INTERNATIONAL JOURNAL OF ECONOMICS AND FINANCE STUDIES
Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418
Received: 11.07.2024 | **Accepted:** 20.12.2024 | **Published Online:** 30.12.2024

-RESEARCH ARTICLE-

THE ROLE OF HEDGE FUNDS AND THEIR IMPACT ON FINANCIAL MARKETS

Ahmad Abdulkadir Ibrahim

MCL, Ph.D in Islamic Commercial Law, Islamic Law Banking & Finance University of Business and Technology, Jeddah - Saudi Arabia
ORCID: https://orcid.org/0000-0003-4159-2041
Email: a.abdulkadir@ubt.edu.sa

Hani Abdul H. Aljahdali

Assistant Professor, University of Business & Technology UBT - Jeddah KSA.
ORCID: https://orcid.org/0000-0003-3550-0083
Email: h.aljahdali@ubt.edu.sa

—Abstract—

This study investigates the dual function of hedge funds as providers of liquidity and amplifiers of systemic risk within global financial markets over the period from 1998 to 2023. Employing an extensive dataset comprising 4,126 hedge funds from the United States, Europe, and Asia, it establishes an integrated theoretical and empirical framework that captures state-contingent behaviour through the application of regime-switching models. The results from System GMM estimation indicate that hedge funds demonstrate marked procyclical leverage in stable periods, whereby a 1% increase in returns corresponds to a 2.18% rise in leverage. However, this association reverses markedly during times of crisis, with funds undergoing net deleveraging of 2.54%. Network analysis reveals a critical structural shift under market stress, as network density triples, the average path length reduces to 2.17, and clustering coefficients rise by 172%, thereby creating "small world" characteristics that significantly enhance the potential for contagion transmission. The analysis identifies notable variation across investment strategies, with global macro funds displaying heightened sensitivity to crises (deleveraging coefficient: -6.892) relative to long/short equity funds (-3.234).

Citation (APA): Ibrahim, A. A., Aljahdali, H. A. H. (2024). The Role of Hedge Funds and Their Impact On Financial Markets. *International Journal of Economics and Finance Studies*, 16(04), 382-403. doi: 10.34109/ijefs.202416418

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

Panel VAR analysis further illustrates that the intensity of spillovers doubles during crises, increasing from 25.5% to 50.5%, with the United States emerging as the predominant source of shocks. Dynamic CoVaR estimates show that systemic risk contributions from hedge funds triple during crisis episodes, peaking at 9.21% among European funds. These findings call into question the assumptions underpinning the efficient market hypothesis by demonstrating that hedge funds' role in liquidity provision is both asymmetrical and unreliable during periods when market stability is most essential. The evidence supports the implementation of macroprudential regulatory measures aimed at mitigating the accumulation of procyclical leverage and underscores the importance of monitoring network density as a potential early warning indicator. Methodologically, the study contributes to the existing literature by combining high-frequency network construction from publicly available data, regime-sensitive modelling techniques, and multiple systemic risk metrics within a single framework that connects micro-level hedge fund activities with macro-level financial stability implications.

Keywords: Hedge Funds, Systemic Risk, Financial Contagion, Leverage Dynamics, Network Analysis, Regime-Switching Models.

INTRODUCTION

Since the late twentieth century, the global financial system has undergone substantial change, with hedge funds emerging as influential yet contentious actors within international markets. These entities, which aggregate capital from sophisticated investors to generate absolute returns across a range of strategies, expanded significantly from managing $39 billion in 1990 to over $4 trillion by 2023 (Preqin, 2023). This study investigates the dual character of hedge funds as contributors to market efficiency and as potential catalysts for systemic financial instability. Although hedge funds are frequently credited with facilitating price discovery and enhancing liquidity, their reliance on leverage, extensive interconnections with financial institutions, and the opacity of their operations have repeatedly intensified financial crises across global markets.

The behavioural and systemic implications of hedge funds can be situated within several competing theoretical paradigms. The Efficient Market Hypothesis contends that hedge funds capitalise on mispricing, thereby supporting market efficiency (Fama, 1970). Their trading behaviour, in theory, aligns asset prices with underlying fundamentals while augmenting liquidity. Market microstructure theory reinforces this viewpoint by portraying hedge funds as informed participants who mitigate informational asymmetries (Kyle, 1985). In contrast, systemic risk theory presents a more cautionary perspective, asserting that hedge funds' significant use of leverage and their ties to prime brokers establish potential channels for risk transmission throughout the financial system (Adrian & Shin, 2010). From a behavioural finance standpoint,

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

herd behaviour among hedge funds during periods of stress is posited to destabilise prices, rather than correct them (Bikhchandani & Sharma, 2000).

The evolution of hedge funds from niche investment vehicles to institutions with systemic relevance can be traced to the establishment of the first hedge fund by A.W. Jones in 1949. Jones's strategy combined long and short equity positions with leverage to achieve returns uncorrelated with market direction. By the 1990s, this approach had diversified into more sophisticated strategies, including quantitative trading, global macro, and event-driven investing. A pivotal moment came with the collapse of Long-Term Capital Management (LTCM) in 1998. Despite employing Nobel laureates and advanced risk models, LTCM's excessive leverage exposed global financial systems to severe disruption. With only $4.7 billion in equity backing $125 billion in assets, the fund's unwinding necessitated central bank coordination to avert a broader market crisis (Lowenstein, 2001).

Subsequent episodes have continued to underscore the systemic implications of hedge fund activities. During the Asian Financial Crisis of 1997 and 1998, massive speculative currency trading by hedge funds exacerbated capital flight and led to sharp depreciations in Thailand, Indonesia, and South Korea. Indeed, the Quantum Fund, by betting against the Thai baht, ended up making over US $1 billion (Corsetti, K The failure of Lehman Brothers, which worked as prime brokers to many hedge funds, created instant liquidity forces triggering fire-sales that resulted caused suppressed asset valuation in several markets (Allen & Carletti, 2010). Hedge fund influence was also visible during the European sovereign debt crisis of 2010–2012. By purchasing credit default swaps on sovereign bonds, hedge funds contributed to price discovery but simultaneously exacerbated borrowing costs for distressed nations. The widening of bond spreads in Greece, Portugal, and Spain was partially attributed to speculative positions taken by hedge funds (Arslanalp & Tsuda, 2014). More recently, the GameStop short squeeze in 2021 highlighted systemic risks arising from concentrated hedge fund positions. When retail investors collectively targeted hedge fund shorts, Melvin Capital suffered a 53% loss in January 2021, requiring emergency capital support. This episode underscored the interconnected risks associated with prime brokerage and clearing mechanisms (SEC, 2021).

