INTERNATIONAL PERSPECTIVES ON COMMERCIAL AND FINANCIAL LAW

01

Alternative Investment Funds as Potential Catalysts in the Realization of Systemic Risk in Financial Markets

An Analysis of the Current Regulatory Framework in Europe Focusing on Hedge Funds and Private Equity Funds

BRUCE G. A. POLLOCK

DIKE

3.6 Investment Funds and Systemic Risk

3.6.1 General Remarks

Systemic risk and financial stability are concepts that are more closely associated with the banking system rather than other actors within financial systems. Apart from banks, insurance companies come to mind as potential secondary progenitors of systemic risk, which is why the classification of certain insurance companies as 'systemically important financial institutions' or SIFIs has been an additional step in achieving an integrated approach to regulating financial systems. These more prominent institutions overshadow smaller institutions, which, mainly due to their size and reduced footprint, might often be overlooked. One of these categories are investment funds. The discussion of the systemic relevance of investment funds is often framed by focusing on the smaller subset of hedge funds. As hedge funds must seek to generate superior returns versus their peers and the broader market in order to survive, their default alpha-seeking behavior creates a more aggressive and potentially riskier class of funds. Hedge funds have been called the 'Galapagos Islands of finance'[344] as well as the 'canary in the coal mine'[345] due to their readiness to rapidly evolve and their potential to act as an early warning sign of coming market distress.[346] The collapse of LTCM in 1998 is likely the most prominent example of a hedge fund failure, and its potential to destabilize markets was recognized by regulators and the bankers that ultimately bailed-out the fund by taking over its positions.[347] The potential of hedge funds to act as triggers of a systemic

344 Lo, *Adaptive Markets: Financial Evolution at the Speed of Thought* (n 76) 222.

345 Mila Getmansky, Peter A Lee and Andrew W Lo, 'Hedge Funds: A Dynamic Industry in Transition' (2015) 7 Annual Review of Financial Economics 483, 531.

346 ibid.

347 LTCM (Long Term Capital Management) was a hedge fund which relied principally on fixed income arbitrage strategies. Partners in the fund included a number of prominent figures from both academia and finance, among them Myron Scholes and Robert Merton, who would later become Nobel Laureates in Economics. The fund became highly leveraged and had to be recapitalized in 1998 due to an extreme downturn of the fund's performance following the 1997 Asian financial crisis and the Russian default in 1998. To recapitalize LTCM, the Federal Reserve of New York organized a bailout by a consortium of banks. Although the fund's positions were taken over by the institutions that had bailed out LTCM and would ultimately net a profit, the hedge fund's failure has since become akin to the textbook example of the dangers of highly leveraged hedge funds. See Lo, *Adaptive Markets: Financial Evolution at the Speed of Thought* (n 76) 241–244. See also Philippe Jorion, 'Risk Management Lessons from

crisis and as conduits causing contagion in markets during a crisis are seen as the primary dangers. The following quote by Neel Kashkari epitomizes the idea that hedge funds might pose a threat to financial stability, but could also act as early-warning indicators of a looming crisis:

> A second lesson for me from the 2008 crisis is that almost by definition, we won't see the next crisis coming, and it won't look like what we might be expecting. If we, or markets, recognized an imbalance in the economy, market participants would likely take action to protect themselves. […] We looked at a number of scenarios, including an individual large bank running into trouble or a hedge fund suffering large losses, among others.[348]

3.6.2 Positive Effects of Investment Funds on Systemic Risk

A common and frequent argument that can be made for investment funds is that they can provide liquidity to the market and act as market makers, enabling capital to flow more efficiently and connecting buyers and sellers in markets.[349] Investment funds and hedge funds in particular are willing to bear risk that otherwise would have to be taken on by other market participants. This risk-sharing capacity is to be regarded as a positive feature of investment funds in financial markets.[350]

Long-term Capital Management' (2000) 6 European Financial Management 277, 278–284. Franklin R Edward, 'Hedge Funds and the Collapse of Long-Term Capital Management' (1999) 13 Journal of Economic Perspectives 189, 197–200. The circumstances surrounding LTCM's failures are described in much greater detail in Lowenstein (n 7).

