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Born after the Volcker Rule: regulatory change, managerial remuneration and hedge fund performance*

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Abstract

This paper finds that remunerative benefits accrue to managers of new hedge funds launched after the implementation of the Volcker Rule (section 610 of the 2010 Dodd-Frank Act) if their previous employer is a systemically important US bank. We attribute this phenomenon to changes in how investors perceive the distribution of managerial ability in the pool of new fund managers with prior banking connection after the Volcker Rule's implementation. Before the Volcker Rule, funds launched by ex-bankers charge higher incentive fees and are more likely to use a high-water mark, but receive less flows as compared to other new hedge funds established during the same period. After the Rule, ex-bankers' funds switch to a fee structure with higher management fees and receive more flows. However, they are indistinguishable from other new hedge funds in terms of performance, risk, and liquidation probability, both before and after the Volcker Rule.

Keywords: Volcker Rule; Hedge funds; Ex-bankers; Fee structure; Fund flows.

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1 Introduction

Historically, investment banks made short-term, non-client related investments in securities, commodities, and derivatives for their own account, with the objective of enhancing their overall profitability. Such proprietary investment activity contributed substantially to their profits (Crotty et al., 2010), with proprietary trading accounting for 63.79% of net revenues for Goldman Sachs and 45.68% for Morgan Stanley in 2006. However, during the financial crisis of 2007-2008, proprietary trading contributed to the large losses reported by many banks. According to Stowell (2017), investment banks suffered over \$230 billion in proprietary trading losses during the four-quarter period ending in April 2008 and such losses continued to grow during the remainder of 2008. These developments presage significant global regulatory reforms focusing on large and complex financial institutions (LCFIs).¹ In particular, in 2010 the US government implements the Dodd-Frank Wall Street Reform and Consumer Protection Act, whose primary objective is to separate the investment and commercial businesses of banks. Section 619 of the Act, the Volcker Rule, prohibits banking entities from engaging in proprietary trading, or investing in or sponsoring hedge funds or private equity funds, also known as covered funds.

Subsequently, to conform with the regulation, LCFIs begin to close their proprietary trading desks. For example, J.P. Morgan starts to wind down activity in its 20 proprietary commodity trading desks in 2010.² Goldman Sachs also reportedly begins to cull its trading operations the same year,³ while Morgan Stanley spins-off its proprietary trading arm, Process Driven Trading, in 2011.⁴ A prevailing trend resulting from this is that many proprietary traders who leave LCFIs move to the hedge fund industry, often launching their own funds. While the long-term success of those funds may be mixed, anecdotal evidence suggests strong initial investor appetite for such funds. For example, in 2010 two of Goldman Sachs most prominent proprietary traders, Pierre-Henri Flamand and Morgan Sze, each raised \$1bn and launched the largest hedge fund start-ups since the beginning of financial crisis.⁵ In 2014, a former JPMorgan trader Andrea Angelone started a London-based hedge fund firm with three other bankers,⁶ and a former Goldman trader Leland Lim launched a macro hedge fund.⁷ Former global head of foreign exchange at Citigroup, Anil Prasad, started his own macro hedge

¹We adopt the term ‘large and complex financial institutions’ (LCFIs), in reference to the largest global commercial and investment banks, as in King and Maier (2009)

²Matthias Rieker. J.P. Morgan to Close Proprietary-Trading Desks. *The Wall Street Journal*, September 1, 2010.

³Justin Baer. Goldman winds down proprietary trading arm. *Financial Times*, February 16, 2011.

⁴Justin Baer. Morgan Stanley to spin off prop trading desk. *Financial Times*, January 10, 2011.

⁵Sam Jones and Justin Baer. Goldman’s Sze raises money for hedge fund. *Financial Times*, December 15, 2010.

⁶Suzi Ring. Former JPMorgan and UBS Bankers Plan to Start London Hedge Fund. *Bloomberg*, April 2, 2014.

⁷Nishant Kumar. Ex-Goldman, Noble top traders to set up Asia hedge fund: source. *Reuters*, February 10, 2014.

fund in 2015 with initial start-up capital of at least \$500 million.⁸

This paper investigates whether significant differences exist in the pattern of performance and remuneration received by former bankers who launch hedge funds after the Volcker Rule as compared to their industry peers. Our motivation lies in the fact we believe implementation of the Rule is likely to induce significant changes not only in the composition of the talent pool of managers leaving LCFIs to establish new funds, but also in investors' perceptions of their inherent skill set. Specifically, investment banking is often seen as the optimal career pathway into the hedge fund industry, and indeed, pre-crisis the vast majority of hedge fund hires are former proprietary traders from the banking sector.⁹ Before the Volcker Rule, LCFI remuneration arrangements are heavily structured in an attempt to retain the best performing traders, so the bank can continue to benefit from their abilities (as revealed by past performance) to enhance trading returns and profitability.¹⁰ Even though some stellar managers were leaving LCFIs before the Rule¹¹, LCFIs were largely successful in their endeavours to retain successful traders. One consequence of this retention policy is that investors may have perceived the traders leaving LCFIs before implementation of the Volcker Rule as inherently less skilled, on average, in comparison to those who remain in situ. After the proprietary trading restrictions imposed by the Volcker Rule on LCFIs, star traders confront two basic choices: either reassignment to potentially less attractive roles within their home LCFI, or alternatively, if they wish to continue trading, a requirement to leave their current institution. If investors expect former star traders to be more likely to choose the latter option, they may anticipate that the trading ability of the average new manager entering the hedge fund industry after the Volcker Rule will be inherently superior to that before the Rule. This is because they expect the proportion of successful ex-LCFI traders in the pool of new fund managers will increase. We analyse whether this potential favourable change in investor perceptions of fund managers' ability following the Volcker Rule is exploited by ex-LCFI traders when establishing their own funds, enabling them to earn rents from structuring personally advantageous remuneration packages. We also investigate if the existence of these more positive perceptions is justified by evidence of any improved performance-risk trade-offs in the hedge funds launched by ex-LCFI traders after the Rule's implementation.

Using a sample of 1,924 new hedge funds established both before and after the adoption of the Volcker Rule, we find that the composition of the remuneration packages of ex-bankers leaving LCFIs after the Volcker Rule is consistent with investor perceptions of them as being more talented. In the post-Rule period, during the first year of their origination, ex-banker

⁸Nishant Kumar. Ex-Citi FX head readies \$500 million hedge fund launch in April. Reuters, January 23, 2015.

⁹Beyond Banking: traditional talent pool dries up for hedge funds. Financial Times, November 12, 2015.

¹⁰Imogen Rose-Smith. U.S. Banks Are Getting Out of Hedge Funds. Will They Return? Institutional Investor, October 7, 2013.

¹¹Eric Mindich founded Eton Park, a successful US hedge fund, in 2004 after working as a proprietary trader at Goldman for over a decade, as did Kenneth Brody and Frank Brosens, who co-founded the Taconic hedge fund. See Miles Johnson: Goldman stars fall back down to earth, Financial Times, June 9, 2014.

managed funds charge higher management fees and receive higher flows in comparison to similar funds not launched by ex-bankers. This contrasts with the results before the Volcker Rule, with ex-banker funds charging higher incentive fees and receiving lower flows as compared to those launched by other fund managers. This is consistent with investor expectations that banks retain their top trading talent, hence, funds managers who leave bank employment are on average, inherently less skillful. Importantly, we find no evidence that the ex-bankers' funds perform any differently from other new hedge funds in terms of their pre- or post-fee performance, risk, and survival probability, either before or after the Volcker Rule. These findings suggest that the implementation of the Volcker Rule changes investor perceptions of the average quality of new hedge fund managers, leading to alterations in their fee structure and funding flows, while the actual quality of new managers, as subsequently revealed in fund performance, remains unchanged. Our interpretation of this result is that fund managers who establish new funds after leaving LCFIs following the Volcker Rule's implementation appear to benefit from being associated with their former institution. These personal benefits take the form of a reputational premium in the reward structure of their new fund, which we interpret as a rent derived from the enhanced reputation they attract, due to having previously worked at a LCFI. These managers subsequently demonstrate no superior fund-management skills. Hence, their potential pre-Volcker Rule trading success may simply be a result of good fortune, emanate from the institution-specific characteristics particular to proprietary trading within their previous LCFI environment, or be attributable to a combination of both factors.

Our analysis extends the literature on characteristics of fund managers' human capital and their effect on fund performance. Education and past work experience usually are found to be important determinants of performance. Mutual fund managers who hold MBAs from schools with higher mean GMAT score and *Business Week* ranking exhibit superior performance (Gottesman and Morey, 2006), while hedge fund managers from higher-SAT (Scholastic Aptitude Test) undergraduate institutions evidence higher returns, receive more inflows, and take fewer risks (Li et al., 2011). Prior work experience as venture capitalist and executives at start-up companies are found to be stronger predictors of fund performance than education for first-time venture capital fund management teams (Zarutskie, 2010). Mutual fund managers build up skills from prior work experience as industry analysts or macro analysts, leading to significantly higher performance (Chen et al., 2018). Hedge fund managers with past hedge fund experience report superior performance and those with brokerage related experience have higher survival probabilities (Papageorgiou et al., 2011). The special expertise from private equity funds and general expertise from investment banks results in better hedge fund activism outcomes (Boyson et al., 2019). However, hedge fund managers who move from the mutual fund industry underperform their peers (Deuskar et al., 2011a). By contrast, hedge fund managers whose previous employers are located in New York or London, especially those with investment management experience, outperform their peers, suggesting an inherited agglomeration effect (De Figueiredo et al., 2013). However, our findings demonstrate that past work experience in a US-based LCFI does not significantly alter the performance of managers of newly launched

funds as compared to other managers without such experience, either before or after the Volcker Rule. Ex-bankers either do not accumulate relevant skills to move into the independently managed hedge fund industry or the trading skills acquired are not portable (Groysberg et al., 2008). This is consistent with the presence of institutional complementarities and economies of scope within LCFIs, improving an individual’s trading performance, but only during the actual employment in that institution.

Another related strand of research focuses on the ‘star’ trader/manager phenomenon. Returns to talent are documented to be 300 percent higher in finance than in the rest of the economy (C  lerier and Vall  e, 2019). Importantly, evidence reveals that it is changes in Morningstar’s star rating rather than the dynamics of underlying performance measures that drive investor flows to mutual funds, indicating the importance of reputational signals (Guercio and Tkac, 2008). A “star” fund enhances capital flows to both the fund itself and other funds in the mutual fund family, and lower ability fund families are more likely to create stars by adopting higher cross-fund variance investments (Nanda et al., 2004). Fund families that allocate well-performing managers to new funds increase inflows to both new funds and fund families, with such new funds exhibiting higher returns in their first year (Chen and Lai, 2010). However, star managers do not guarantee sustained superior future fund performance. The future performance of funds receiving Morningstar’s highest-rating shows no significant difference to that of median-rated funds (Blake and Morey, 2000), while only a minority of star mutual fund managers select stocks well enough to more than cover their costs (Kosowski et al., 2006). Consistent with our findings, Groysberg et al. (2008) maintain that star security analysts in investment banks experience an immediate decline in performance after changing employers, suggesting that their skills are not highly transferable. Moreover, Emery and Li (2009) maintain the analyst rankings of *Institutional Investor* and *Wall Street Journal* are largely ‘popularity contests’ and document the investment performance of stars’ recommendations deteriorate significantly the following year.