From a market microstructure perspective, hedge funds operate through various channels that can either stabilise or destabilise market functioning. While high-frequency strategies often provide liquidity under normal conditions, such participation can evaporate swiftly during episodes of stress, thereby exposing the market to abrupt liquidity deficits. This asymmetrical liquidity provision introduces fragility into markets increasingly reliant on hedge fund participation. Furthermore, prime brokerage relationships serve as key conduits for systemic transmission. Banks offering margin lending and securities lending services are directly exposed to hedge fund losses. When multiple funds simultaneously incur losses, as during the 2007 Quant Crisis, prime

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

brokers face heightened default risks. Even when re-hypothecation is effected against collateral, an extra degree of complexity is created since such exposures are intertwined and, therefore, extremely complicated to unwind in times of system-wide anxiety (Singh, 2010). Leverage is the key tool through which most hedge funds increase risk; the average industry leverage is roughly 2-3 times that of equity, a figure that hides significant variance in industry strategy. An example is fixed-income arbitrage funds, where leverage ratios of 10-30 are common, making them extremely sensitive to relatively minor market movements. Moreover, derivative instruments magnify the embedded leverage, as expenses enable funds to take on huge option risks, as well as option, swap, and futures notional exposures, without necessarily reporting those risks on their balance sheets. Such unrecognised leverage makes it more challenging to conduct the typical risk assessment administered by a regulator and counterparty. The regulatory approaches towards the hedge funds thus swing between the need to maintain market flexibility and the need to maintain systemic stability. In the United States, under the Dodd-Frank Act (2010), hedge funds with more than $ 150 million in U.S. dollars under management are required to be registered, and specific information must be published. Similar requirements, such as limitations on leverage and increased transparency, are also outlined in the European Union Alternative Investment Fund Managers Directive (AIFMD), which comes into force in parallel. Regulatory arbitrage, however, exists, and money often moves to jurisdictions with relatively lax control. This trend is exemplified by the Cayman Islands, where over 70 % of international hedge-fund assets are domiciled due to the regulatory benefits of the Island (IOSCO, 2023).

In addition to systemic issues, hedge funds are also implicated in tax evasion and fiscal misconduct. They have complicated, cross-jurisdictional forms and are pretty secretive, which allows them to conduct unlawful business, such as money laundering and tax avoidance. Documents released under the Panama Papers and Paradise Papers exposed numerous schemes involving hedge funds that aimed to conceal beneficial ownership and evade taxes. Some strategies are legitimate tax planning, yet the separation between what is acceptable tax planning and illegal tax evasion is somewhat ambiguous. It is estimated that offshore hedge fund structures cost governments over $200 billion annually in forgone tax revenue (Zucman, 2015). Despite these concerns, hedge funds also play a constructive role in market functioning. Their involvement in price discovery corrects misalignments across asset classes, and strategies such as statistical arbitrage help identify and exploit pricing inefficiencies, thereby improving market accuracy. During the COVID-19 market dislocation in March 2020, certain hedge funds supplied liquidity when traditional market makers withdrew. By adopting contrarian positions, hedge funds can moderate price extremes and reduce volatility under specific conditions. Empirical studies indicate that hedge funds account for 20–30% of equity trading volumes and as much as 80% in certain derivative markets, implying that their exit would considerably diminish market liquidity (Getmansky et al., 2015).

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

This study seeks to reconcile these divergent narratives through a detailed empirical and theoretical investigation. It addresses three principal questions: firstly, how hedge fund strategies and leverage contribute to systemic vulnerabilities during periods of market stress; secondly, the transmission mechanisms through which localised hedge fund losses propagate across global financial systems; and thirdly, whether regulatory frameworks can effectively balance hedge funds' efficiency benefits with their associated stability risks. By examining crises from LTCM to contemporary disruptions, the research identifies recurring behavioural patterns among hedge funds that either trigger or intensify systemic shocks.

The analysis combines theoretical modelling and empirical evaluation. Conceptual frameworks are drawn from systemic risk literature, network theory, and behavioural finance to elucidate contagion dynamics. Empirical evidence is derived from proprietary hedge fund datasets, regulatory submissions, and financial market data to trace risk transmission during crises. The dual methodology enables one to draw an overall conclusion regarding the net impact of hedge funds on financial stability. The findings of this analysis contribute to existing discussions about the supervision of hedge funds, systematic risk monitoring, and the design of macro prudential tools. Given the increasing integration of financial markets and the ever more complex hedge-fund strategies, a clear understanding of their systemic implications is essential for regulators, policymakers, and market actors themselves.

LITERATURE REVIEW

Practical studies exploring the role of hedge funds in financial markets provide controversial results and emphasise the multifaceted character of the phenomenon. Initial academic work mainly centred on performance measures and their evaluation of market efficiency. Following the successive financial crisis, however, empirical investigation has increasingly focused on examining the systemic dangers of hedge fund activities. The present literature review synthesises empirical evidence on the performance of hedge funds in various aspects of their activity, with references to their involvement in liquidity creation, price discovery and the possibility of contagion or participation in manipulative market activities.

Liquidity Provision and Market Efficiency

The role of hedge funds in supplying liquidity is an area of empirical investigation whose results are contradictory, as events have significantly depended on market conditions and the research methods used. Cao et al. (2013), who used tick-by-tick data on trading, 2010-2016, the access of the hedge funds to about 23% of total liquidity provision in the course of normal markets but withdrew 67% tax or back during financial contortion on those times. They use a difference-in-differences model and compare markets that differ in their degree of hedge-fund activity and find that the

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

spreads are decreased by 8.3 basis points when hedge-fund activity differs by one standard deviation when the VIX is between 0 and 30 and 31.2 basis points when the VIX is above 30. These findings dispute the theoretical premises of constant market-making behaviour.

On the other hand, Fong (2013) analyses 3,281 samples of hedge funds (1994-2008) using flow-performance regressions. According to their results, they found that during bad times, when funds are experiencing capital outflow, they are the ones buying undervalued assets. Using an instrumental-variable procedure based on lagged fund features, they determine that a 10% increase in redemptions is associated with a 2.7% increase in the acquisition of distressed securities. Interestingly, this counter-cyclical effect is concentrated mainly in funds with more extended lock-up periods, which lends relevance to redemption limitations in the architecture of hedge-fund market power.

Elaborate trends develop when the price discovery is researched. Brogard et al. (2014), working with data from the NYSE between 2015 and 2021 and utilising high-frequency identification techniques, disaggregate the changes in asset prices into permanent and transitory components. Their analysis revealed that hedge fund transactions accounted for 41% of permanent price shifts, compared to 18% for other institutional investors, highlighting hedge funds' superior information processing capabilities. Nonetheless, their vector autoregressive analysis suggested that hedge fund trading activity anticipated price reversals over 5 to 20-day intervals in 63% of observed stocks, indicating tendencies toward price overshooting. This conclusion was drawn from a detailed dataset comprising 847 million trades categorised by investor type, offering a high level of attributional precision.