348 Neel Kashkari, 'Lessons from the Crisis: Ending Too Big to Fail' (Speech at the Minneapolis Fed, 2016) 7 <www.minneapolisfed.org/news-and-events/presidents-speeches/lessons-from-the-crisis-ending-too-big-to-fail> accessed 14 August 2020.

349 Lo, 'Hedge Funds, Systemic Risk, and the Financial Crisis of 2007–2008: Written Testimony for the House Oversight Committee Hearing on Hedge Funds' (n 185) 8. See also Roger Ferguson and David Laster, 'Hedge Funds and Systemic Risk' (2007) 10 Financial Stability Review 45, 48 <https://publications.banque-france.fr/sites/default/files/medias/documents/financial-stability-review-10_2007-04.pdf> accessed 31 August 2020. Evidence that hedge funds in aggregate provide liquidity to the market is provided by Petri Jylhä, Kalle Rinne and Matti Suominen, 'Do Hedge Funds Supply or Demand Liquidity?' (2014) 18 Review of Finance 1259.

350 Lo, 'Hedge Funds, Systemic Risk, and the Financial Crisis of 2007–2008: Written Testimony for the House Oversight Committee Hearing on Hedge Funds' (n 185) 8. Ferguson and Laster (n 349) 48.

Investment funds, specifically hedge funds, can also provide private liquidity and funding in the case of a liquidity shortfall. Since hedge fund managers have wide discretion regarding the choice of investments for their funds, they can invest in investments with risk-reward profile within a time frame where other investors might not be willing or capable. Hedge funds therefore can provide a form of 'emergency funding' that contributes to financial stability.[351]

In Europe, because investment funds are a growing component of European financial markets,[352] they are an additional source of finance that exists in parallel to the more conventional bank credit intermediation process. This contribution to financial markets represents a positive addition to European financial markets.[353] In

351 Itzhak Ben-David, Francesco Franzoni and Rabih Moussawi, 'The Behavior of Hedge Funds during Liquidity Crises' (2010) Ohio State University Working Paper <https://d1wqtxts1xzle7.cloudfront.net/60203050/The_Behavior_of_Hedge_Funds_during_Liqui20190804-31488-1ekgbd4.pdf?1564954836=&response-content-disposition=inline%3B+filename%3DThe_Behavior_of_Hedge_Funds_during_Liqui.pdf&Expires=1598889754&Signature=fTqtdyoTPaY803H4rT6WWucCJJZj2he68r-BhGwNCSQvxFqJtxenEr28KPaynsRh91vO4dvozgSUPlsgfVhi6pU3vioT6wpd7XkGMjF-ndRR1ZZQQtvC0QjUpNzFDyw1VfGaxskq5RnI~NzbGH1MPXTXG9QBtseEJcgSEhOgz5VAEgbNDcZkpg0LCJwBIfmO6GRmndFlym49ICBBs2JmgpMtkFHT3cAj1qQ7eBcXCEfITSzFGHkJgNJeYLwVTeqsXz-hmpf1shmZM6uSGzqAnousMivaNsc2b9Bm5rqvIF6JVD~~DNx153yf8~xWJQnN235Xa7rkYGqw5Pcsm~MMIw__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA> accessed 31 August 2020. See also Michael S Haigh, Jana Hranaiova and James A Overdahl, 'Hedge Funds, Volatility, and Liquidity Provision in Energy Futures Markets' (2007) 9 The Journal of Alternative Investments 10. See also Lo, 'Hedge Funds, Systemic Risk, and the Financial Crisis of 2007–2008: Written Testimony for the House Oversight Committee Hearing on Hedge Funds' (n 185) 8. See also Ferguson and Laster (n 349) 48.