Our analysis shows that before the Volcker Rule ex-banker funds receive significantly lower flows in the first year after origination when compared to other new funds, consistent with a perception by investors that it is predominantly less-skillful managers that leave LCFIs during this period. After the Volcker Rule, which requires star traders to leave banks to continue trading, new funds launched by ex-bankers receive significantly higher flows in the first year. This supports the star-chasing effect documented in Guercio and Tkac (2008) and Chen and Lai (2010). However, these funds fail to generate superior returns and exhibit no difference in long-term flows, indicating that such reputational effects are not indicative of superior ability and their impact is short-lived.

Our study also contributes to the literature on managerial compensation, in particular the compensation structure of hedge funds. Hedge funds increase incentive fees following periods of enhanced performance and raise their management fees after higher capital flows (Agarwal and Ray, 2011). Large and better performing fund families charge higher fees for

their newly launched funds (Ramadorai and Streatfield, 2011). Similarly, new fund families tend to charge at- or above-median fees, while existing families charge higher fees for new funds following superior past performance (Deuskar et al., 2011b).¹² Gompers and Lerner (1999) and Deuskar et al. (2011b) develop a signaling model where new managers with privately known ability charge high incentive fees to signal their ability and switch to a fee structure with high management fees once their ability is revealed. Our empirical results on the fee structure of new funds launched by ex-bankers are consistent with their model. Before the Volcker Rule, investors’ perception of managers who leave LCFIs is that they may be less skillful on average, as LCFIs are expected to retain their star trading talent to run their proprietary trading desks. Therefore, in an attempt to provide an external signal of their ability, managers who leave LCFIs charge significantly higher incentive fees and regularly use a high-water mark. After the Volcker Rule, when star managers are also mandated to leave LCFIs if they wish to continue trading, investors will likely expect an increase in the proportion of skilled traders moving into hedge fund management. Benefiting from these reputational effects, managers who leave LCFIs charge significantly higher management fees and use a high-water mark less often.

In a broader context, our study contributes to discussions of the wider impact of Volcker Rule regulations on financial markets. Recent literature focuses primarily on the consequences for banks.¹³ Our paper contributes to the emerging literature on the Rule’s effects on the dynamics of the hedge fund industry and its link to the banking sector.¹⁴ Our focus is upon the remuneration and performance of new hedge funds launched by former LCFI employees who leave bank employment following the Volcker Rule’s ban on proprietary trading and establish their own hedge funds. We show that while such ex-bankers personally benefit from favourable investor perceptions of their quality after the Volcker Rule, through receiving enhanced remuneration and higher flows, they do not generate benefits for their investment clients in the form of superior fund performance.

2 Research Design

The Volcker Rule prohibits LCFIs from engaging in proprietary trading. It limits their ability to pursue speculative activities with their own cash to 3% of their Tier-one capital (in 2010 this is approximately \$2.1 billion for Goldman Sachs and \$1.5 billion for Morgan Stanley).

¹²The compensation structure of hedge funds in turn affects their future performance and risk-taking behavior. Kouwenberg and Ziemba (2007) provide evidence that higher incentive fees lead to increased risk-taking, which is reduced by the manager’s own investment in the fund. Agarwal et al. (2009) find that hedge funds with higher managerial incentives and high-water mark provisions deliver superior performance.

¹³Following the Volcker Rule, banks reduce the size of their trading books although overall their risk profile does not decrease (Keppo and Korte, 2016; Schäfer et al., 2015; Chung et al., 2016). Banks’ earnings and equity value increase after the Volcker Rule, suggesting a positive market response (Chung et al., 2016; Elayan et al., 2018). The Volcker Rule also leads to a deterioration of liquidity in stressed bonds (Bao et al., 2018).

¹⁴Following the Rule, hedge funds exhibit lower flows (Cumming et al., 2017) and relocate their liquidity provision from less liquid to more liquid segments of the equity market (Bowe et al., 2019)

The Rule receives its first public endorsement from President Obama on January 21, 2010 and is enacted as part of the Dodd-Frank Wall Street Reform and Consumer Protection Act on July 21, 2010, codified in Section 13 of the Bank Holding Company Act of 1956. On December 10, 2013, final regulations are issued with the rule becoming effective on April 1, 2014. From July 1, 2014 the largest US banking entities (with at least \$50 billion in trading assets) are required to report quantitative measurements demonstrating their best endeavors to comply with the restrictions on proprietary trading (among other requirements). Full compliance is required by July 21, 2015. Despite a series of further extensions granted to LCFIs to achieve full compliance with the Rule¹⁵, banks must endeavour to implement the legislation from April 1, 2014. Importantly, from July 2014 their compliance efforts are monitored through a legally mandated reporting channel. Thus, we expect that major adjustments in bank proprietary trading operations and the resulting exodus of traders is likely to be manifest after April 2014. As information concerning the eventual need for regulatory compliance is available during 2010, we consider any changes to the characteristics of new hedge funds launched by former bankers during two different phases: the implementation phase, from July 2011 to March 2014; and the compliance phase, from April 2014 to March 2016.

Before the Rule, proprietary trading desks populated by well-remunerated star traders generated substantial profits for their LCFI employers, in the process certain traders often established a reputation akin to legendary.¹⁶ The monetary incentive for LCFIs to try to retain their star proprietary traders is significant. At the same time, traders will also acquire and enhance their trading-relevant human capital while working for LCFIs. Knowing the retention incentives possessed by LCFIs creates a signal extraction problem for external investors in relation to traders who leave these institutions before the Volcker Rule. Investors must decide whether a trader's departure is voluntary, perhaps motivated by a latent desire to establish an independent fund, or whether the individual has not been retained owing to inferior trading performance. While external investors can observe the results-based performance of the LCFI proprietary trading team as a collective, the opacity of much of the relevant information precludes clearly attributing a specific individual's contribution to the institution's overall trading performance. This informational asymmetry, combined with the significant opportunity cost (in terms of foregone remuneration) for those successful traders who voluntarily leaving an LCFI, is likely to generate an external perception that former LCFI traders are on average, inherently less skilled than those who remain.¹⁷

¹⁵A detailed implementation time line is discussed in *Bowe et al. (2019)*.

¹⁶The top six LCFIs (JPMorgan Chase, Goldman Sachs, Bank of America, Morgan Stanley, Citigroup, and Wells Fargo) made an aggregate of \$59.7 billion in pretax income from proprietary trading in 2009. See Robert Lenzner. *Six Giant Banks Made \$51 Billion Last Year; The Other 980 Lost Money*. *Forbes*, June 3, 2010.

¹⁷The well-publicised practice of Goldman Sachs cyclically terminating the contracts of the lowest-performing fraction of the institutions traders is one of the best known examples of enforced departure. Of course, certain star traders do leave LCFIs voluntarily and are subsequently successful. Eric Mindich founded Eton Park, a successful US hedge fund, in 2004 after working as a proprietary trader at Goldman for over a decade, as did Kenneth Brody and Frank Brosens, who co-founded the Taconic hedge fund. see Miles Johnson. *Goldman stars fall back down to earth*. *Financial Times*, June 9, 2014. We conjecture the presence of such traders in the overall pool of former LCFI traders before the Rule is exceptional, whereas after the Rule's adoption it is

Following the adoption of the Volcker Rule, LCFIs are mandated to close their proprietary trading units and even star traders are required to leave these institutions. Indeed, proprietary trading revenues at Goldman Sachs fell from \$25 billion in 2009 to \$18 billion in 2010 to \$5 billion in 2015.¹⁸ The number of employees trading equities declined from a peak of 600 people in 2000 to only two in 2016.¹⁹ In such circumstances, in comparison to the situation before the Volcker Rule, investors may rationally anticipate an overall increase in the average quality of traders who leave LCFIs when these institutions begin to implement the Rule's regulations.

In summary, we contend the implementation of the Volcker Rule will not only lead to a change in the inherent characteristics of traders that leave LCFIs, but also in external investors' perception of the average trading ability possessed by such individuals. A more positive investor perception of the ability of exiting traders is likely to influence their subsequent capital allocation decisions, and also the resulting fees which hedge fund managers are able to command. This shift in investor perception forms the cornerstone of our hypotheses which are formalised in the following sections.

2.1 The Volcker Rule and the fee structure of new hedge funds

A complex and nonlinear fee structure is a distinctive feature of hedge funds' managerial remuneration. Gompers and Lerner (1999) and Deuskar et al. (2011b) outline three competing theories explaining funds' initial fee structure: the signaling, the implicit incentive and the startup cost theories.

The signaling theory adopts an adverse selection setting in which fund managers know their own inherent ability but investors do not. High-ability managers will attempt to signal their type by accepting riskier pay packages, i.e. higher pay-for-performance sensitivities and lower base compensation. The pay-for-performance sensitivity increases as the difference in abilities increases. Once the high-ability manager's type is revealed by performance, they desire more insurance, receiving a higher fixed and less variable component in their compensation.

The implicit incentive theory assumes investors and fund managers both have the same initial information about managers' abilities, but investors cannot observe the managerial effort level chosen, which creates a moral hazard problem. As fund returns correlate positively with effort, managers have an incentive to increase effort following their initial fund launch even in the absence of explicit incentive fees. The enhanced returns generated leads investors to believe that a manager possesses superior trading ability. Once a manager becomes well-established, higher explicit incentive fees are needed to induce effort.

The startup cost theory suggests that the manager of a new hedge fund charges both higher

mandatory for those wishing to continue trading.

¹⁸The Economist. Investment Banking: Rebooting. Oct 29, 2016.

¹⁹The Economist. Goldman Sachs: Too Squid To Fail? October 27, 2016.

management fees and higher incentive fees in order to recuperate the nontrivial startup cost of market entry. In our case, traders who leave LCFIs and establish a fund encounter startup costs both before and after the Volcker Rule. However, as the perception by investors of the trading ability of the average new fund manager in these two periods is different, this leads leading to potential differences in the funds' compensation structures.

Specifically, as external perceptions of the trading ability of individuals leaving LCFIs before the Volcker Rule may be unfavourable, these ex-bankers may adopt alternative strategies to convince external investors of their ability. One such mechanism relates to specifying a remuneration structure which involves higher incentive, lower management fees and is more likely to incorporate a high-water mark (Agarwal and Ray, 2011), in comparison to other new hedge funds launched at a similar time. Benefiting from the regulation induced change of investor perceptions, traders who leave LCFIs after the Volcker Rule may now be more inclined to charge higher management fees, lower incentive fees, and use the high-water mark less often. On average, these managers are perceived by investors as more skillful, hence there is less need to convey inherent trading and managerial ability through their choice of fee structure. This Rule induced change in the composition of the talent pool of hedge fund managers informs our hypothesis on the fee structure of new hedge funds.