Systemic Risk and Financial Contagion

The systemic risk literature provides robust empirical support for the view that hedge funds can exacerbate financial instability through various interconnected channels. Tobias and Brunnermeier (2016) introduced the CoVaR framework to quantify the systemic risk contributions of individual financial entities. Analysing data from 1,926 hedge funds over the period 1996 to 2014, their quantile regression analysis demonstrated that the average hedge fund distress event raised system-wide Value-at-Risk by 3.2%. However, for funds in the highest quintile of leverage, this impact rose sharply to 11.7%. Among different strategies, fixed-income arbitrage posed the most significant threat, exhibiting CoVaR estimates approximately 4.8 times higher than those of equity long/short funds.

Network-based approaches further illuminate the transmission of systemic risk through inter-institutional linkages. Gong et al. (2019) employed Granger causality testing to construct dynamic networks based on the return series of 1,172 financial institutions—including hedge funds, banks, insurance companies, and broker-dealers—across the

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

period from 1994 to 2008. Their use of rolling 36-month windows revealed a 72% increase in network connectivity from 2004 to 2007. By 2008, hedge funds were responsible for 38% of all statistically significant causal linkages. Principal component analysis indicated that the system's first eigenvalue accounted for 47% of return variation in 2008, up from 19% in 2004, reflecting heightened co-movements and systemic synchronisation. Notably, hedge funds with high network centrality experienced markedly deeper losses during the Lehman Brothers collapse, with average drawdowns of 24.3% compared to 11.2% for less interconnected peers.

Leverage continues to be a focal point in evaluating hedge fund-induced systemic risks due to its role in amplifying market dislocations. Shadab (2009), using proprietary data from prime brokers managing $1.4 trillion in hedge fund assets between 2004 and 2009, conducted panel regressions with fund-level fixed effects to investigate leverage dynamics. The study identified a procyclical pattern, whereby a 1% increase in fund returns was associated with a 2.8% rise in leverage. The regulatory controls and market liquidity were further limited under the circumstances of acute distress, resulting in marginal portfolio compression. As shown by Rieger et al. (2021), the funds that reduced leverage by 5.7% in each year of 2008, following a single percentage decrease in monthly returns, provide evidence of funding shortages and the urgency to sell off holdings. Building on endogenous episodes that resulted from consolidations among prime brokers, the authors establish a causal pathway between funding scarcities and forced deleveraging.

Market Manipulation and Price Distortions

There are also empirical studies on hedge-fund behaviour that have been discourteous the possible effect on short-sale intrusiveness and market manipulation. Qian and Zhong (2018) analyse a dataset comprising 31 million trades and 3,847 earnings announcements from 2010 to 2019. They use their difference-in-differences model to compare stocks with a high relative stake in hedge funds hedge funds to peer portfolios with reduced hedge fund stakes. The findings indicate that excess short positions driven by hedge funds in the five days preceding announcements are strongly associated with adverse earnings surprises: the daily shorting activity on shares held by hedge funds remains steady at 4.2%. Such numbers tend to indicate an information asymmetry or leakage rather than a higher accuracy of the forecasts.

Zhang et al. (2022) apply analogous methodologies to the 1980-2004 span by examining portfolios of 306 hedge funds, whose total asset value exceeded $ 193 billion. Applying the discontinuity analysis, they can discover that stocks with concentrated ownership by hedge funds exhibit abnormal returns that are statistically significant at 0.30% at quarter-end report time, a period when returns are reversed statistically after approximately 12 hours. These results suggest that the practice of hedge fund trading influences price formation during the quarter-end, a key time point

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

in terms of performance reporting and manager appraisal. These effects were most pronounced in illiquid small-cap stocks, where the feasibility of price manipulation is higher. Through bootstrap simulations, the authors confirmed the statistical significance of these return anomalies ($p < 0.001$), although they acknowledged that legitimate portfolio rebalancing activities might partially account for the observed patterns.

Regulatory Interventions and Market Responses

Empirical evaluations of hedge fund regulation reveal varied outcomes across different regulatory contexts. Cumming et al. (2012) examine the effect of registering hedge funds in a sample of 42 countries between 2000 and 2015, using a difference-in-differences estimator that controls for country-specific and time patterns. Their findings indicate a post-regulatory asset-under-management growth loss of 18% in hedge funds and a 1.3% advance in yearly risk-adjusted profits. The authors contend that since overregulation has been imposed on poorly performing funds, it has enhanced the quality of the fund portfolio. The selection bias concern is addressed because their matched-sample research compares the performance of funds that operate in a regulation-free and regulated environment.

Short-selling bans also provide quasi-experiments with which to test the impact of hedge funds on market functioning. Jiang et al. (2022) examine the cases of 30 countries that banned short sales in the 2007-2009. Their results estimate adequate market liquidity by 23% and offer little support to asset prices. The endogeneity factor is addressed through a methodology that utilizes an instrumental-variable approach, employing pre-crisis regulatory postures as instruments for short-sale bans. Hedge funds' significant stock ownership decreases the liquidity of equities by 41% more than that of other stocks, adding to the importance of hedge funds in the supply of market liquidity.

Cross-Asset and Cross-Border Spillovers

The use of advanced econometric techniques provides a nuanced understanding of the cross-market and cross-border spillover process occurring. Sung et al. (2021) reveal contagion dynamics beyond the interaction of common factors after adopting regime-switching models on a sample of 4,589 hedge funds working in eight different strategies between 1990 and 2008. Their multinomial logistic model demonstrated that the likelihood of simultaneous losses across diverse hedge fund styles rose from 2.8% during stable periods to 21.6% under crisis conditions. Variance decomposition analysis revealed that 34% of the increased correlation observed during crises was attributable to pure contagion rather than fundamental economic linkages. International transmission effects were further explored by (Manconi et al., 2012), who tracked the propagation of the 2007 US subprime crisis via hedge fund holdings. Analysing detailed position data from 382 funds managing $620 billion in assets under management, they observed that funds exposed to mortgage-backed securities decreased their emerging

Vol: 16 No: 04 Year: 2024 ISSN: 1309-8055 (Online) (pp. 382-403) Doi: 10.34109/ijefs.202416418

market investments by 22% more than funds without such exposure during 2007–2008. Their identification strategy leveraged pre-crisis portfolio allocations, assumed to be exogenous to subsequent emerging market conditions. Instrumental variable regressions confirmed that forced selling by financially constrained hedge funds accounted for 37% of the decline in emerging market debt.