352 Compare the quantitative dimensions provided in chapter 2. See also Commission, 'Report from the Commission to the European Parliament and the Council Assessing the Application and the Scope of Directive 2011/61/EU of the European Parliament and of the Council on Alternative Investment Fund Managers' COM (2020) 232 final 5 <https://ec.europa.eu/transparency/regdoc/rep/1/2020/EN/COM-2020-232-F1-EN-MAIN-PART-1.PDF> accessed 31 August 2020.

353 Koen van der Veer and others, 'Developing Macroprudential Policy for Alternative Investment Funds: Towards a Framework for Macroprudential Leverage Limits in Europe: An Application for the Netherlands' (2017) European Central Bank Occasional Paper series, No 202, Joint European Central Bank – De Nederlandsche Bank project 5 <www.ecb.europa.eu/pub/pdf/scpops/ecb.op202.en.pdf> accessed 31 August 2020. See also Recommendation of the European Systemic Risk Board ESRB/2017/6 of 7 December 2017 on liquidity and leverage risks in investment funds [2018] OJ C151/1, recital 1 (ESRB 2017/6).

essence, this means that alternative funding mechanisms in financial markets by investment funds represent a positive development. As a general rule, an increase in sources of finance and competition between capital providers should lead to more liquid and better functioning markets.[354]

An additional note must also be made regarding investment funds: to date, no publicly funded bailout of an investment fund has been necessary. In marked contrast to bank bailouts, failures of investment funds and even hedge funds have been able to internalize the resulting losses without requiring tax-payer funded refinancing. While the failure of LTCM mentioned above represents a prominent example of a hedge fund bailout, subsequent research has shown the effect of the fund's failure to have been comparably mild, especially when compared to the failure of other financial institutions.[355]

3.6.3 FSB and IOSCO Recommendations

With regards to investment funds, the Financial Stability Board and the International Organization of Securities Commissions have identified four core structural vulnerabilities that result from collective asset management activities.[356] These four vulnerabilities are potential sources of systemic risk:[357]

---

354 This assumption is based on our current understanding of how financial markets function. Liquidity generally is thought to enhance the effectiveness of the price-finding mechanism, where market participants can continually reach a consensus of the value of an asset through buying and selling said asset. One caveat must be added to this approach, which can also apply to hedge funds: so-called noise traders, which are market participants buying and selling not based on information (whether they erroneously believe they are actually trading based on information or not), might disrupt this smooth mechanism. In such a case, more traders might not enhance the efficiency of a market, but detract from it. For an in-depth discussion of noise in financial markets, and why noise might ultimately be essential for the functioning of markets, see Fischer Black, 'Noise' (1986) 41 The journal of finance 528.

355 Mallaby (n 7) 375–376.

356 Board of the International Organization of Securities Commissions, 'Recommendations for Liquidity Risk Management for Collective Investment Schemes' (n 15) 1; Financial Stability Board (n 14) 9.

357 Board of the International Organization of Securities Commissions, 'Recommendations for Liquidity Risk Management for Collective Investment Schemes' (n 15) 1; Financial Stability Board (n 14) 9.

I. liquidity mismatch between fund investments and redemption terms and conditions for open-ended fund units;
II. leverage within investment funds
III. operational risk and challenges for asset managers in stressed conditions; and
IV. securities lending activities of asset managers and funds. [358]

The following sections analyze each of these vulnerabilities in turn. Whether the current regulatory environment addresses these four potential sources of systemic risk to a sufficient degree will finally be analyzed in chapters 4 and 5.