H1: Relative to other new hedge funds established within the same time period, hedge funds launched by ex-bankers:

- (a) charge higher incentive and lower management fees, and more often use a high-water mark, in the period before the Volcker Rule;*
- (b) charge lower incentive and higher management fees, and less often use a high-water mark, in the period following the Volcker Rule.*

We test hypothesis H1 using the following regression models for fee structures:

$$Fee^i = \beta_0 + \beta_1 US\ spin^i + \beta_2 Phase^i + \beta_3 US\ spin^i \times Phase^i + \delta Controls^i + \varepsilon^i \quad (1)$$

$$HWM^i = \begin{cases} 1, & \text{if } HWM_{L^*}^i > 0, \text{ hedge fund uses the high-watermark;} \\ 0, & \text{otherwise.} \end{cases} \quad (2)$$

$$HWM_{L^*}^i = \beta_0 + \beta_1 US\ spin^i + \beta_2 Phase^i + \beta_3 US\ spin^i \times Phase^i + \delta Controls^i + \eta^i \quad (3)$$

where Fee denotes either the management fee ($MgtFee$), or incentive fee ($IncFee$), a fund i charges. We use a logit regression for the high-water mark provision. HWM^i equals 1 if a high-water mark provision is present for fund i . $HWM_{L^*}^i$ is a latent variable that depends on a set of explanatory variables. The error term η^i follows a logistical distribution.

The key variable of interest is $US\ spin$, which equals 1 if a fund has at least one manager whose last employer immediately before launching the new fund is a US LCFI. We also use

an alternative measure, *US years*, that denotes the number of years the ex-banker(s) worked in a US LCFI immediately prior to starting a hedge fund. We control for general manager experience and any other connections to LCFIs which do not immediately precede a new hedge fund's launch, and employ a variable, *US experience*, that equals 1 if a fund has at least one manager who has any prior work experience in a US LCFI. The US-based LCFIs are the eight US banks in the list of Systemically Important Financial Institutions (SIFI) namely: the Bank of America Corporation, JP Morgan Chase & Co., Citigroup Inc., Wells Fargo & Company, Goldman Sachs Group, Morgan Stanley, Bank of New York Mellon Corporation, and State Street Corporation (Financial Stability Board, 2011). Our reasons for focusing exclusively on traders who leave these SIFIs are as follows. First, according to Paul Volcker himself, the Volcker Rule will only affect banks that are involved in highly-speculative trading, particularly, those banks deemed too-big-to-fail.²⁰ Additionally, the proprietary trading business appears very concentrated within LCFIs. In 2009 the top six bank holding companies, including JPMorgan Chase, Goldman Sachs, Bank of America, Morgan Stanley, Citigroup and Wells Fargo, earned an aggregate of \$59.7 billion from trading, accounting for 92.8% of the industry trading revenue (986 banks).²¹

We recognise that there may also be other potential time varying changes in performance or external perceptions relating to managers leaving LCFIs, which are not directly related to the Volcker Rule's enactment. To control for these wider environmental effects, we include the following similarly computed variables reflecting traders' experience in working for non-US LCFIs: *NonUS spin*, *NonUS years*, and *NonUS experience*. Since non-US institutions are not targeted by the Volcker Rule, the Rule does not directly effect trader's decision to leave these institutions. The non-US LCFIs include: HSBC Bank plc, UBS Group AG, Deutsche Bank AG, Credit Suisse Group AG, BNP Paribas S.A., Barclays plc, Banco Santander S.A., Société Générale S.A., Standard Chartered PLC, The Royal Bank of Scotland, and Crédit Agricole S.A. These banks are all headquartered outside the US and so are not subject to Volcker Rule provisions.

To identify the effect of the Volcker Rule on newly established hedge funds, we use a vector *Phase* consisting of two dummy variables: *Phase1* and *Phase2*, capturing the implementation and compliance periods of the Volcker Rule, respectively. *Phase1* equals 1 for funds launched between July 2011 to March 2014, and zero otherwise. *Phase2* equals 1 for funds launched between April 2014 to March 2016, and zero otherwise. We further control for other fund characteristics, including dummy variables for funds with at least one female manager, team managed funds, and fund managers with experience in investment management, financial services, research, non-financial industry, or government. We present the complete list of variables in Table 1.

²⁰Volcker made this statement when he was Chairman of President Obama's Economic Advisory Board.

²¹Robert Lenzner. Six Giant Banks Made \$51 Billion Last Year; The Other 980 Lost Money. *Forbes*, June 3, 2010.

Our analysis predicts β_1 to be negative and β_3 to be positive for the management fee specification of Equation (1), indicating that hedge funds launched by former bankers charge lower management fees before, and higher management fees after, the Volcker Rule. In contrast, we expect β_1 to be positive and β_3 to be negative for the incentive fees and the high-water mark provision specifications, respectively. This indicates that ex-banker funds charge higher incentive fees and are more likely to use the high-water mark provision before the Volcker Rule, while they set lower incentive fees and are less likely to use the high-water mark provision subsequently.

2.2 The Volcker Rule and flows to new hedge funds

In addition to hosting active and profitable proprietary trading desks, before the Volcker Rule, LCFIs also own and sponsor hedge funds that provide asset management services to their clients. When a trader leaves an LCFI to launch their own hedge fund, investors face a choice: to follow the trader and relocate capital in these newly established funds, to remain loyal to the LCFI-owned fund, or to move capital to alternative funds. While the latter option cannot be ruled out, it may be a sub-optimal strategy *a priori* given the strong informational asymmetries and high costs incurred in searching for suitable alternative funds. Our previous discussion, together with anecdotal evidence suggests that before the Volcker Rule, traders recording inferior trading performance are those more likely to exit or be dismissed by LCFIs, with such institutions attempting to retain their best performers. Both these factors reinforce the general perceptions that existing LCFI investors would be more likely to remain with their in-house managed funds rather than follow a departing trader. These observations also enhance the general perception prevailing before the Volcker Rule that ex-bankers who start their own funds have less average trading ability than those who remain with LCFIs. Such considerations lead to the expectation that before the Volcker Rule, hedge funds launched by former bankers will receive reduced capital flows when compared to other newly established hedge funds.

Implementation of the Volcker Rule, however, changes external perceptions of the average ability of the overall pool of traders who leave LCFIs, making ex-banker funds more attractive to all investors. Importantly, as the Rule prohibits LCFIs from owning funds in-house, investors no longer retain the option of remaining with LCFI-owned funds and must relocate their investment capital. Given the aforementioned high search costs characterising the industry, these investors are now more likely to follow the exiting trader than they were prior to the Rule. Consequently, we expect new funds launched by former bankers after the Rule to receive higher flows in the first year after their fund's origination. The above analysis suggests:

H2: Relative to other new hedge funds established within the same time period, hedge funds launched by former LCFI bankers receive:

- (a) lower flows if launched before the Volcker Rule;
- (b) higher flows if launched after the Volcker Rule.

The duration of any discernible funding flow effect is also important. If funds launched by ex-bankers prove to be successful, the flow effect should be evident long-term with enhanced flows persisting beyond the fund’s first year. If there is no inherent difference in managerial ability or subsequent fund performance, this initial positive effect on flows is likely to be detectable only during the first year after the fund’s launch, when the fund is best positioned to benefit from positive reputational considerations and also to attract investment from previous clients of the manager’s former LCFI employer.

We test hypothesis H2 using the following regression specification:

$$\overline{Flow}_t^i = \beta_0 + \beta_1 US\ spin^i + \beta_2 Phase^i + \beta_3 US\ spin^i \times Phase^i + \delta Controls_t^i + \varepsilon_t^i \quad (4)$$

where \overline{Flow}_t^i is the average annual flow for fund i in year t . We regress the first year flow and flows in subsequent years (second to third year and second to the fifth year) separately to differentiate between short-term and long-term effects on flows. The monthly flows for hedge fund i in month t are measured using Equation (5); AUM_t^i denotes the assets under management of fund i at the end of month t , and Ret_t^i is the reported return for fund i during month t .

$$Flow_t^i = \frac{AUM_t^i - AUM_{t-1}^i(1 + Ret_t^i)}{AUM_{t-1}^i} \quad (5)$$

In choosing the remaining control variables, we closely follow Ding et al. (2008) and Kolokolova and Mattes (2018) and include the following: HWM^i equals 1 if the high-water mark provision is present for fund i , and 0 otherwise; $MgtFee^i$ is the management fee fund i charges; $IncFee^i$ is the incentive fee fund i charges; $Redemption^i$ is fund i ’s redemption period (measured in months); $Subscription^i$ is fund i ’s subscription period (measured in months); $LockUp^i$ is fund i ’s lockup period (measured in months); $Leverage^i$ equals 1 if fund i uses leverage, and 0 otherwise. To capture more generally the time-varying effects of other macro and environmental factors that potentially affect hedge fund flows in a systematic way, we include the variable $StyleFlow_t^i$ which is the average flow into hedge funds in the same style category as fund i . To measure flows in the first year, we control for the hedge fund dollar assets at the beginning of the first year (AUM^i). For flows in later years, we control for the average return of a hedge fund over the previous year (Ret_{t-1}^i), the standard deviation of monthly returns during the past year (STD_{t-1}^i), the hedge fund dollar assets at the end the past year (AUM_{t-1}^i), and the age of a hedge fund at the end of the past year (Age_{t-1}^i). We define the other variables included in Equation (1) in Section 2.1.

We expect β_1 to be negative and β_3 to be positive when we use first year flows in Equation (4), indicating that hedge funds launched by former bankers before (after) the Volcker Rule receive lower (higher) flows in their first year. If hedge funds launched by ex-bankers are indeed

managed by more skillful traders after the Volcker Rule, our expectation is for β_3 in Equation (4) will be positive when we use flows from the second year to fifth year, indicating that those funds also receive higher flows over a longer time period. We capture the overall effect of the Volcker Rule on flows to new hedge funds in β_2 . Previous literature suggests that this effect is likely to be negative, due to both increased uncertainty and a decline in overall bank investment in hedge funds (Bowe et al., 2019).

2.3 The Volcker Rule and the performance and risk of new hedge funds

This section analyses whether new funds launched by former bankers reveal any differences in their actual performance and risk, which may serve to justify any differences in their fee structure and flows. If the proportion of low performing traders in the pool of ex-bankers is higher before, and decreases subsequent to the Volcker Rule, hedge funds launched by ex-bankers should report lower returns in comparison to other new hedge funds if they are launched before, and enhanced returns if they are established after the Rule. This leads to the following hypothesis:

H3: Relative to other new hedge funds established during the same period, hedge funds launched by ex-bankers report:

- (a) lower performance if launched before the Volcker Rule;
- (b) higher performance if launched after the Volcker Rule.