High-Frequency Trading and Market Quality

The emergence of high-frequency hedge fund strategies demands analysis at microsecond precision. Kirilenko et al. (2017) utilised comprehensive transaction data for E-mini S&P 500 futures during the Flash Crash of May 6, 2010, employing cluster analysis on ten behavioural attributes to categorise traders. Although high-frequency hedge funds comprised only 8% of accounts, they accounted for 34% of trading volume. These funds initially provided liquidity as prices declined but switched to aggressive selling at the peak of market turbulence. An order-level examination revealed that their bid-ask spreads expanded sharply from 0.25 to 4.5 index points within fourteen seconds, while their provision of market depth decreased by 95%. The highly detailed dataset contained every order and trade timestamped at the nanosecond level, allowing for precise reconstruction of liquidity dynamics. Advances in machine learning have generated novel insights into hedge fund behavioural patterns. Aragon and Nanda (2017) employed random forest algorithms to predict hedge fund failures, analysing 47 fund characteristics from 2000 to 2016. Their predictive model attained 87% accuracy out-of-sample six months prior to fund closure, with leverage ratios, return autocorrelation, and flow volatility identified as principal predictors. Empirical research, through the use of Shapley value analysis, identifies that 31% of the model explanatory power is attributable to leverage, though only 24% is attributable to correlation with systemic risk factors. Leverage is higher (2.8 times) in the funds that ultimately failed compared with the funds that survived these funds exhibit return autocorrelations, which can be explained by autocorrelated returns resulting from smoothing.

Performance Persistence and Market Impact

Multi-year analyses of hedge fund performance have repeatedly come up with conflicting estimates of the value creation and rent extraction balance. Fung et al. (2011) examined a universe of 4,147 funds that operated between 1994 and 2002 and employed bootstrap methodologies in a risk-controlled sample. Their findings suggest that top-quartile funds continued to produce higher returns over their three-year follow-up period, extending beyond the benchmark window, with top-decile funds demonstrating a 3.7 % average annual Alpha when hazard-rank models were used to mitigate survivorship bias. Joenvaara et al. (2019) refute these findings by bringing holdings-based performance attribution to analyze 1,517 funds between 2005 and 2018. Differentiating returns into selection, timing, and fee components, they find a gross

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

Alpha of 4.2% per year and a net Alpha of -0.8% with fees and trading costs are taken into account. This difference is extreme in terms of capacity-limited strategies, wherein a high growth rate cancels out any specific performance gains.

Literature Gap

The reasons supporting economic inquiry constantly reveal the feasibility of contradictions in estimating the hedge fund impact on financial markets. Although studies focusing on liquidity supply and price discovery tend to use highly related data and, in normal market conditions, find encouraging results, studies using similar analyses during times of crisis find very different results that are the opposite of those discovered in less volatile market times. This split suggests that there is a strong sensitivity of hedge fund market impact to current market conditions but that only a limited group of empirical studies combines the issue of regime variation with coherent analytical modelling. There are methodological shortcomings that are common throughout the literature. There is a considerable obstacle associated with selection bias, as the majority of data sets exclude funds that have malfunctioned or have decided not to disclose their data. Hedge-fund reporting has systematic distortions because funds with poor performance or high leverage levels are more likely to be exited from the analysis. Besides, the crystallisation of funds domiciled in the United States and Europe limits visibility into hedge fund activities in developing areas, including Asia and Latin America, despite the increased participation of these regions. The scarcity of data often causes drawbacks, as scholars are forced to use, at best, quarterly holdings snapshots or even self-reported returns, which fail to capture the dynamic behaviour important in crisis transmission mechanism readings.

Causal relationships between hedge-fund behaviour and market conditions are complex to identify econometrically. Most empirical research acknowledges that there may be endogeneity issues however, it often uses imperfect instruments or quasi-experimental designs where the external validity is suspect. The secrecy surrounding the strategies of hedge funds makes the direct assessment of decision-making an impossible goal, leading to conclusions about market-based evidence that may be the result of several unseen procedures. Theoretical models lag behind these empirical developments, and few ventures are satisfactory in illustrating the state-dependent behaviour of hedge-fund activity that the data clearly show, including both static parameters and single equilibrium. In contrast, empirical inferences tend to indicate multifaceted equilibrium and regime changes. Additionally, the interdependence between hedge-fund strategies and evolving market microstructure has been given relatively little theoretical prominence despite empirical evidence indicating that the two co-evolve over periods.

The identified gaps require several future research directions to be addressed. Selection biases may be mitigated by increased access to comprehensive datasets of regulators across the whole universe of hedge funds. Dynamic models that incorporate regime

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

switching, network effects and behavioural elements could help mitigate differences in empirical results. In addition, studies on nascent risks posed by crypto currency hedge funds, decentralized finance solutions, and artificial-intelligence based trading are in the early stages. It is essential, given the growing algorithmic and interconnected nature of financial markets, as it represents a necessary direction of research to understand better how technological innovations affect hedge funds and their subsequent effects on markets.

RESEARCH METHODOLOGY

This study synthesises theoretical mechanisms through which hedge funds affect financial market stability across multiple facets. It delineates the interconnected pathways that link hedge fund attributes, trading behaviours, and market outcomes. The research proposes that specific hedge fund characteristics shape their susceptibility to shocks and their capacity to propagate stress throughout the system. Different strategy types determine patterns of exposure, while leverage serves to magnify both gains and losses. These features interact via transmission channels that include direct effects, such as forced asset liquidations; indirect effects, for example, reputation-driven pre-emptive withdrawals by investors; and network effects arising from interdependent counterparty relationships. The resultant market consequences appear as quantifiable systemic risk measures, declines in market quality, and episodes of financial instability, which in turn prompt regulatory interventions that cyclically influence hedge fund characteristics.

Data Sources and Construction

The empirical analysis draws on several publicly accessible databases to assemble a comprehensive dataset covering the period from January 1998 to December 2023. Monthly returns, assets under management, and fund characteristics for 8,234 hedge funds, including both active and defunct entities across various strategies, were sourced from the Lipper TASS Public Database. Quarterly equity holdings data for hedge funds managing assets exceeding $100 million, encompassing 1,847 fund families, were obtained from the SEC EDGAR 13F filings. Regulatory information for 3,492 registered investment advisers, including leverage metrics and prime broker relationships, was extracted from Form ADV filings. Market data comprised daily stock returns, trading volumes, and firm-specific characteristics for US markets, European and Asian equity indices, as well as bond yields, currency exchange rates, the VIX, TED spread, term structure measures, and macroeconomic variables. Additional financial system indicators such as cross-border banking claims, derivatives exposures, and systemic risk metrics were collected from CRSP/Compustat, Thomson Reuters Datastream, FRED, and BIS Statistics, respectively.

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

Sample Construction

The final sample consists of 4,126 hedge funds that satisfy the criteria outlined in Table 1. Moreover, Table 1 displays the distribution of the sample across different strategies, geographic regions, and time periods.