3.6.4 Liquidity Risk of Investment Funds

Liquidity risk can be seen as the most obvious and most dangerous form of risk that an investment fund is confronted with, because investment funds exhibit inherent structural vulnerabilities that render them susceptible to this category of risk.[359] In acting as financial intermediaries between investors and financial markets, investment funds are almost completely comprised of capital contributed by investors, which is capital that could be withdrawn, depending on the fund's rules on redemption. A potential mismatch between redemption requests by the investors and the liquidity of the assets the fund is invested can emerge and potentially massively impair a fund's capacity to conduct business.[360] Since the redemption conditions determine the frequency and speed with which investors can withdraw their contributions, a liquidity mismatch can emerge particularly rapidly in open-ended funds where redemption requests have to be honoured within an extremely short time frame.[361] This problem is exacerbated by two phenomena compounding the velocity of redemption requests: herding and a first-mover advantage. Herding occurs when investors anticipate and react to the redemption requests of other in-

358 Board of the International Organization of Securities Commissions, 'Recommendations for Liquidity Risk Management for Collective Investment Schemes' (n 15) 1; Financial Stability Board (n 14) 9.

359 Financial Stability Board (n 14) 9–10.

360 ibid 11–12. See also Board of the International Organization of Securities Commissions, 'Recommendations for Liquidity Risk Management for Collective Investment Schemes' (n 15) 1, 23.

361 Board of the International Organization of Securities Commissions, 'Principles of Liquidity Risk Management for Collective Investment Schemes' (Final Report FR03/13, IOSCO, 2013) 2 <www.iosco.org/library/pubdocs/pdf/IOSCOPD405.pdf> accessed 31 August 2020. See also Financial Stability Board (n 14) 11.

vestors and market participants, thus setting off a feedback loop of investors' withdrawal requests.[362] The first-mover advantage on the other hand means that in the context of redemptions, the first to request redemptions can profit from doing so while simultaneously imposing costs on the remaining investors. This can occur because most adjustments to a fund's portfolio following an abrupt and sizable redemption will occur only in the period after the initial redemption.[363] From the perspective of the investor, the net asset value will not yet reflect the adjusted costs the fund is to incur, and the investor can avoid the effect his redemption request has on the fund's value.[364] Consequently, the costs of the redemption and portfolio adjustments are borne by the remaining investors. It therefore pays to redeem early and quickly, which amplifies both the probability and the frequency of redemptions by investors.

Liquidity of funds and redemption requests are therefore intimately connected and are not dissimilar in process and effect to a traditional bank-run. Similar to a bank-run, redemption requests can send a fund into a death spiral from which it may be excessively difficult to recover. In times of market stress, redemption requests may lead to fire-sales[365] which in turn may lead to further redemption requests.[366] These redemptions may create another feedback loop caused by more fire-sales and the deterioration of the fund's performance, which in turn leads to yet further redemption requests that continue the cycle.

3.6.5 Phase-Locking Risk

Redemptions are not the only potential source of liquidity demands for investment funds. Margin calls from derivatives counterparties are another strain that can be

362 Financial Stability Board (n 14) 11.

363 ibid 13, 46.

364 van der Veer and others (n 353).

365 A fire-sale is defined as '[...] a forced sale of an asset at a dislocated price. The asset sale is forced in the sense that the seller cannot pay creditors without selling assets. The price is dislocated because the highest potential bidders are typically involved in a similar activity as the seller, and are therefore themselves indebted and cannot borrow more to buy the asset'; see Andrei Shleifer and Robert Vishny, 'Fire Sales in Finance and Macroeconomics' (2011) 25 Journal of Economic Perspectives 29, 30.

366 van der Veer and others (n 353) 10.

placed on a fund's liquidity.[367] A margin call occurs when a brokerage account reaches a specific threshold, beyond which the broker is unwilling to provide margin, or leverage, to a client. When a margin call is issued, the account holder must provide additional funds or collateral in order for the broker to allow further trading or maintenance of current trading positions. If the request for additional funds is not met by the account holder, the broker will close out the position. While a margin call might not necessarily mean that the trading position or liquidity of the account holder is in danger, in cases where the market has moved aggressively against the trader in question, it frequently means exactly that. It is apparent from this description that this mechanism is intended to protect the broker from counterparty risk[368] and can push a trading institution whose positions have moved against it into an even more precarious position. If the trading institution cannot satisfy the margin call, it will suffer additional losses and could, just as is the case where investors withdraw their investments, send it into a death spiral that is almost impossible to recover from.

