem fund* is a fund whose manager answered "yes" to any question in Item 11 of Form ADV Part 2. *Board size* is the number of directors on the board. *Independence* is the proportion of directors unaffiliated with fund service providers. *Meeting provision* and *fee provision* equal one if the fund has a provision on regular board meetings and the maximum annual cost of director fees, respectively. *Total experience* is the cumulative experience of the board (in years) in the banking, financial services, asset management or other related industries. *Risk experience* and *buyside experience* are the number of directors with the corresponding experience. *Professional education* is the number of directors with CA, CPA, LLB or JD qualifications. *Transfer restrictions* and *Voting rights* equal one if the fund restricts share transfers without board consent, and if investors hold voting rights, respectively. *Multi manager* equals one if the fund manager manages two or more funds. *High-water mark*, *hurdle rate*, *lockup period* and *redemption penalty* equal one if the fund has the corresponding provision. *Assets* is in millions of 2005 dollars. *Leverage* and *exchange listing* equal one if the fund uses leverage and is exchange-listed, respectively.

	N	Mean	Median	Stdev.	Min.	Max.
Return mean	307	0.97%	0.85%	0.84%	-1.20%	9.46%
Return volatility	307	4.31%	3.41%	2.83%	0.20%	22.00%
Sharpe ratio	307	0.274	0.235	0.263	-0.319	3.122
Maximum drawdown	307	-22.4%	-17.5%	17.8%	-88.7%	0.0%
Problem fund	307	11%	0	31%	0	1
Board size	307	2.303	2	1.648	1	14
Independence	307	23%	0	30%	0	1
Meeting provision	307	27%	0	45%	0	1
Fee provision	307	30%	0	46%	0	1
Total experience (years)	307	28.1	30	15.5	0	90
Risk experience	307	0.2	0	0.5	0	3
Buyside experience	307	1.7	1	1.4	0	11
Professional education	307	0.9	1	0.9	0	4
Transfer restrictions	307	98%	1	13%	0	1
Voting rights	307	55%	1	50%	0	1
Multi manager	307	71%	1	45%	0	1
Management fee	307	1.6%	1.5%	0.5%	0.2%	4.5%
Incentive fee	307	18.7%	20%	4.7%	0%	35.0%
High-water mark	307	90%	1	30%	0	1
Hurdle rate	307	13%	0	33%	0	1
Lockup period	307	33%	0	47%	0	1
Redemption penalty	307	32%	0	47%	0	1
Assets (US$ million)	307	158	51	503	1	6,600
Fund age (years)	307	5.5	4.9	3.7	0.0	21.1
Leverage	307	45%	0	50%	0	1
Exchange listing	307	15%	0	36%	0	1

Table 2: The impact of governance on hedge fund performance

The *Sharpe ratio*, the *CAPM α* and the *Carhart α* use monthly returns and are measured over the life of the fund. *Independence* is the proportion of independent directors. *Independence* is the proportion of directors unaffiliated with fund service providers. *Meeting provision* and *fee provision* equal one if the fund has a provision on regular board meetings and the maximum annual cost of director fees, respectively. *Total experience* is the cumulative experience of the board (in years) in the banking, financial services, asset management or other related industries. *Risk experience* and *buyside experience* are the number of directors with the corresponding experience. *Professional education* is the number of directors with CA, CPA, LLB or JD qualifications. *Transfer restrictions* and *Voting rights* equal one if the fund restricts share transfers without board consent, and if investors hold voting rights, respectively. *Multi manager* equals one if the fund manager manages two or more funds. *High-water mark*, *hurdle rate*, *lockup period* and *redemption penalty* equal one if the fund has the corresponding provision. *Assets* is in millions of 2005 dollars. *Leverage* and *exchange listing* equal one if the fund uses leverage and is exchange-listed, respectively. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