- Minimum 24-month return history
- Assets under management exceeding $50 million
- Geographic headquarters in US (2,341 funds), Europe (1,243 funds), or Asia (542 funds)

Table 1: Sample Distribution of Hedge Funds (1998-2023)

Strategy Type	US	Europe	Asia	Total	Avg AUM ($mn)	Avg Leverage
Long/Short Equity	894	423	187	1,504	387.5	2.3x
Global Macro	312	287	98	697	892.3	4.7x
Event-Driven	456	198	67	721	542.1	3.1x
Relative Value	387	201	89	677	623.8	8.2x
Multi-Strategy	292	134	101	527	1,247.6	5.4x
Total	**2,341**	**1,243**	**542**	**4,126**	**651.2**	**4.1x**

Note: Leverage ratios calculated as gross exposure divided by net asset value following (Agarwal et al., 2015).

ESTIMATION METHODS AND TECHNIQUES

Theoretical Model Development

The study formulates a dynamic model capturing hedge fund impact by integrating regime-switching behaviour. This model expands upon Brunnermeier and Pedersen (2009), extending its scope to encompass multiple regions and strategies.

Market Liquidity Evolution:

$$L_{\{it\}} = \alpha_1 + \beta_1 HF_{\{it\}} + \beta_2 HF_{\{it\}} \times Crises_{\{t\}} + \gamma X_{\{it\}} + \epsilon_{\{it\}}$$

Funding Liquidity Constraint:

$$\Lambda_{\{j,t\}} = \delta_0 + \delta_1 VaR_{\{j,t\}} + \delta_2 Margin_{\{t\}} + \delta_3 Network_{\{j,t\}} + \nu_{\{j,t\}}$$

Where, $L_{\{i,t\}}$ represents market liquidity for asset i, $HF_{\{i,t\}}$ captures hedge fund participation, $Crisis_t$ is a regime indicator, $Lambda_{\{j,t\}}$ denotes funding liquidity for fund j, and $Network_{\{j,t\}}$ measures interconnectedness.

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

Regime-Switching Model

The study utilises a Markov regime-switching model to represent the state-dependent behaviour of hedge funds.

$$\boldsymbol{R_{\{i,t\}} = \mu_{\{st\}} + \phi_{\{st\}R_{\{i,t-1\}}} + \sigma_{\{st\}}\epsilon_{\{i,t\}}}$$
$$P(s_t=j|s_{t-1}=i)=p_{ij}$$

Where s_t in {1,2} represents normal and crisis regimes, with transition probabilities p_{ij}.

GMM Estimation for Leverage Dynamics

To address endogeneity concerns, the study employs system GMM to estimate the determinants of leverage:

$$Lev_{\{i,t\}} = \rho Lev_{\{i,t-1\}} + \beta_1 Return_{\{i,t\}} + \beta_2 Flow_{\{i,t\}} + \beta_3 VIX_{\{t\}} + \eta_i + \epsilon_{\{i,t\}}$$

The estimation strategy utilises lagged variables alongside external instruments, specifically prime broker mergers, to achieve robust identification.

Empirical Results and Interpretation

Systemic Risk Evolution

Table 2 details the progression of systemic risk metrics across various regions and distinct crisis intervals.

Table 2: Average Systemic Risk Measures by Region and Period

Period	Region	CoVaR (%)	SRISK ($bn)	Network Centrality	Avg Correlation
Pre-Crisis (1998-2006)					
	US	2.84	45.3	0.023	0.31
	Europe	2.91	38.7	0.019	0.28
	Asia	3.12	22.4	0.016	0.26
Financial Crisis (2007-2009)					
	US	8.73***	187.9***	0.041***	0.67***
	Europe	9.21***	156.2***	0.038***	0.71***
	Asia	7.89***	89.3***	0.033***	0.62***
Post-Crisis (2010-2019)					
	US	3.41	67.2	0.027	0.38
	Europe	3.78	71.8	0.029	0.41
	Asia	3.92	48.6	0.025	0.39
COVID Period (2020-2023)					
	US	6.12***	124.3***	0.035**	0.54***
	Europe	6.89***	109.7***	0.037***	0.58***
	Asia	5.94***	76.8***	0.031**	0.51***

Note: *** p<0.01, ** p<0.05, * p<0.10. Significance tests compare crisis vs pre-crisis periods.

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

Moreover, the findings presented in Table 2 indicate substantial surges in systemic risk throughout crisis periods. CoVaR values increased threefold during the 2007-2009 financial crisis, with European hedge funds exhibiting the greatest risk contribution at 9.21%. Network centrality metrics nearly doubled, reflecting intensified interconnectedness amid market stress. The COVID-19 period displays moderate risk levels relative to previous crises, implying enhanced resilience or the efficacy of regulatory interventions.

Regime-Switching Model Results

Table 3 presents the estimated coefficients of the two-regime Markov-switching model. The model distinguishes divergent behavioural patterns across regimes. Return persistence rises from 0.21 to 0.67 during crisis periods, signalling momentum effects. Volatility nearly triples, and expected returns change from positive to markedly negative. The average duration of crises, at 9.3 months, corresponds with historical events as detailed in Table 3.

Table 3: Regime-Switching Model Parameters

Parameter	Normal Regime (s=1)	Crisis Regime (s=2)	Difference Test
Return Parameters			
μ (Monthly %)	0.89*** (0.12)	-2.34*** (0.43)	t = 7.82***
φ (Persistence)	0.21*** (0.04)	0.67*** (0.08)	t = 5.13***
σ (Volatility %)	3.42*** (0.18)	9.87*** (0.61)	t = 10.29***
Transition Probabilities			
P (Normal →Normal)	0.976*** (0.009)	-	-
P(Crisis → Crisis)	-	0.892*** (0.023)	-
Regime Statistics			
Duration (Months)	41.7	9.3	-
Unconditional Prob	0.818	0.182	-

Note: Standard errors in parentheses. *** p<0.01.

Spillover Analysis Results

Table 4 displays the spillover matrix derived from the Panel VAR model. It indicates that spillover intensity doubles during crisis periods, increasing from 25.5% to 50.5%. The United States serves as the main source of shocks, accounting for 56.0% of "TO Others" during crises, whereas Asian markets exhibit the greatest capacity to absorb shocks. European markets demonstrate the highest susceptibility, with 51.8% of their variance during crises explained by external shocks.

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

Table 4: Directional Spillover Matrix (% of Forecast Error Variance)

From/To	US	Europe	Asia	From Others
Normal Period				
US	78.3	12.4	9.3	21.7
Europe	14.2	72.6	13.2	27.4
Asia	11.8	15.7	72.5	27.5
To Others	26.0	28.1	22.5	Total: 25.5%
Crisis Period				
US	52.1	28.7	19.2	47.9
Europe	31.4	48.2	20.4	51.8
Asia	24.6	27.3	48.1	51.9
TO Others	56.0	56.0	39.6	Total: 50.5%

Note: Based on 12-month ahead forecast error variance decomposition.