Margin calls in volatile market conditions, especially in the realization of a systemic crisis, can cause contagion through adverse price movements of trading positions and, by extension, compromise the institutions that hold these trading positions. Especially in cases where volatility causes confidence in a market to drop and causes price movements that might be erratic and detached from fundamental values, trading positions that are fundamentally sound can become untenable due to liquidity constraints. Continuously maintaining sufficient margin over time on positions in volatile conditions can strain the liquidity of funds beyond what is sustainable, causing them to exit or close out those positions that have become unsustainable.[369] The possibility of such losses can have systemic consequences

367 Board of the International Organization of Securities Commissions, 'Principles of Liquidity Risk Management for Collective Investment Schemes' (n 361) 2, 3.

368 Pedro Santa-Clara and Alessio Saretto, 'Option Strategies: Good Deals and Margin Calls' (2009) 12 Journal of Financial Markets 391, 393, 400.

369 A description of this exact process occurring can be found in a letter by Victor Niederhoffer to his investors. An excerpt of this letter can be found in the paper above, see ibid 391–392. The same paper mentions also that margin calls have a substantial impact on the risk-return profile (as measured by the Sharpe ratio) of options based trading strategies. This conclusion is consistent with the idea presented in the text that margin calls are an important category of risk that funds are confronted with. ibid 409–410.

when a large amount of forced selling of this nature occurs within the same time frame.

3.6.5.1 Liquidity and Leverage

3.6.5.1.1 Leverage

Leverage used by investment funds can be an additional source of systemic risk, because leverage magnifies and accelerates both profits and losses. Leverage refers to the momentum gained when an investment of own funds is increased through financial transactions without investing additional own funds equal to the principal value of these transactions.[370] It is evident that in profitable times, this effect is beneficial both to the fund and its investors, but can lead to rapid losses and forced selling when the market moves against a fund. An investment fund can leverage its investment in several ways. It can directly leverage capital by purchasing securities on margin, ie taking out a margin loan, usually from a bank; a second direct method involves repossession agreements.[371] A fund can also leverage its capital through indirect means, either by selling short securities, or through the use of derivatives and structured products.[372]

---

370 See Danny Busch and Lodewijk Van Setten, 'The Alternative Investment Fund Managers Directive' in Danny Busch and Lodewijk Van Setten (eds), *Alternative Investment Funds in Europe: Law and Practice* (OUP 2014) 24. Leverage in an investment fund is typically defined as a ratio of market exposure to the net asset value of a particular fund: $Leverage = \frac{market\ exposure}{net\ asset\ value}$. See Board of the International Organization of Securities Commissions, 'IOSCO Report: Leverage' (Consultation Paper CR08/2018, IOSCO, 2018) 2 <www.iosco.org/library/pubdocs/pdf/IOSCOPD615.pdf> accessed 11 August 2020.

It is possible to further distinguish between *gross, net,* and *long-only* or *long* leverage. The sum of long and short exposure per share divided by the NAV represents gross leverage, while the difference between said exposure per share divided by NAV represents net leverage. Finally, long-only or long leverage can be calculated by dividing long positions per share by the NAV. See Andrew Ang, Sergiy Gorovyy and Gregory B Van Inwegen, 'Hedge Fund Leverage' (2011) 102 Journal of Financial Economics 102, 103–104.