The regression model we estimate to test hypothesis H3 is as follows:

$$Performance^i = \beta_0 + \beta_1 US\ spin^i + \beta_2 Phase^i + \beta_3 US\ spin^i \times Phase^i + \delta Controls^i + \varepsilon^i \quad (6)$$

where $Performance^i$ denotes either the alpha (*alpha*) relative to the Fung and Hsieh (2001) seven-factor model, or the manipulation-proof performance measure (*MPPM*) of Goetzmann et al. (2007), of fund i . Following Kolokolova (2011), we calculate fund performance using both post-fee reported returns and pre-fee returns to test whether managers generate higher returns but collect the surplus in their fees.

The abnormal performance of hedge fund i (*alpha* ^{i}) is measured using Equation (7) and the first 36 observations for each fund. Here Ret_t^i is hedge fund i 's return in month t . $F_{k,t}$ are the seven Fung and Hsieh (2001) factors which include: two equity-oriented risk factors (the Standard & Poors (S&P) 500 index total return (*MKT*) and the difference between the Russell 2000 index total return and the S&P 500 total return (*SMB*)), two bond-oriented risk factors (the change in the 10-year Treasury constant maturity yield (*TERM*) and the change

in Moody's Baa yield over the 10-year Treasury constant maturity yield (*CREDIT*), and three trend-following momentum risk factors (*PTFSBD* (bond), *PTFSFX* (currency) and *PTFSCOM* (commodity)).²²

$$Ret_t^i = \alpha^i + \sum_{k=1}^7 \beta_k F_{k,t} + \varepsilon_t^i \quad (7)$$

Following Goetzmann et al. (2007), we calculate the manipulation-free performance measure using Equation (8), where T is the total number of observations used for each fund, Ret_{ft} is the risk-free rate, and the curvature coefficient ρ is set equal to 3.

$$MPPM^i = \frac{1}{12(1-\rho)} \ln \left[\frac{1}{T} \sum_{t=1}^T \left(\frac{1 + Ret_t^i}{1 + r_{ft}} \right)^{1-\rho} \right] \quad (8)$$

In Equation (6), we also control for fund size (*AUM*), management and incentive fees (*MgtFee* and *IncFee*), the use of HWM and leverage (*HWM* and *Leverage*), and share restrictions (*Redemption*, *Subscription*, and *LockUp*), which are important determinants of hedge fund performance (Fung et al., 2008; Kolokolova, 2012). We define the other variables for Equation (1) in Section 2.1. The key variables of interest are β_1 and β_3 . If new funds launched by former bankers exhibit lower performance before, and higher performance after the Volcker Rule, as H3 maintains, then β_1 should be negative and β_3 positive. Insignificant coefficients would indicate that there is no discernible difference in performance between ex-bankers' funds and funds launched by managers lacking this prior work experience.

In terms of hedge fund risk profiles, Kouwenberg and Ziemba (2007) find that higher incentive fees lead to greater risk taking by hedge fund managers. Our previous analysis suggests that traders leaving LCFIs before the Volcker Rule charge higher incentive fees and use the high-water mark more often to signal their ability, while subsequent to the Volcker Rule, former LCFI traders have high management fees, low incentive fees, and are less likely to use a high-water mark. In line with this change in fee structure, we expect traders to take lower risks and their funds to exhibit a lower liquidation probability after the Volcker Rule in comparison to other new funds. This suggests our final hypothesis:

H4: Relative to other new hedge funds established during the same period, hedge funds launched by ex-bankers exhibit:

- (a) *higher risk and liquidation probability, if launched before the Volcker Rule;*
- (b) *lower risk and liquidation probability, if launched after the Volcker Rule.*

²²These factors may be downloaded from <http://faculty.fuqua.duke.edu/~dah7/DataLibrary/TF-FAC.xls>.

We test hypothesis H4 using the following regression models:

$$Risk^i = \beta_0 + \beta_1 US\ spin^i + \beta_2 Phase^i + \beta_3 US\ spin^i \times Phase^i + \delta Controls^i + \varepsilon^i \quad (9)$$

$$Liquidation^i = \begin{cases} 1, & \text{if } Liquidation_{L^*}^i > 0 \text{ hedge fund is liquidated within the first 5 years,} \\ 0, & \text{otherwise.} \end{cases}$$

$$Liquidation_{L^*}^i = \beta_0 + \beta_1 US\ spin^i + \beta_2 Phase^i + \beta_3 US\ spin^i \times Phase^i + \delta Controls^i + \eta^i \quad (10)$$

where $Risk^i$ denotes either the systematic risk (SRisk), or idiosyncratic risk (IRisk), of fund i . Following Bali et al. (2012), we measure both the SRisk and IRisk of a fund relative to the Fung and Hsieh (2001) factors. The idiosyncratic (or residual) risk of fund i is defined by the variance of the error term ε_t^i in Equation (6), denoted by $\sigma_{\varepsilon,i}^2$. The total risk of fund i is defined by the variance of Ret_t^i denoted by σ_i^2 . The systematic risk of fund i is defined as the difference between total and idiosyncratic variance, as given by Equation (11).

$$SRisk^i = \sigma_i^2 - \sigma_{\varepsilon,i}^2 \quad (11)$$

We use a logit regression to test the hedge fund liquidation hypothesis. $Liquidation^i$ equals 1 if a fund i is liquidated within the first 5 years following its launch. $Liquidation_{L^*}^i$ is a latent variable that depends on a set of explanatory variables. The error term η^i follows a logistical distribution. In Equation (9), we also control for fund size (AUM), management and incentive fees ($MgtFee$ and $IncFee$), the use of HWM and leverage (HWM and $Leverage$), and share restrictions ($Redemption$, $Subscription$, and $LockUp$) following Gao et al. (2017). For liquidation probability, we further control for the average return for fund i during the first 3 years (Ret^i), the standard deviation of monthly returns for fund i during the first 3 years (STD^i), the average flow for fund i over the first 3 years ($Flow^i$), and a dummy variable that equals 1 if fund i belongs to a multi-fund family ($Family^i$) which are all known important determinants of hedge fund liquidation probability (Kolokolova, 2011). We define any remaining variables for Equation (9) in Section 2.1.

Our analysis predicts β_1 to be positive and β_3 to be negative in both Equation (9) and (10), indicating that hedge funds launched by former bankers exhibit both a higher risk and liquidation probability as compared to other new hedge funds established before the Volcker Rule, and a lower risk and liquidation probability thereafter.

3 Data

We collect hedge fund data from the EurekaHedge database, which includes fund return history, together with information on both fund characteristics and management profiles. We

manually check the descriptions of managers in the database and use their LinkedIn profiles (when available) to collect their past work experience information. We restrict our sample to funds with at least 36 return observations that report their returns in U.S. dollars. We further select new hedge funds launched during the pre-Volcker, implementation, and compliance periods. The pre-Volcker period extends from July 2009 to June 2011, the implementation period is from July 2011 to March 2014, and the compliance period is from April 2014 to March 2016. The resulting sample includes 678, 804, and 442 new funds launched during these three periods, respectively, of which 35, 38, and 14 are launched by individuals whose previous employer is a US LCFIs.

Tables 2 and 3 report summary statistics for hedge fund monthly returns and flows. Panels A, B, and C report the statistics for new funds established during the pre-Volcker, implementation, and compliance periods, respectively. Funds launched by ex-bankers from US LCFIs reveal no important statistically discernible differences from other new funds in relation to their mean returns and flows in either of the periods. We highlight the fact that while funds launched by ex-bankers from non-US LCFIs generate a significantly lower average return of 0.291% during the pre-Volcker period, they exhibit significantly higher inflows of 9.185% per month as compared to 4.503% for all other new funds.

[Tables 2 and 3 in here]

In relation to other characteristics of hedge funds during the pre-Volcker period (Table 4), we note that funds launched by ex-bankers from US LCFIs reveal statistically significant differences in terms of their fee structure, share restrictions, and the use of leverage in comparison to other independent new funds. On average, the former funds charge higher incentive fees (18.422% versus 16.573%), appear more likely to use a high-water mark and leverage (0.971 and 0.657 versus 0.733 and 0.498, respectively), and evidence longer redemption, subscription, and lockup periods. In contrast, the characteristics of funds launched by ex-bankers from non-US LCFIs do not differ significantly from those of other new funds. During the compliance period, funds launched by ex-bankers from US LCFIs charge significantly higher management fees (1.712% versus 1.331%), but their average incentive fees and the fraction of funds using a HWM are not significantly different from those of other funds. Overall, the descriptive statistics indicate a shift in the fee structure of funds which is consistent with our hypothesis relating to investor perceptions of the trading ability of ex-LCFI banker fund managers. At the same time, a comparison of the return pattern across funds does not indicate any differences in the managerial abilities of former US LCFI employees in comparison to other fund managers.

[Table 4 in here]

4 Empirical results

4.1 Hedge fund fees and flows

Table 5 reports the estimation results from Equations (1) – (3), capturing the impact of the Volcker Rule on the fee structure of new hedge funds. Columns (1)-(3) and (7)-(9) employ a dummy variable to indicate if a fund manager is an ex-banker from a US LCFI, and columns (4)-(6) and (10)-(12) use our alternative measure of LCFI experience, the number of years that the manager works in a US LCFI. Columns (7)-(12) further control for a manager’s other work experience.

The positive and significant coefficients β_1 in columns (2), (3), and (5) indicate that hedge funds launched by ex-bankers from US LCFIs before the Volcker Rule charge significantly higher incentive fees and are more likely to use a high-water mark, supporting hypothesis $H1(a)$. Subsequent to the Volcker Rule, the reduction in management and incentive fees captured by β_2 is significant in all new hedge funds, with the effect being more pronounced during the compliance period. The corresponding coefficients increase in absolute value, from -0.058 to -0.166 and -1.170 to -2.241, for management and incentive fees, respectively, in columns (1) and (2). The overall reduction in management fees, however, is more than offset in funds launched by ex-bankers during the compliance period, as indicated by significantly positive β_3 of 0.270 in column (1) for the interaction term $US\ spin \times Phase2$. Furthermore, these funds are less likely to use a high-water mark as reflected in the significant coefficient for β_3 of -2.402 in column (3). These findings are consistent with our hypothesis $H1(b)$. The estimated coefficients of the interaction term $US\ spin \times Phase2$ modifying the incentive fee is statistically insignificant, suggesting there is no additional change in the incentive fees of new funds launched by ex-bankers after the Volcker Rule. Economically, these estimates suggest substantial monetary gains for the managers. As the average initial asset size of hedge funds launched during this period is around USD60 million, β_3 of 0.270 translates to an extra income for US LCFI ex-banker fund managers of about USD162,000 per year in excess of that received by managers of other new funds launched after the Volcker Rule. In comparison, funds launched by ex-bankers from non-US LCFIs reveal no significant differences in fee structures to other newly established funds, either before or after the Volcker Rule.

Overall, our results indicate a change in the fee structure of funds launched by ex-bankers from US LCFIs following the Volcker Rule’s implementation. Consistent with our hypothesis $H1$, such funds charge higher management fees and are less likely to make use of a high-water mark. The results are robust when controlling for other manager-specific variables in columns (7) to (12) in Table 5.