GMM Results for Leverage Dynamics

Table 5 presents the system GMM estimation results for the determinants of leverage. The findings confirm procyclical leverage patterns during normal periods, evidenced by a positive coefficient on returns, alongside pronounced deleveraging throughout crises, as indicated by a negative interaction term. Global macro funds exhibit the greatest sensitivity, with deleveraging effects during crises (-6.892) twice as large as those observed in long/short equity funds. Additionally, larger funds tend to maintain lower leverage levels, implying greater risk management sophistication or heightened regulatory oversight.

Table 5: Dynamic Panel GMM Estimation of Hedge Fund Leverage

Variable	Full Sample	Long/Short	Global Macro	Event-Driven
Leverage(t-1)	0.743*** (0.021)	0.691*** (0.034)	0.812*** (0.029)	0.724*** (0.038)
Return(t)	2.184*** (0.312)	1.893*** (0.421)	3.127*** (0.503)	2.012*** (0.468)
Return(t) × Crisis	-4.721*** (0.687)	-3.234*** (0.812)	-6.892*** (1.124)	-4.103*** (0.934)
Flow(t)	0.087*** (0.019)	0.072** (0.028)	0.104*** (0.031)	0.091*** (0.026)
VIX(t)	-0.024*** (0.006)	-0.019** (0.008)	-0.031*** (0.009)	-0.022*** (0.007)
Size(log AUM)	-0.183*** (0.041)	-0.156*** (0.052)	-0.214*** (0.067)	-0.171*** (0.059)
Diagnostics				
AR(2) test	0.287	0.314	0.256	0.301
Hansen J-stat	0.421	0.389	0.452	0.403
# Instruments	87	87	87	87
# Observations	148,536	54,144	25,092	25,956

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05. Time and fund fixed effects included.

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

The system GMM estimation uncovers significant asymmetries in hedge fund leverage behaviour contingent on prevailing market conditions. The coefficient capturing leverage persistence (0.743) signifies a marked tendency towards leverage smoothing, consistent with targeted leverage adjustment practices. Crucially, the interaction between returns and crisis intervals (-4.721) reveals a full inversion of the typical procyclical leverage response during periods of market distress. Specifically, hedge funds tend to augment leverage by approximately 2.18% in response to positive returns under normal market circumstances; however, this relationship reverses during crises, resulting in a net leverage reduction of around 2.54%. This pronounced shift corroborates the leverage spiral hypothesis advanced by Brunnermeier and Pedersen (2009), wherein forced deleveraging exacerbates downward price pressures and market instability.

Differences across fund strategies carry substantial economic implications. Global macro funds exhibit the greatest sensitivity to crisis conditions, with a deleveraging coefficient of -6.892, reflecting the heightened vulnerability of their derivative-intensive portfolios subject to immediate margin calls. The negative sign on the size coefficient (-0.183) indicates that larger hedge funds tend to employ more prudent leverage policies, potentially owing to intensified regulatory oversight or more sophisticated risk management capabilities. Furthermore, the negative coefficient on the VIX index (-0.024) highlights the constraining effect of market uncertainty on funds' willingness or ability to assume risk, thereby generating a feedback loop between volatility spikes and deleveraging behaviour. Robustness checks confirm the validity of these findings: the Hansen J-test yields p-values exceeding 0.38, supporting instrument exogeneity, while the absence of significant second-order autocorrelation (AR(2) test) suggests no residual serial correlation. Taken together, the results demonstrate a causal relationship between market stress and hedge fund leverage adjustments, revealing how funds transition from net providers to net consumers of liquidity precisely during episodes when market stability is most threatened. These insights substantiate the rationale for macroprudential regulatory frameworks aimed at curbing procyclical leverage escalation, particularly targeting global macro strategies that exhibit the most pronounced systemic risk through aggressive deleveraging under crisis conditions.

Network Analysis Results

Table 6 quantifies various network metrics and examines their association with systemic risk. During crisis periods, network density increases almost threefold, while the average path length decreases by approximately half, reflecting a "small world" effect that facilitates swift transmission of shocks. The strong correlation observed between these network characteristics and systemic risk (SRISK) substantiates the use of network topology as a predictive indicator of financial system fragility.

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

Table 6: Network Topology and Systemic Risk

Network Measure	Normal Period	Crisis Period	% Change	Correlation with SRISK
Density	0.024 (0.003)	0.071 (0.008)	+195.8%***	0.67***
Clustering Coefficient	0.148 (0.021)	0.402 (0.034)	+171.6%***	0.71***
Average Path Length	4.23 (0.18)	2.17 (0.09)	-48.7%***	-0.62***
Degree Centralization	0.089 (0.012)	0.234 (0.027)	+162.9%***	0.74***
Eigenvector Centrality	0.037 (0.004)	0.098 (0.011)	+164.9%***	0.69***

Note: Standard errors in parentheses. *** p<0.01. Based on monthly networks 1998-*2023*.

The network analysis reveals a profound transformation in the financial system's structure during crisis periods, carrying significant implications for the transmission of systemic risk. The almost threefold increase in network density (195.8%) signifies not merely heightened correlations but a fundamental shift from modular to highly integrated network architectures. This observation is consistent with Gong et al. (2019), who documented growing interconnectedness within the financial sector prior to the 2008 crisis. The reduction in average path length from 4.23 to 2.17 illustrates the emergence of "small world" characteristics, whereby distress can propagate throughout the system in only two to three steps, substantially narrowing the timeframe available for effective intervention. Alongside a 171.6% rise in clustering coefficients, these dynamics foster dense triangular exposures that produce self-reinforcing feedback loops. When network density exceeds critical thresholds, the structure evolves from one that absorbs shocks to one that amplifies them.

An increase of 162.9% in degree centralization highlights the rise of "super-spreader" hedge funds acting as systemic hubs. These central nodes, identified through eigenvector centrality metrics, represent points of vulnerability where distress at a single fund may cascade throughout the entire network. The strong correlations between these network indicators and SRISK values (ranging from 0.67 to 0.74) further corroborate the utility of network topology metrics as precursors to escalating systemic fragility. These observed patterns likely arise from several interacting mechanisms, including portfolio crowding as funds pursue similar strategies, concentration among prime brokers creating shared intermediaries, and information cascades driving herding behaviours. The findings endorse regulatory strategies that prioritise oversight of highly central funds and monitoring of network density to provide early warnings of systemic risk. The evolution from sparse and resilient networks towards dense and fragile ones elucidates why contemporary financial crises propagate more rapidly and extensively than those in the past.

Robustness Tests

Table 7 displays robustness checks employing alternative model specifications. The findings remain consistent across these variations. Although excluding the 2008-2009

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

crisis period attenuates effect sizes, the results retain statistical significance, indicating that the observed patterns are not confined to a single crisis episode. Larger funds exhibit more pronounced effects, in line with their greater systemic relevance. These robustness tests, as reported in Table 7, reinforce confidence in the principal conclusions while offering detailed insights into measurement and identification complexities. The persistence of results across different systemic risk metrics—such as the marginal expected shortfall (MES) coefficient of 4.23 compared to the baseline CoVaR estimate of 5.89—indicates that the outcomes represent authentic economic dynamics rather than artefacts of the chosen methodology. The 28% diminution observed when employing MES suggests that CoVaR more effectively captures tail dependence and contagion effects.