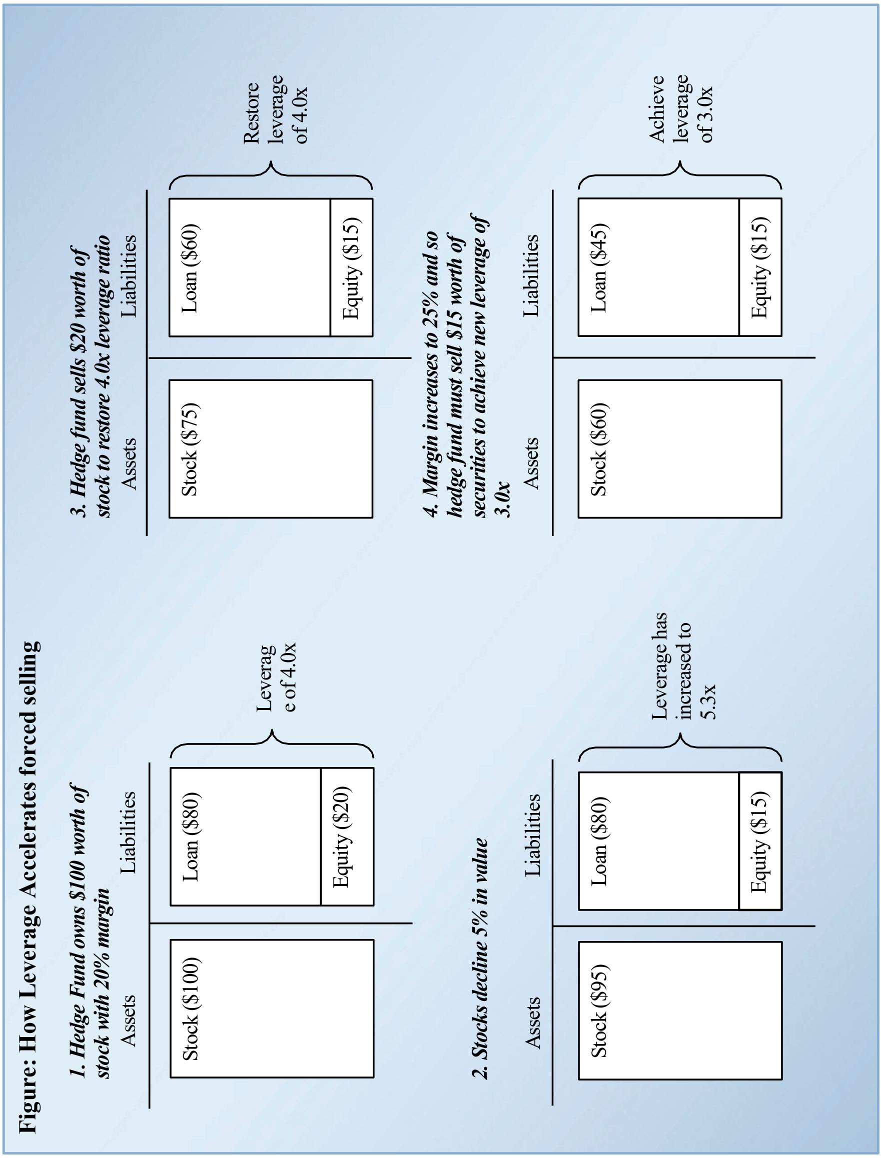
371 Repossession agreements ('repos') involve one party selling a security at a given price and then buying it back at a later time for a higher price. See Stowell (n 59) 243–244.

372 Short selling involves borrowing securities from a counterparty and selling them to a third party. Identical securities generally will be bought back at a later point in time and returned to the counterparty they were borrowed from. Leverage through short

The graphical representation below illustrates the effect leverage can have not only on the losses of the fund, but in the acceleration of forced selling, which in turn leads to further losses. As is seen quickly, the use of leverage can increase the momentum with which a fund can be forced to sell assets, which in turn enhances the exposure of a fund to market volatility. This gaining of momentum means the decision-making and turnaround time for a fund caught in and exposed to market turbulence is shortened dramatically if it is using leverage. The example below is that of a hedge fund, but can, in principle, apply to any type of fund, provided the legal environment permits the buildup of leverage:

selling can be achieved by borrowing securities, selling them short, and then using the funds from the sale to buy other securities. See ibid 244.