[Table 5 in here]

Table 6 reports the estimation results for Equation (4) capturing the impact of the Volcker Rule on the investor flows to new hedge funds. Columns (1)-(3) report the results for the average flows during the first year, second to third years, and second to the fifth years, respectively. The coefficient of *US spin* (β_1) is negative and significant, taking a value of -3.746 in column (1). This suggests that news funds launched by ex-bankers from US LCFIs before the Volcker Rule attract fewer flows in their first year, supporting hypothesis *H2(a)*. First-year flows to new hedge funds decrease significantly after the Volcker Rule, as indicated by the significant negative coefficients on *Phase1* and *Phase2* in the first column. The corresponding coefficients of -1.166 and -1.347, both significant at the 1% level, capture the overall decline in investor confidence in the hedge fund industry. In contrast to this overall reduction in fund flows, new funds launched after the Volcker Rule by former US LCFI bankers receive enhanced flows in their first year of operation, and this pattern is more pronounced during the compliance period. The corresponding loadings β_2 on the interaction term *US spin* \times *Phase1* and *US spin* \times *Phase2* of 2.780 and 7.456, respectively, both significant at the 1% level, more than offset the average negative effect. By contrast, the insignificant coefficients in columns (2) and (3) indicate that there are no significant differences in the flows to former US LCFI banker managed funds evident from the second year onward. Results using *LCFI_years* in columns (4)-(6) and controlling for other manager specific variables in columns (7) to (12) remain qualitatively unchanged.

In summary, new funds established after the Volcker Rule by ex-bankers from US LCFIs receive higher flows in their first year, suggesting they either benefit from the fund managers' reputation and/or take their former banking clients with them when starting an independent fund. However, this effect is short-term, with no significant differences in flows being discernible beyond the first year of new fund operations.

[Table 6 in here]

4.2 Hedge fund performance and risk

The results in Table 7 from estimating Equation (6) indicate no difference in performance between funds launched by ex-bankers and other funds, either before or after the Volcker Rule. The estimated coefficients β_1 on *LCFI* and β_3 on *LCFI* \times *Phase* are never statistically significant. On the basis of their alpha or MPPM computed using post-fee or pre-fee returns, funds launched by ex-bankers from US LCFIs perform no differently to other new funds regardless of whether or not we control for previous managerial work experience and other fund-specific factors. The results in Columns (9) to (16) further demonstrate that neither immediate (or indeed any former) trading experience in non-US LCFIs, nor prior experience in US LCFIs on the part of the fund managers contribute to generating measurable differences in fund performance.

Also noteworthy in in Table 7 is the inferior performance of hedge funds launched during the compliance period, as manifest in the highly significant negative β_2 coefficients on *Phase2* evident in almost all the regressions. Investors appear to be cognisant of this phenomena with Table 5 indicating that lower fees are paid to fund managers during this period.

[Table 7 in here]

Table 8 reports the estimation results for Equation (9), capturing the impact of Volcker Rule implementation on new hedge fund risk-taking and liquidation probability. Before the Volcker Rule, funds launched by ex-bankers exhibit lower systematic risk as compared to other new funds (neagtive and significant β_1 in Columns (1), (4), (7) and (10)). Subsequent to the Volcker Rule, all new funds launched during both the implementation and compliance period exhibit lower idiosyncratic risk (negative and highly significant β_2 on both *Phase1* and *Phase2* in columns (2), (5), (8), and (11)). Hedge funds established during the Rule’s compliance period also reveal a lower probability of liquidation (significantly negative coefficient β_3 on *Phase2* in columns (3), (6), (9), and (12)), indicating an overall movement of new funds into less risky strategies. Such a trend towards lower risk is consistent with the inferior fund performance documented in Table 7 as well as the findings in Bowe et al. (2019) which reveal funds move into more liquid investments during the post-Volcker period.

Finally, we find no consistent evidence of significant changes in either risk or liquidation probabilities of funds launched by ex-bankers after the Volcker Rule, with the coefficient estimates of β_3 being statistically insignificant in the majority of cases. This suggests that that former bankers leaving US LCFIs before the Volcker Rule do not inherently differ from those that left subsequently in terms of their risk-taking behaviour.

[Table 8 in here]

5 Robustness: Propensity score matching

To control for other possible (unobserved) differences between funds launched by ex-bankers and other managers this section employs propensity score matching techniques. We examine fees, flows, performance and risk of funds launched by ex-bankers in comparison with a matched control sample of other new funds launched during the same period. We implement the matching within each hedge fund investment style separately using new funds launched during the pre-Volcker, implementation and compliance periods, respectively.

The first-stage probit regression relates the probability of being launched by an ex-banker to a set of explanatory variables, that are observed at the time of a new fund launch. These

include the fund's initial size, redemption and subscription periods, indicators of whether the fund has a female manager, is managed by a team, and whether managers have previous work experience in investment management, financial services, research, a non-financial industry, and/or government. Funds launched by ex-bankers and other new funds are then matched using one-to-one matching without replacement based on the estimated propensity score. We retain only those matches for which the difference in the score is smaller than 0.05 resulting in the total of 76 matched pairs. Table 9 reveals that the resulting treated and control groups are indistinguishable in terms of all the characteristics used as the basis of matching.

Finally, in Table 10 we compare the differences across the two groups of funds in terms of their management and incentive fees, the use of a high-water mark, the average fund flows in their first, second, and third year, their alpha and MPPM during the first 3 years, and their systematic and idiosyncratic risk. The results indicate that during the pre-Volcker period, funds launched by ex-bankers from US LCFIs charge significantly higher incentive fees and are more likely to use a high-water mark in comparison to other new funds. The corresponding differences are 3.333 and 0.161, both significant at the 5% level. During the implementation period, funds launched by ex-bankers exhibit lower idiosyncratic risk. During the compliance period of the Volcker Rule, funds launched by ex-bankers charge significantly higher management fees (1.725% versus 1.100%), with the difference being significant at the 1% level. There is no evidence, however, of any difference in performance between these two group of funds.

Overall, the matching results support our central conclusion, namely that there is a significant change in the fee structure of funds launched by ex-bankers from US LCFIs after the Volcker Rule, which cannot be justified by their realized performance.

[Table 9 and 10 in here]

6 Conclusion

Investors' perceptions of managerial human capital in fund management plays an important role in the industry. In this paper, we study the impact of the Volcker Rule on the supply of human capital to the hedge fund industry and subsequent managerial remuneration and fund performance. We analyze new hedge funds launched by ex-bankers who leave US LCFIs following the Volcker Rule's ban on proprietary trading by these banking entities. Our focus is upon new funds' fee structure, capital flows, performance, risk-taking, and their probability of liquidation, and how these change after the Volcker Rule. Our key findings show that while there appears to be a difference in how investors perceive funds launched by former bankers from US LCFIs before and after the Volcker Rule, there is no discernible difference in fund performance.

We find that funds launched by ex-LCFI bankers before the Volcker Rule receive significantly lower capital flows in their first year in comparison to other new hedge funds launched during the same period. The ex-banker funds also charge significantly higher incentive fees and are more likely to use a high-water mark in an attempt to signal their skills, supporting the signaling theory of Gompers and Lerner (1999) and Deuskar et al. (2011b). These funds have lower systematic risk, but exhibit no differences in performance, idiosyncratic risk, and liquidation probability compared to funds launched by managers from outside the banking sector.

After the Volcker Rule, when all proprietary traders (including stars) are mandated to leave US LCFIs, funds launched by ex-bankers receive significantly higher flows in the first year. These funds switch to a fee structure characterised by higher management fees and are less likely to use a high-water mark. At the same time, no significant differences are evident in either long-term flows, performance, risk profile, or liquidation probability between ex-banker funds and other new funds.

Our paper highlights the importance of investor perceptions of acquired signals arising from the employment history of hedge fund managers for managerial remuneration. Following the Volcker Rule, ex-bankers from US LCFIs who launch new hedge funds earn an additional USD162,000 per fund, on average, during the fund's first year, largely attributable to receiving higher management fees, without rewarding their investors with higher returns during either this period or indeed subsequent years.

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Table 1: Variable Description

This table describes the variables used in this paper in alphabetical order.

Variables	Description
Age	The age of a hedge fund.
alpha	The abnormal performance of a hedge fund.
AUM	The asset under management of a hedge fund.
CREEDIT	The change in Moody's Baa yield over the 10-year Treasury constant maturity yield.
Family	A dummy variable equals 1 if a hedge fund belongs to a multi-fund family.
Female	A dummy variable equals 1 if a hedge fund has a female manager.
Financial Service	A dummy variable equals 1 if a fund has at least one manager who has financial service work experience.
Flow	The flows to a hedge fund derived by Equation (5).
<i>Flow</i>	The average annual flow for a hedge fund.
Government	A dummy variable equals 1 if a fund has at least one manager who has work experience in a government.
HWM	A dummy variable equals 1 if a high-water mark is present.
IncFee	The incentive fee a hedge fund charges.
Industry	A dummy variable equals 1 if a fund has at least one manager who has work experience in non-financial industries.
Investment Management	A dummy variable equals 1 if a fund has at least one manager who has investment management work experience.
IRisk	The idiosyncratic risk of a hedge fund derived by equation (??).
Leverage	A dummy variable equals 1 if a hedge fund uses leverage, and 0 otherwise.
Liquidation	A dummy variable equals 1 if a hedge fund liquidates within 5 years, and 0 otherwise.
LockUp	A hedge fund's lockup period.
MgtFee	The management fee a hedge fund charges.
MKT	The Standard & Poors (S&P) 500 index total return.
MPPM	The manipulation-proof performance measure of a hedge fund.
NonUS experience	A dummy variable equals 1 if a fund has at least one manager who has work experience in a non-US LCFI.
NonUS spin	A dummy variable equals 1 if a fund has at least one manager whose last employer is a non-US LCFI before starting the new fund.
NonUS years	A dummy variable equals the number of years worked in a non-US LCFI for spin-off managers.
Phase1	A dummy variable equals 1 from July 2011 to March 2014, and 0 otherwise.
Phase2	A dummy variable equals 1 from April 2014 to March 2016, and 0 otherwise.
PTFSBD	The bond trend-following factor in Fung and Hsieh, 2001.
PTFSCOM	The currency trend-following factor in Fung and Hsieh, 2001.
PTFSFX	The commodity trend-following factor in Fung and Hsieh, 2001.
Redemption	A hedge fund's redemption period.
Research	A dummy variable equals 1 if a fund has at least one manager who has research related work experience.
Ret	The reported return for a hedge fund.
SMB	The difference between the Russell 2000 index total return and the S&P 500 total return.
SRisk	The systematic risk of a hedge fund derived by equation (11).
STD	The standard deviation of monthly returns for a hedge fund.
StyleFlow	The average flow into hedge funds from the same style category.
Subscription	A hedge fund's subscription period.
Team	A dummy variable equals 1 if a hedge fund is managed by a team.
TERM	The change in the 10-year Treasury constant maturity yield.
US experience	A dummy variable equals 1 if a fund has at least one manager who has work experience in a US LCFI.
US spin	A dummy variable equals 1 if a fund has at least one manager whose last employer is a US LCFI before starting the new fund.
US years	A dummy variable equals the number of years worked in a US LCFI for spin-off managers.