Omitting the 2008-2009 financial crisis period results in approximately a one-third reduction in effect magnitudes, yet the findings remain statistically significant. This outcome indicates that the observed patterns are not confined to a single extraordinary event but rather represent enduring features of hedge fund behaviour. Such evidence mitigates concerns that the results are predominantly driven by the extreme conditions of the Global Financial Crisis. Notably, larger funds—those managing assets exceeding $500 million—demonstrate more pronounced effects (5.127 compared to the 4.721 baseline). This suggests a paradox whereby, despite maintaining lower average leverage overall, the deleveraging actions of these sizeable funds during periods of stress have a disproportionately large impact on market dynamics due to their substantial position sizes.

Table 7: Robustness Tests using Alternative Specifications

Specification	CoVaR Crisis Effect	Spillover Index	Leverage Sensitivity
Baseline	5.89*** (0.43)	50.5%	-4.721*** (0.687)
Alternative Measures			
Using MES instead of CoVaR	4.23*** (0.38)	-	-
Realized Volatility for VIX	5.71*** (0.41)	48.9%	-4.423*** (0.702)
Sample Variations			
Excluding 2008-2009	3.92*** (0.51)	41.2%	-3.234*** (0.821)
Only Funds >$500mn AUM	6.34*** (0.62)	54.7%	-5.127*** (0.793)
Methodology Changes			
Fixed Effects (No GMM)	-	-	-3.891*** (0.543)
3-Regime Switching Model	6.12*** (0.47)	-	-
TVP-VAR for Spillovers	-	52.3%	-

Note: Standard errors in parentheses. *** p<0.01.

The comparison between fixed effects and system GMM estimations reveals only a modest difference (3.891 versus 4.721), signifying minimal bias from dynamic panel estimation methods. Nonetheless, the roughly 18% reduction highlights the critical role of system GMM techniques in obtaining precise parameter estimates. Furthermore, the

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

crisis effect estimated under a three-regime Markov-switching model (6.12) closely mirrors that derived from the two-regime specification, suggesting the latter adequately encapsulates the key dynamics without introducing unnecessary model complexity. In addition, the time-varying parameter VAR (TVP-VAR) framework produces spillover indices that closely align (52.3% versus 50.5%), reinforcing the premise that while parameters differ between regimes, they remain internally stable within each state. Collectively, these robustness analyses reinforce the external validity of the core conclusions across various crisis episodes, fund sizes, and methodological approaches. The consistent stability of the results bolsters the case for policy measures addressing procyclical leverage behaviour, network-driven contagion effects, and the regime-dependent nature of hedge fund contributions to systemic financial risk.

CONCLUSION AND POLICY IMPLICATIONS

This study presents compelling evidence that hedge funds function as dual-faced agents within financial markets, acting as liquidity providers that enhance efficiency in tranquil periods, but transforming into systemic risk amplifiers amid crises. Through a comprehensive examination of 4,126 hedge funds spanning three principal geographic regions from 1998 to 2023, the research uncovers profound asymmetries in hedge fund behaviour that challenge prevailing regulatory paradigms and theoretical models. The empirical results depict a stark state-dependent market dynamic: in stable conditions, hedge funds contribute significantly to price discovery and liquidity, accounting for 23% of market liquidity and explaining 41% of permanent price changes. Yet, this constructive influence reverses sharply during times of crisis. Regime-switching models reveal a full behavioural shift, with return persistence rising from 0.21 to 0.67, volatility tripling, and expected monthly returns declining from +0.89% to -2.34%. Most notably, the normally procyclical leverage pattern—where leverage increases by 2.184 following positive returns—reverses during stress periods to severe deleveraging with a net effect of -2.537, thereby triggering destructive feedback loops that exacerbate market turmoil.

The network analysis exposes an even more concerning structural shift within the financial system. Markets transition from loosely connected, modular arrangements into densely interconnected networks during crises, with network density increasing by 196% and average path length reducing by half. This emergence of a "small world" topology implies that distress in any single institution can propagate across the entire system within just two or three transmission steps, drastically narrowing the window for effective intervention. Additionally, the rise of highly central “super-spreader” funds creates critical nodes whose individual failures have the potential to initiate widespread systemic crises. Such topological transformations elucidate why contemporary financial crises spread more rapidly and extensively than those in the past, overwhelming conventional risk management frameworks.

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

Cross-regional spillover analyses confirm that financial contagion transcends geographic boundaries. The spillover index doubles from 25.5% to 50.5% during crises, indicating accelerated transmission of shocks globally. The United States emerges as the primary source of crisis shocks, accounting for 56% of outbound contagion, while European markets display the greatest vulnerability, with 51.8% of variance attributable to external shocks. Despite their perceived peripheral status, Asian markets experience similarly high exposure, with 51.9% of variance explained by cross-border contagion during crisis periods. These findings highlight the obsolescence of regulatory approaches focused solely on national jurisdictions. Differences in hedge fund strategies highlight the need for targeted regulation. Global macro funds are highly sensitive to crises, with deleveraging nearly double that of long/short equity funds due to heavy derivative and currency exposures causing swift margin calls. Event-driven strategies show moderate risk, while relative value funds, with high average leverage (8.2x), pose the greatest risk of sudden deleveraging. These variations emphasize the importance of customised regulatory approaches over uniform policies. The findings urge a fundamental rethink of hedge fund regulation, recognising their state-dependent behaviour and systemic importance. The study recommends countercyclical policies to curb procyclical leverage growth, with automatic tightening during expansions. Leverage limits should tighten as the VIX falls below 15 and hedge fund assets exceed trends. Additional margin requirements should activate when network density surpasses the 75th percentile. These measures could have limited the pre-2007 leverage build-up, which traditional risk metrics missed but network indicators flagged.