	Performance					
	Sharpe ratio		CAPM α		Carhart α	
	Coeff.	*t*-val.	Coeff.	*t*-val.	Coeff.	*t*-val.
Independence	0.130	2.09**	0.105	0.59	0.173	1.11
Meeting provision	0.019	0.49	-0.023	-0.21	-0.035	-0.36
Fee provision	0.015	0.39	0.067	0.60	0.064	0.66
Total experience	-0.002	-1.76*	0.004	0.91	0.004	1.05
Risk management experience	-0.006	-0.20	-0.047	-0.55	-0.030	-0.39
Buyside experience	-0.009	-0.66	-0.035	-0.92	-0.028	-0.84
Professional education	-0.003	-0.15	-0.001	-0.02	-0.004	-0.08
Transfer restrictions	0.051	0.46	-0.038	-0.12	-0.067	-0.24
Voting rights	0.073	2.14**	0.137	1.41	0.094	1.10
Multi manager	-0.080	-2.22**	-0.282	-2.75***	-0.215	-2.38**
Management fee	0.043	1.30	0.059	0.63	0.110	1.31
Incentive fee	0.002	0.61	0.020	1.87*	0.016	1.65*
High-water mark	-0.004	-0.07	-0.346	-2.20**	-0.220	-1.59
Hurdle rate	-0.040	-0.85	0.020	0.15	-0.044	-0.38
Lockup period	0.067	1.95*	0.014	0.14	0.056	0.65
Redemption penalty	0.025	0.73	0.056	0.57	0.071	0.83
Log of assets	0.000	1.22	0.000	0.87	0.000	0.94
Leverage	-0.067	-2.02**	-0.142	-1.51	-0.090	-1.09
Exchange listing	-0.018	-0.36	-0.486	-3.33***	-0.424	-3.30***
Pseudo R^2	*12.6%*		*12.5%*		*11.8%*	
N	*307*		*307*		*307*	

Table 3: The impact of governance on hedge fund risk and operational risk

R*eturn volatility* uses monthly returns and is measured over the life of the fund. *Maximum drawdown* are measured over the life of the fund. *Problem fund* is a fund whose manager answered "yes" to any question in Item 11 of Form ADV Part 2. *Independence* is the proportion of independent directors. *Independence* is the proportion of directors unaffiliated with fund service providers. *Meeting provision* and *fee provision* equal one if the fund has a provision on regular board meetings and the maximum annual cost of director fees, respectively. *Total experience* is the cumulative experience of the board (in years) in the banking, financial services, asset management or other related industries. *Risk experience* and *buyside experience* are the number of directors with the corresponding experience. *Professional education* is the number of directors with CA, CPA, LLB or JD qualifications. *Transfer restrictions* and *Voting rights* equal one if the fund restricts share transfers without board consent, and if investors hold voting rights, respectively. *Multi manager* equals one if the fund manager manages two or more funds. *High-water mark*, *hurdle rate*, *lockup period* and *redemption penalty* equal one if the fund has the corresponding provision. *Assets* is in millions of 2005 dollars. *Leverage* and *exchange listing* equal one if the fund uses leverage and is exchange-listed, respectively. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

	Risk				Problem fund	
	Return volatility		Max. drawdown			
	Coeff.	*t*-val.	Coeff.	*t*-val.	Coeff.	*t*-val.
Independence	-0.001	-0.22	0.020	0.46	-0.034	-0.49
Meeting provision	0.004	0.87	0.052	2.02**	0.046	1.09
Fee provision	0.001	0.33	0.013	0.48	0.043	1.01
Total experience	0.000	0.42	0.001	0.88	0.002	1.43
Risk management experience	-0.007	-2.01**	-0.050	-2.41**	-0.025	-0.76
Buyside experience	0.000	0.15	-0.005	-0.56	0.015	1.04
Professional education	-0.002	-0.75	-0.021	-1.58	0.048	2.26**
Transfer restrictions	0.017	1.43	0.070	0.93	0.187	1.53
Voting rights	0.000	-0.05	-0.039	-1.70*	0.028	0.74
Multi manager	-0.009	-2.40**	-0.035	-1.43	-0.061	-1.55
Management fee	0.005	1.23	0.015	0.68	-0.019	-0.53
Incentive fee	0.000	0.54	-0.001	-0.37	-0.001	-0.13
High-water mark	-0.006	-0.97	0.033	0.88	0.093	1.54
Hurdle rate	0.013	2.57**	0.077	2.43**	-0.088	-1.70*
Lockup period	0.001	0.25	0.018	0.76	-0.043	-1.15
Redemption penalty	-0.002	-0.46	-0.003	-0.13	-0.013	-0.33
Log of assets	0.000	-1.23	0.000	-0.59	0.000	0.11
Leverage	-0.005	-1.49	-0.052	-2.29**	-0.041	-1.13
Exchange listing	-0.007	-1.25	-0.017	-0.50	0.291	5.16***
Pseudo R^2	*10.6%*		*10.9%*		*28.7%*	
N	*307*		*307*		*307*	