Table 2: Summary statistics for new hedge funds' returns

This table reports the descriptive statistics of the first 36 monthly returns in percent of new funds launched between July 2009 and March 2016. The 'Pre-Volcker period' is from July 2009 to June 2011, the 'Implementation period' is from July 2011 to March 2014, and the 'Compliance period' is from April 2014 to March 2016. US (Non-US) spin includes funds that have at least one manager whose last employer is a US (Non-US) LCFI before starting the new fund, and Other funds include other new independent funds. The t-tests in mean difference between US (Non-US) spin funds and Other funds are conducted. *, **, and *** denote significance at the 10%, 5%, and 1% levels respectively.

Category	Mean	Median	SD	Skewness	Kurtosis	Min.	Max.	N
Panel A: Pre-Volcker period								
US spin	0.839	0.865	3.000	0.238	5.454	-6.318	9.076	35
Non-US spin	0.291**	0.024	4.295	0.090	5.296	-9.160	11.276	30
Other funds	0.739	0.747	3.620	-0.137	4.605	-8.093	9.548	615
Total	0.726	0.723	3.620	-0.110	4.678	-8.054	9.600	678
Panel B: Implementation period								
US spin	0.780	0.826	2.539	-0.049	4.542	-5.269	6.758	38
Non-US spin	0.740	0.681	2.069	-0.019	4.383	-4.192	5.700	26
Other funds	0.731	0.648	3.521	0.021	4.278	-7.120	10.128	742
Total	0.732	0.656	3.429	0.014	4.294	-6.945	9.827	804
Panel C: Compliance period								
US spin	0.987	0.958	3.098	-0.150	5.898	-7.136	8.016	14
Non-US spin	0.564	0.532	2.699	-0.047	4.571	-5.769	6.878	16
Other funds	0.702	0.580	3.361	0.019	4.530	-6.919	9.283	412
Total	0.706	0.590	3.328	0.011	4.575	-6.884	9.156	442

Table 3: Summary statistics of new hedge funds' flows

This table reports the descriptive statistics of the first 36 monthly flows in percent of new funds launched between July 2009 and March 2016. The 'Pre-Volcker period' is from July 2009 to June 2011, the 'Implementation period' is from July 2011 to March 2014, and the 'Compliance period' is from April 2014 to March 2016. US (Non-US) spin includes funds that have at least one manager whose last employer is a US (Non-US) LCFI before starting the new fund, and Other funds include other new independent funds. The t-tests in mean difference between US (Non-US) spin funds and Other funds are conducted. *, **, and *** denote significance at the 10%, 5%, and 1% levels respectively.

Category	Mean	Median	SD	Skewness	Kurtosis	Min.	Max.	N
Panel A: Pre-Volcker period								
US spin	4.035	0.163	22.104	2.013	12.677	-19.744	113.384	35
Non-US spin	9.185**	1.435	41.315	1.973	12.205	-28.172	219.698	30
Other funds	4.299	-0.084	23.270	1.765	11.473	-22.201	104.404	615
Total	4.503	-0.007	24.021	1.789	11.573	-22.368	109.905	678
Panel B: Implementation period								
US spin	4.650	1.018	16.461	2.010	11.885	-17.602	76.252	38
Non-US spin	5.017	0.708	22.089	2.083	14.986	-19.308	108.185	26
Other funds	4.965	0.335	24.674	2.033	12.798	-22.521	113.684	742
Total	4.924	0.378	24.083	2.027	12.795	-22.217	110.990	804
Panel C: Compliance period								
US spin	7.914	0.900	39.159	3.256	20.633	-20.255	213.840	14
Non-US spin	5.294	1.773	15.977	2.332	11.900	-11.375	76.818	16
Other funds	5.265	0.750	23.509	1.963	12.500	-20.402	111.583	412
Total	5.353	0.796	23.720	2.021	12.746	-20.030	113.550	442

Table 4: Summary statistics of new hedge funds' characteristics

This table reports the descriptive statistics of new funds launched between July 2009 and March 2016 including: management fee (*MgtFee* in percent), incentive fee (*IncFee* in percent), use of high-water mark (*HWM*), redemption period (in months), subscription period (in months), lock-up period (in months), use of leverage (*Leverage*), fund age (in years), assets under management at origination (*AuM_first* in million USD), and the percentage of funds with the life span more than 5 years (*Survival* in percent). The 'Pre-Volcker period' is from July 2009 to June 2011, the 'Implementation period' is from July 2011 to March 2014, and the 'Compliance period' is from April 2014 to March 2016. The t-tests in mean difference between US (Non-US) spin funds and Other funds are conducted. *, **, and *** denote significance at the 10%, 5%, and 1% levels respectively.

	MgtFee	IncFee	HWM	Redemption	Subscription	Lockup	Leverage	Age	AuM_first	Survival	N
Panel A: Pre-Volcker period											
US spin	1.608	18.422*	0.971***	1.717**	0.889**	4.441**	0.657**	6.498	45.114	0.314	35
Non-US spin	1.595	15.093	0.700	1.077	0.720	1.607	0.500	6.739	152.300	0.233	30
Other funds	1.491	16.573	0.733	1.148	0.706	2.254	0.498	6.724	96.420	0.285	615
Total	1.502	16.600	0.743	1.177	0.717	2.345	0.507	6.721	96.527	0.282	678
Panel B: Implementation period											
US spin	1.439	17.778**	0.921***	1.736***	0.822	1.676	0.697*	5.684	42.714	0.237*	38
Non-US spin	1.421	16.563	0.846	1.633	0.946**	3.500	0.692	5.599	25.231	0.231	26
Other funds	1.440	15.305	0.739	1.120	0.682	2.214	0.580	5.472	62.370	0.341	742
Total	1.438	15.448	0.750	1.165	0.696	2.234	0.589	5.488	60.240	0.332	804
Panel C: Compliance period											
US spin	1.712**	15.385	0.786	1.364	0.793*	5.615**	0.500	3.393**	32.214	0.214	14
Non-US spin	1.294	13.750	0.625*	1.025	0.650	2.375	0.786*	3.552	176.313	0.063	16
Other funds	1.331	14.283	0.769	1.028	0.609	2.204	0.605	3.727	103.029	0.160	412
Total	1.341	14.297	0.765	1.039	0.617	2.313	0.608	3.710	103.439	0.158	442

Table 5: The fee structure of hedge funds launched before and after the Volcker Rule

This table reports the fee structure of new funds launched between July 2009 and March 2016. $MgtFee$ is the management fee a fund charges, $IncFee$ is the incentive fee a fund charges, and HWM equals 1 if a high-water mark provision is present. US ($NonUS$) $spin$ equals 1 if a fund has a manager whose last employer is a US (non-US) LCFI, and $LCFI\ years$ equals the number of years in a US LCFI for ex-bankers. US ($NonUS$) $experience$ equals 1 if a fund has a manager who previously worked in a US (non-US) LCFI. $Phase1$ and $Phase2$ equal one for funds launched between July 2011 to March 2014 and April 2014 to March 2016, respectively. Standard errors are reported in brackets. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

$LCFI =$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	MgtFee	US_{spin} IncFee	HWM	MgtFee	$LCFI_{years}$ IncFee	HWM	MgtFee	US_{spin} IncFee	HWM	MgtFee	$LCFI_{years}$ IncFee	HWM
LCFI (β_1)	0.112 (0.070)	1.918*** (0.594)	2.527** (1.019)	0.009 (0.009)	0.209** (0.088)	0.315 (0.205)	0.123* (0.074)	2.960*** (0.706)	2.714*** (1.021)	0.010 (0.009)	0.317*** (0.098)	0.339* (0.206)
Phase1 (β_2)	-0.058* (0.032)	-1.170*** (0.424)	0.054 (0.121)	-0.061* (0.032)	-1.166*** (0.419)	0.052 (0.122)	-0.051 (0.033)	-1.206*** (0.431)	0.041 (0.125)	-0.055* (0.033)	-1.218*** (0.427)	0.036 (0.125)
Phase2 (β_2)	-0.166*** (0.039)	-2.241*** (0.521)	0.175 (0.144)	-0.167*** (0.039)	-2.283*** (0.517)	0.158 (0.144)	-0.154*** (0.040)	-2.181*** (0.524)	0.260* (0.150)	-0.155*** (0.039)	-2.235*** (0.520)	0.240 (0.150)
LCFI-Phase1 (β_3)	-0.111 (0.103)	0.526 (0.878)	-1.124 (1.186)	-0.008 (0.012)	0.016 (0.137)	-0.182 (0.220)	-0.115 (0.104)	0.588 (0.947)	-1.087 (1.185)	-0.009 (0.012)	0.027 (0.145)	-0.180 (0.220)
LCFI-Phase2 (β_3)	0.270** (0.121)	-0.796 (2.124)	-2.402** (1.215)	0.057*** (0.021)	0.069 (0.308)	-0.271 (0.236)	0.276** (0.118)	-0.791 (2.172)	-2.312* (1.260)	0.059*** (0.020)	0.115 (0.298)	-0.241 (0.241)
NonUS_spin							0.144 (0.108)	-0.672 (1.473)	-0.402 (0.432)	0.145 (0.108)	-0.682 (1.477)	-0.415 (0.429)
NonUS_spin-Phase1							-0.127 (0.150)	2.223 (1.905)	0.901 (0.698)	-0.129 (0.150)	2.270 (1.912)	0.906 (0.694)
NonUS_spin-Phase2							-0.141 (0.190)	0.767 (2.613)	-0.562 (0.673)	-0.146 (0.190)	0.707 (2.612)	-0.568 (0.669)
US_experience							-0.012 (0.032)	-0.853** (0.424)	-0.185 (0.124)	-0.007 (0.031)	-0.718* (0.416)	-0.151 (0.124)
NonUS_experience							-0.044 (0.035)	0.039 (0.446)	0.353** (0.146)	-0.042 (0.035)	0.101 (0.449)	0.374** (0.146)
Female							0.016 (0.049)	-1.151 (0.712)	0.046 (0.207)	0.015 (0.049)	-1.209* (0.715)	0.036 (0.207)
Team							-0.003 (0.032)	-1.709*** (0.405)	-0.320*** (0.118)	-0.001 (0.032)	-1.674*** (0.405)	-0.308*** (0.118)
Investment Management							0.029 (0.046)	1.265* (0.649)	0.333* (0.185)	0.030 (0.046)	1.210* (0.653)	0.313* (0.183)
Financial Service							-0.070* (0.036)	-0.564 (0.482)	0.039 (0.036)	-0.071** (0.036)	-0.593 (0.482)	0.028 (0.143)
Research							-0.033 (0.054)	-0.141 (0.599)	-0.561*** (0.151)	-0.036 (0.054)	-0.165 (0.600)	-0.568*** (0.151)
Industry							0.032 (0.102)	1.479 (1.217)	0.281 (0.380)	0.032 (0.102)	1.516 (1.217)	0.281 (0.379)
Government							0.016 (0.070)	-0.955 (1.147)	0.047 (0.327)	0.013 (0.070)	-1.018 (1.150)	0.030 (0.328)
Constant	1.496*** (0.023)	16.504*** (0.313)	0.999*** (0.089)	1.499*** (0.023)	16.530*** (0.309)	1.014*** (0.089)	1.490*** (0.048)	16.359*** (0.688)	0.846*** (0.192)	1.491*** (0.048)	16.414*** (0.693)	0.865*** (0.192)
R-squared	0.013	0.015	0.011	0.013	0.014	0.007	0.017	0.038	0.027	0.016	0.035	0.023
Number of HFs	1,822	1,828	1,924	1,822	1,828	1,924	1,822	1,828	1,924	1,822	1,828	1,924