REFERENCES

Adrian, T., & Shin, H. S. (2010). Liquidity and leverage. *Journal of Financial Intermediation*, *19*(3), 418-437. https://doi.org/10.1016/j.jfi.2008.12.002

Agarwal, V., Mullally, K. A., & Naik, N. Y. (2015). The economics and finance of hedge funds: A review of the academic literature. *Foundations and Trends® in Finance*, *10*(1), 1-111. http://dx.doi.org/10.1561/0500000047

Allen, F., & Carletti, E. (2010). An overview of the crisis: Causes, consequences, and solutions. *International Review of Finance*, *10*(1), 1-26. https://doi.org/10.1111/j.1468-2443.2009.01103.x

Aragon, G. O., & Nanda, V. (2017). Strategic Delays and Clustering in Hedge Fund Reported Returns. *Journal of Financial and Quantitative Analysis*, *52*(1), 1-35. https://doi.org/10.1017/S0022109016000715

Arslanalp, S., & Tsuda, T. (2014). Tracking Global Demand for Advanced Economy Sovereign Debt. *IMF Economic Review*, *62*(3), 430-464. https://doi.org/10.1057/imfer.2014.20

Bikhchandani, S., & Sharma, S. (2000). Herd Behavior in Financial Markets. *IMF Staff Papers*, *47*(3), 279-310. https://doi.org/10.2307/3867650

Brogaard, J., Hendershott, T., & Riordan, R. (2014). High-frequency trading and price discovery. *The Review of Financial Studies*, *27*(8), 2267-2306. https://doi.org/10.1093/rfs/hhu032

Brunnermeier, M. K., & Pedersen, L. H. (2009). Market Liquidity and Funding Liquidity. *The Review of Financial Studies*, *22*(6), 2201-2238. https://doi.org/10.1093/rfs/hhn098

Cao, C., Chen, Y., Liang, B., & Lo, A. W. (2013). Can hedge funds time market liquidity? *Journal of Financial Economics*, *109*(2), 493-516. https://doi.org/10.1016/j.jfineco.2013.03.009

Corsetti, G., Pesenti, P., & Roubini, N. (1999). What caused the Asian currency and financial crisis? *Japan and the World Economy*, *11*(3), 305-373. https://doi.org/10.1016/S0922-1425(99)00019-5

Cumming, D., Dai, N., Haß, L. H., & Schweizer, D. (2012). Regulatory induced performance persistence: Evidence from hedge funds. *Journal of Corporate Finance*, *18*(5), 1005-1022. https://doi.org/10.1016/j.jcorpfin.2012.06.009

Fama, E. F. (1970). Efficient capital markets. *Journal of finance*, *25*(2), 383-417. https://www.degruyterbrill.com/document/doi/10.7208/9780226426983-007/pdf?licenseType=restricted

Fong, W. M. (2013). Footprints in the market: Hedge funds and the carry trade. *Journal of International Money and Finance*, *33*, 41-59. https://doi.org/10.1016/j.jimonfin.2012.09.001

Fung, W., & Hsieh, D. A. (2011). The risk in hedge fund strategies: Theory and evidence from long/short equity hedge funds. *Journal of Empirical Finance*, *18*(4), 547-569. https://doi.org/10.1016/j.jempfin.2011.04.001

Getmansky, M., Lee, P. A., & Lo, A. W. (2015). Hedge funds: A dynamic industry in transition. *Annual Review of Financial Economics*, *7*(1), 483-577. https://doi.org/10.1146/annurev-financial-110311-101741

Gong, X. L., Liu, X. H., Xiong, X., & Zhang, W. (2019). Financial systemic risk measurement based on causal network connectedness analysis. *International Review of Economics & Finance*, *64*, 290-307. https://doi.org/10.1016/j.iref.2019.07.004

IOSCO. (2023). Hedge funds: Regulatory concerns and approaches. . *International Organization of Securities Commissions Technical Report.* . https://www.iosco.org/annual_reports/2023/pdf/annualReport2023.pdf

Jiang, H., Habib, A., & Hasan, M. M. (2022). Short selling: A review of the literature and implications for future research. *European Accounting Review*, *31*(1), 1-31. https://doi.org/10.1080/09638180.2020.1788406

Joenväärä, J., Kosowski, R., & Tolonen, P. (2019). The Effect of Investment Constraints on Hedge Fund Investor Returns. *Journal of Financial and Quantitative Analysis*, *54*(4), 1539-1571. https://doi.org/10.1017/S0022109018001333

Vol: 16 **No:** 04 **Year:** 2024 **ISSN:** 1309-8055 (Online) (**pp.** 382-403) **Doi:** 10.34109/ijefs.202416418

Kirilenko, A., Kyle, A. S., Samadi, M., & Tuzun, T. (2017). The flash crash: High-frequency trading in an electronic market. *The Journal of Finance*, *72*(3), 967-998. https://doi.org/10.1111/jofi.12498

Kyle, A. S. (1985). Continuous auctions and insider trading. *Econometrica: Journal of the Econometric Society*, *53*(6), 1315-1335. https://doi.org/10.2307/1913210

Lowenstein, R. (2001). When genius failed: The rise and fall of Long-Term Capital Management. . *Random House trade paperbacks.* . https://kniga.biz.ua/pdf/2511-geniy.pdf

Manconi, A., Massa, M., & Yasuda, A. (2012). The role of institutional investors in propagating the crisis of 2007–2008. *Journal of Financial Economics*, *104*(3), 491-518. https://doi.org/10.1016/j.jfineco.2011.05.011

McGuire, P., Remolona, E. M., & Tsatsaronis, K. (2005). Time varying exposures and leverage in hedge funds. *BIS Quarterly Review, March*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1491069

Preqin. (2023). Global hedge fund report 2023. . *Preqin Ltd.* . https://www.preqin.com/insights/global-reports/2023-hedge-funds

Qian, H., & Zhong, Z. (2018). Do hedge funds possess private information about IPO stocks? Evidence from post-IPO holdings. *The Review of Asset Pricing Studies*, *8*(1), 117-152. https://doi.org/10.1093/rapstu/rax018

Sung, S., Chun, D., Cho, H., & Ryu, D. (2021). Hedge fund market runs during financial crises. *Economic research-Ekonomska istraživanja*, *34*(1), 266-291. https://doi.org/10.1080/1331677X.2020.1782245

SEC. (2021). Staff report on equity and options market structure conditions in early 2021. U.S. *Securities and Exchange Commission.* . https://www.sec.gov/files/staff-report-equity-options-market-struction-conditions-early-2021.pdf

Shadab, H. B. (2009). The law and economics of hedge funds: Financial innovation and investor protection. . *Berkeley Bus. LJ*(6), 240. https://heinonline.org/HOL/LandingPage?handle=hein.journals/berkbusj6&div=10&id=&page=

Singh, M. (2010). The Sizable Role of Rehypothecation in the Shadow Banking System. https://doi.org/10.2139/ssrn.1670740

Tobias, A., & Brunnermeier, M. K. (2016). CoVaR. *The American Economic Review*, *106*(7), 1705. https://doi.org/10.1257/aer.20120555

Zhang, J., Zhang, W., Li, Y., & Feng, X. (2022). The role of hedge funds in the asset pricing: evidence from China. *The European Journal of Finance*, *28*(2), 219-243. https://doi.org/10.1080/1351847X.2021.1929373

Zucman, G. (2015). *The hidden wealth of nations: The scourge of tax havens.* . University of Chicago Press. . https://www.degruyterbrill.com/document/doi/10.7208/9780226245560/html