Table 6: Flows to hedge funds launched before and after the Volcker Rule

This table reports the flows to new funds launched between July 2009 and March 2016. *Flow* is the average annual flow for a fund in the first year, second to third or second to fifth years. *US (NonUS) spin* equals 1 if a fund has a manager whose last employer is a US (non-US) LCFI, and *LCFI years* equals the number of years in a US LCFI for ex-bankers. *US (NonUS) experience* equals 1 if a fund has a manager who previously worked in a US (non-US) LCFI. *Phase1* and *Phase2* equal one for funds launched between July 2011 to March 2014 and April 2014 to March 2016, respectively. Other hedge fund specific controls include: *Ret*, *STD*, *AUM*, *Age*, *HWM*, *MgtFee*, *IncFee*, *Leverage*, *Redemption*, *Subscription*, *LockUp*, and *StyleFlow*. Standard errors are reported in brackets. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

LCFI = Flow	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)		(11)		(12)	
	Year 1	Year 2-3	Year 1	Year 2-3	Year 2-5	Year 1	Year 2-3	Year 1	Year 2-3	Year 1	Year 2-3	Year 2-5	Year 1	Year 2-3	Year 1	Year 2-3	Year 2-5	Year 1	Year 2-3	Year 1	Year 2-3	Year 2-5	Year 1	Year 2-3
LCFI (β_1)	-3.746*** (0.157)	-0.054 (1.963)	-0.349 (2.168)	-0.404*** (0.022)	0.055 (0.272)	-0.010 (0.297)	-3.920*** (0.163)	0.438 (2.029)	-0.151 (2.241)	-0.342*** (0.023)	0.121 (0.280)	-0.016 (0.306)												
Phase1 (β_2)	-1.166*** (0.048)	-0.318 (0.603)	-0.280 (0.665)	-1.130*** (0.048)	-0.298 (0.599)	-0.274 (0.661)	-1.345*** (0.049)	-0.035 (0.618)	-0.034 (0.681)	-1.288*** (0.049)	-0.024 (0.613)	-0.045 (0.676)												
Phase2 (β_2)	-1.347*** (0.057)	-0.227 (0.712)	-0.376 (0.824)	-1.348*** (0.056)	-0.195 (0.708)	-0.359 (0.820)	-1.462*** (0.058)	0.025 (0.732)	-0.285 (0.845)	-1.445*** (0.058)	0.063 (0.728)	-0.265 (0.841)												
LCFIPhase1(β_3)	2.780*** (0.219)	0.533 (2.715)	0.785 (2.980)	0.366*** (0.029)	0.017 (0.356)	0.101 (0.389)	2.474*** (0.220)	0.490 (2.717)	0.930 (2.980)	0.281*** (0.029)	0.018 (0.358)	0.169 (0.391)												
LCFIPhase2 (β_3)	7.456*** (0.286)	4.259 (3.529)	3.127 (4.229)	1.680*** (0.052)	0.813 (0.645)	0.640 (0.799)	7.356*** (0.286)	4.275 (3.526)	3.265 (4.223)	1.650*** (0.052)	0.803 (0.644)	0.624 (0.798)												
NonUS_spin							-1.339*** (0.172)	5.162*** (2.137)	4.627** (2.366)	-1.328*** (0.172)	5.152*** (2.137)	4.612* (2.367)												
NonUS_spin-Phase1							2.696*** (0.244)	-4.621 (3.011)	-4.327 (3.334)	2.742*** (0.244)	-4.593 (3.011)	-4.295 (3.334)												
NonUS_spin-Phase2							1.970*** (0.271)	-5.024 (3.335)	-5.163 (3.927)	2.107*** (0.271)	-5.045 (3.334)	-5.169 (3.927)												
US_experience							0.442*** (0.050)	-0.934 (0.621)	-0.810 (0.697)	0.190*** (0.049)	-0.948 (0.612)	-0.827 (0.687)												
NonUS_experience							0.607*** (0.054)	0.429 (0.665)	0.388 (0.742)	0.575*** (0.054)	0.461 (0.667)	0.407 (0.744)												
Female							-1.402*** (0.081)	-0.844 (0.997)	-0.849 (1.108)	-1.343*** (0.081)	-0.849 (1.108)	-0.384 (1.108)												
Team							0.889*** (0.047)	0.463 (0.577)	0.079 (0.647)	0.865*** (0.047)	0.469 (0.578)	0.073 (0.647)												
Investment Management							1.162*** (0.072)	-1.338 (0.896)	-2.314** (1.006)	1.299*** (0.072)	-1.266 (1.012)	-2.298** (1.012)												
Financial Service							0.372*** (0.056)	-0.632 (0.691)	-0.826 (0.778)	0.414*** (0.056)	-0.625 (0.691)	-0.821 (0.777)												
Research							0.132** (0.067)	1.110 (0.841)	2.627*** (0.956)	0.135** (0.067)	1.104 (0.841)	2.624*** (0.955)												
Industry							-2.098*** (0.145)	-0.286 (1.819)	-0.306 (2.025)	-2.069*** (0.145)	-0.295 (1.820)	-0.332 (2.026)												
Government							1.782*** (0.119)	1.284 (1.463)	0.085 (1.626)	1.889*** (0.119)	1.282 (1.462)	0.092 (1.625)												
Constant	5.069*** (0.184)	8.267*** (1.395)	6.994*** (1.516)	5.125*** (0.184)	8.257*** (1.394)	6.993*** (1.515)	3.339*** (0.200)	8.983*** (1.602)	8.430*** (1.751)	3.376*** (0.200)	8.921*** (1.603)	8.433*** (1.753)												
R-squared	0.018	0.077	0.032	0.019	0.078	0.032	0.023	0.076	0.030	0.023	0.076	0.030												
Number of HFs	1,451	1,420	1,420	1,451	1,420	1,420	1,451	1,420	1,420	1,451	1,420	1,420												
Other HF specific controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes												

Table 7: The performance of hedge funds launched before and after the Volcker Rule

This table reports the performance of new funds launched between July 2009 and March 2016. α and $MPPM$ are the abnormal performance and the manipulation-proof performance measure of a hedge fund calculated based on pre-fee or post-fee returns. $US(NonUS)$ spin equals 1 if a fund has a manager whose last employer is a US (non-US) LCFI, and $LCFI\ years$ equals the number of years in a US LCFI for ex-bankers. $US(NonUS)$ experience equals 1 if a fund has a manager who previously worked in a US (non-US) LCFI. $Phase1$ and $Phase2$ equal one for funds launched between July 2011 to March 2014 and April 2014 to March 2016, respectively. Other hedge fund specific controls include: AUM , HWM , $MgtFee$, $IncFee$, $Leverage$, $Redemption$, $Subscription$, and $LockUp$. Standard errors are reported in brackets. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

$LCFI =$	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)		(11)		(12)		(13)		(14)		(15)		(16)								
	alpha	Post-fee	alpha	Pre-fee	alpha	MPPM	alpha	MPPM	alpha	MPPM	alpha	MPPM	alpha	MPPM	alpha	MPPM	alpha	MPPM	alpha	MPPM	alpha	MPPM	alpha	MPPM	alpha	MPPM	alpha	MPPM	Pre-fee	MPPM									
$LCFI(\beta_1)$	0.009 (0.151)	0.134 (1.543)	0.119 (0.138)	1.377 (1.536)	0.003 (0.019)	0.042 (0.190)	0.015 (0.018)	0.147 (0.222)	0.032 (0.154)	0.834 (1.622)	0.155 (0.144)	2.181 (1.605)	0.004 (0.019)	0.119 (0.204)	0.015 (0.019)	0.222 (0.234)																							
$Phase1(\beta_2)$	-0.052 (0.052)	-0.096 (0.567)	-0.034 (0.057)	0.655 (0.616)	-0.054 (0.051)	-0.101 (0.560)	-0.038 (0.056)	0.616 (0.609)	-0.064 (0.052)	-0.214 (0.553)	-0.042 (0.057)	0.492 (0.593)	-0.067 (0.051)	-0.226 (0.547)	-0.048 (0.056)	0.437 (0.585)																							
$Phase2(\beta_2)$	-0.374*** (0.055)	-1.593*** (0.585)	-0.373*** (0.063)	-0.953 (0.651)	-0.377*** (0.055)	-1.031 (0.582)	-0.381*** (0.063)	-1.031 (0.646)	-0.411*** (0.055)	-1.803*** (0.556)	-0.407*** (0.062)	-1.118* (0.599)	-0.415*** (0.054)	-1.829*** (0.552)	-0.416*** (0.062)	-1.210*** (0.594)																							
$LCFI-Phase1(\beta_3)$	0.004 (0.182)	1.036 (1.913)	-0.089 (0.171)	0.187 (1.915)	0.007 (0.022)	0.159 (0.231)	-0.003 (0.022)	0.092 (0.257)	0.015 (0.180)	0.805 (1.906)	-0.096 (0.171)	0.122 (1.909)	0.011 (0.022)	0.130 (0.238)	0.000 (0.022)	0.065 (0.262)																							
$LCFI-Phase2(\beta_3)$	0.218 (0.272)	3.408 (2.817)	0.181 (0.314)	2.531 (3.063)	0.075 (0.063)	0.943 (0.657)	0.092 (0.076)	1.028 (0.719)	0.212 (0.274)	2.887 (2.887)	0.165 (0.314)	2.226 (3.112)	0.076 (0.065)	0.948 (0.687)	0.091 (0.077)	1.034 (0.732)																							
NonUS.spin																																							
NonUS.spin:Phase1																																							
NonUS.spin:Phase2																																							
US.experience																																							
NonUS.experience																																							
Female																																							
Team																																							
Investment Management																																							
Financial Service																																							
Research																																							
Industry																																							
Government																																							
Constant	0.722*** (0.097)	4.233*** (1.178)	0.661*** (0.103)	3.671*** (1.236)	0.724*** (0.097)	4.252*** (1.177)	0.667*** (0.103)	3.723*** (1.233)	0.713*** (0.111)	3.476*** (1.245)	0.692 (0.118)	3.748*** (1.255)	0.714*** (0.112)	3.461*** (1.244)	0.715*** (0.118)	3.730*** (1.254)																							
R-squared	0.090	0.075	0.091	0.076	0.091	0.076	0.093	0.078	0.104	0.086	0.103	0.086	0.105	0.087	0.105																								
Number of HF's	1,420	1,277	1,348	1,350	1,420	1,277	1,348	1,350	1,420	1,277	1,348	1,350	1,420	1,277	1,348																								
Strategy fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes																								
Other HF specific controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes																								

Table 8: The risk and liquidation probability of hedge funds launched before and after the Volcker Rule

This table reports the risk and liquidation probability of new funds launched between July 2009 and March 2016. $SRisk$ and $IRisk$ are the systematic risk and idiosyncratic risk of a hedge fund. $Liquidation$ equals 1 if a fund is liquidated within 5 years. $US (NonUS) spin$ equals 1 if a fund has a manager whose last employer is a US (non-US) LCFI, and $LCFI\ years$ equals the number of years in a US LCFI for ex-bankers. $US (NonUS) experience$ equals 1 if a fund has a manager who previously worked in a US (non-US) LCFI. $Phase1$ and $Phase2$ equal one for funds launched between July 2011 to March 2014 and April 2014 to March 2016, respectively. Other hedge fund specific controls include: AUM , HWM , $MgtFee$, $IncFee$, $Leverage$, $Redemption$, $Subscription$, and $LockUp$. We further control for the liquidation probability following Kokolova (2011). Standard errors are reported in brackets. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

$LCFI =$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	SRisk	US_spin IRisk	Liquidation	SRisk	$LCFI_years$ IRisk	Liquidation	SRisk	US_spin IRisk	Liquidation	SRisk	$LCFI_years$ IRisk	Liquidation
LCFI (β_1)	-0.102 (0.369)	0.019* (0.011)	-0.202 (0.496)	-0.028 (0.043)	0.003** (0.001)	-0.133* (0.080)	-0.331 (0.434)	0.021* (0.011)	-0.289 (0.535)	-0.064 (0.053)	0.003** (0.001)	-0.155* (0.083)
Phase1 (β_2)	0.438* (0.263)	-0.482*** (0.005)	0.229 (0.140)	0.414 (0.260)	-0.482*** (0.004)	0.196 (0.139)	0.517** (0.262)	-0.482*** (0.005)	0.249* (0.145)	0.494* (0.259)	-0.482*** (0.005)	0.212 (0.143)
Phase2 (β_2)	0.126 (0.235)	-0.478*** (0.004)	-0.693*** (0.185)	0.113 (0.233)	-0.478*** (0.004)	-0.693*** (0.183)	0.113 (0.228)	-0.478*** (0.005)	-0.696*** (0.191)	0.099 (0.227)	-0.477*** (0.005)	-0.698*** (0.189)
LCFI:Phase1 (β_3)	-0.848* (0.504)	-0.015 (0.015)	-0.275 (0.700)	-0.045 (0.056)	-0.002 (0.002)	0.109 (0.099)	-0.741 (0.484)	-0.016 (0.016)	-0.262 (0.715)	-0.025 (0.059)	-0.002 (0.002)	0.123 (0.101)
LCFI:Phase2 (β_3)	-0.548 (0.872)	-0.020 (0.020)	0.870 (0.853)	-0.055 (0.252)	-0.005 (0.004)	0.177 (0.178)	-0.562 (0.887)	-0.021 (0.021)	0.830 (0.839)	-0.069 (0.257)	-0.005 (0.004)	0.160 (0.167)
NonUS:spin							1.095 (1.255)	-0.005 (0.013)	-0.297 (0.619)	1.100 (1.255)	-0.005 (0.013)	-0.295 (0.622)
NonUS:spin:Phase1							-2.391* (1.257)	0.012 (0.017)	-0.328 (0.850)	-2.409* (1.258)	0.012 (0.017)	-0.323 (0.853)
NonUS:spin:Phase2							-1.238 (1.419)	-0.005 (0.022)	-0.779 (1.219)	-1.222 (1.421)	-0.006 (0.022)	-0.802 (1.220)
US:experience							0.476 (0.401)	-0.001 (0.005)	0.135 (0.154)	0.449 (0.390)	-0.001 (0.004)	0.158 (0.151)
NonUS:experience							-0.174 (0.308)	-0.003 (0.005)	0.023 (0.163)	-0.191 (0.309)	-0.002 (0.005)	0.007 (0.163)
Female							-0.115 (0.243)	-0.005 (0.006)	-0.003 (0.265)	-0.097 (0.242)	-0.005 (0.006)	0.023 (0.263)
Team							-0.792*** (0.291)	0.003 (0.004)	-0.241* (0.142)	-0.802*** (0.293)	0.003 (0.004)	-0.245* (0.142)
Investment Management							0.101 (0.282)	-0.003 (0.006)	-0.326 (0.286)	0.092 (0.286)	-0.003 (0.006)	-0.354 (0.216)
Financial Service							0.347 (0.475)	0.003 (0.003)	0.339** (0.165)	0.352 (0.476)	0.003 (0.005)	0.332** (0.165)
Research							0.183 (0.290)	0.003 (0.006)	-0.034 (0.204)	0.184 (0.290)	0.003 (0.006)	-0.032 (0.204)
Industry							1.301** (0.593)	-0.011 (0.016)	0.291 (0.438)	1.299** (0.593)	-0.012 (0.016)	0.274 (0.436)
Government							-0.404 (0.362)	0.021*** (0.007)	-0.427 (0.429)	-0.392 (0.361)	0.021*** (0.007)	-0.441 (0.428)
Constant	2.571*** (0.524)	1.041*** (0.007)	-0.995*** (0.266)	2.578*** (0.524)	1.041*** (0.007)	-0.983*** (0.266)	2.545*** (0.531)	1.041*** (0.008)	-0.734** (0.328)	2.570*** (0.529)	1.041*** (0.008)	-0.700** (0.328)
R-squared	0.020	0.927	0.060	0.019	0.927	0.060	0.034	0.927	0.068	0.034	0.927	0.069
Number of HFs	1,924	1,924	1,391	1,924	1,924	1,391	1,924	1,924	1,391	1,924	1,924	1,391
Other HF specific controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 9: Balancing tests of propensity score matching

This table reports the balancing test results of propensity score matching. The treated group includes funds launched by ex-bankers from US LCFIs and the Control group includes other funds. The ‘Pre-Volcker period’ is from July 2009 to June 2011, the ‘Implementation period’ is from July 2011 to March 2014, and the ‘Compliance period’ is from April 2014 to March 2016. *AUM_first* are the assets under management at origination (in million USD), *MgtFee* is the management fee (in percent), *IncFee* is the incentive fee (in percent), *Redemption* is the redemption period (in months), *Subscription* is the subscription period (in months), *Strategy* is the strategy category a fund belongs to, *Female* equals one if a fund has a female manager, *Team* equals one if a fund is managed by a team, *Investment Management*, *Financial Service*, *Research*, *Industry*, and *Government* equals one if a fund manager has investment management, financial service, research, non-financial industry, and government work experience, respectively. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. The missing values of %bias and t-stats indicate that no managers with particular work experience in either of the groups during the specific period.

Variables	Pre-Volcker period			Implementation period			Compliance period			
	Treated	Control	%bias	Treated	Control	%bias	Treated	Control	%bias	t-stats
AUM_first	44.833	43.867	0.400	49.548	43.968	6.000	38.182	15.818	61.700	1.420
Redemption	1.472	1.312	13.500	1.486	1.647	-12.900	1.100	1.482	-33.800	-0.780
Subscription	0.839	0.846	-1.700	0.841	1.003	-27.200	0.736	0.755	-4.200	-0.100
Female	0.100	0.033	27.300	0.129	0.129	0.000	0.091	0.000	44.500	1.000
Team	0.533	0.600	-13.300	0.419	0.484	-12.700	0.364	0.455	-17.700	-0.420
Investment Management	0.833	0.800	8.700	0.742	0.839	-23.800	0.727	0.818	-21.500	-0.490
Financial Service	0.033	0.100	-22.500	0.097	0.097	0.000	0.091	0.000	33.000	1.000
Research	0.100	0.100	0.000	0.065	0.032	15.100	0.273	0.273	0.000	0.000
Industry	0.033	0.000	26.700	0.032	0.000	25.800	0.000	0.000	.	.
Government	0.000	0.000	.	0.000	0.000	.	0.000	0.000	.	.

Table 10: Propensity score matching results

This table reports the propensity matching results for new funds launched between July 2009 and March 2016. US spin includes funds that have at least one manager whose last employer is a US LCFI before starting the new fund and Others include other new hedge funds launched during the same period. The ‘Pre-Volcker period’ is from July 2009 to June 2011, the ‘Implementation period’ is from July 2011 to March 2014, and the ‘Compliance period’ is from April 2014 to March 2016. *MgtFee* and *IncFee* are the management and incentive fees a fund charges, respectively and *HWM* equals 1 if a high-water mark provision is present. *Flow*₁, *Flow*₂, and *Flow*₃ are the average flow for a hedge fund in the first, second, and third year, respectively. *alpha* is the the abnormal performance of a hedge fund and *MPPM* the manipulation-proof performance measure. *SRisk* and *IRisk* are the systematic and idiosyncratic risk of a hedge fund, respectively. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

	US spin	Others	Differences	t-stats
Panel A: Pre-Volcker period				
MgtFee	1.639	1.533	0.106	0.910
IncFee	18.889	15.556	3.333	2.370**
HWM	0.968	0.806	0.161	2.040**
Flow ₁	7.885	9.969	-2.083	-0.460
Flow ₂	1.044	2.501	-1.458	-1.270
Flow ₃	0.779	3.850	-3.071	-1.060
alpha	0.949	0.695	0.254	1.770
MPPM	0.084	0.062	0.022	1.170
Srisk	1.061	1.048	0.013	0.750
Irisk	2.709	1.999	0.710	1.760*
Panel B: Implementation period				
MgtFee	1.409	1.561	-0.152	-0.790
IncFee	17.500	17.407	0.093	0.060
HWM	0.933	0.833	0.100	1.200
Flow ₁	5.696	0.407	5.289	1.370
Flow ₂	2.611	1.361	1.249	0.810
Flow ₃	2.604	-1.336	3.940	1.130
alpha	0.733	0.867	-0.134	-0.780
MPPM	0.072	0.056	0.015	0.720
Srisk	0.568	0.555	0.012	0.710
Irisk	2.414	3.545	-1.131	-2.260**
Panel C: Compliance period				
MgtFee	1.725	1.100	0.625	2.600***
IncFee	14.500	17.750	-3.250	-0.840
HWM	0.727	0.909	-0.182	-1.080
Flow ₁	12.493	6.282	6.212	0.820
Flow ₂	2.812	1.121	1.690	0.640
Flow ₃	12.811	2.649	10.162	0.720
alpha	0.735	0.726	0.008	0.020
MPPM	0.087	0.077	0.010	0.210
Srisk	0.562	0.559	0.004	0.130
Irisk	2.593	2.127	0.466	0.440