3.6.5.1.2 Figure 3c: Leverage and Forced Selling[373]



[373] ibid 315.

3.6.5.1.3 Liquidity

In addition to the risk that leverage creates, liquidity is an essential element for the continuous operation of an alternative investment fund. As has been mentioned in section 3.6.4, liquidity risk is a central concern in alternative investment funds. The loss of liquidity has macroprudential implications as well, as losses of interconnected alternative investment funds can act as a trigger event for a systemic crisis through the loss spiral and margin spiral. Section 3.5.5 has described the two liquidity forms, which are market liquidity and funding liquidity, the first being the ease with which one can borrow against assets and the second the ease with which and the price at which assets can be sold in the market.[374] Losses in an alternative investment fund can lead to both a loss spiral and a margin spiral. Similar to the mechanism described directly above,[375] a loss spiral can cause funding problems which force the liquidation of certain positions. This in turn, if it occurs on a larger scale, moves prices away from their fundamental values, which causes both higher margin requirements[376] and further losses on existing positions. These losses then are the source of further funding problems, which restarts the loss spiral and may even result in so-called predatory trading, ie forcing other market participants to sell at fire-sale prices.[377] Figure 3d below visualizes these two liquidity spirals.

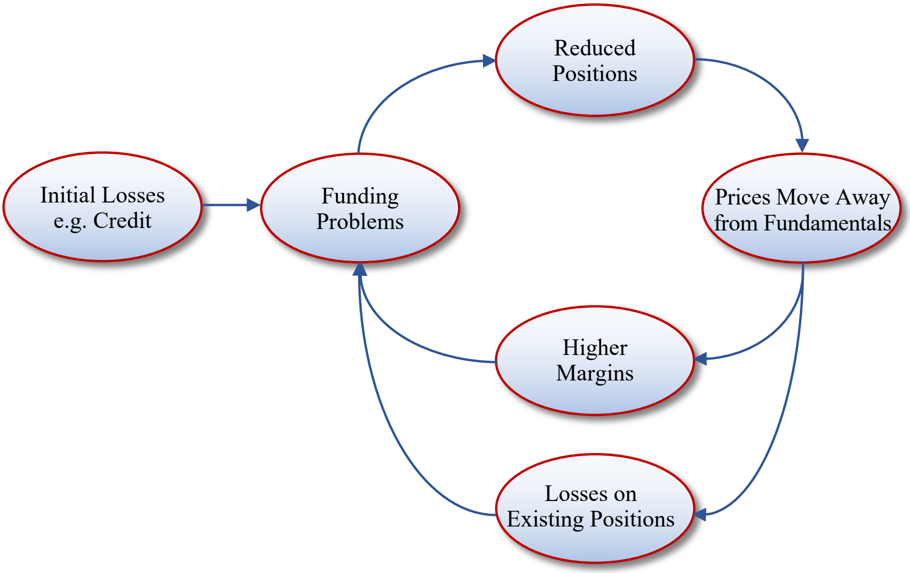
[374] Brunnermeier (n 234) 91. See also section 3.6.4 for a detailed description of liquidity and how they can amplify initial shocks to a financial system.

[375] See section 3.6.4.

[376] For risks related to margin calls, see fn 369.

[377] Brunnermeier (n 234) 93f. Fire-sales are described in detail in section 3.6.6.

3.6.5.1.4 Figure 3d: The Loss Spiral and the Margin Spiral[378]



3.6.5.2 Operational Risk

Operational risk is another risk category which is of essential importance. Operational risk is defined as risk supporting the operating environment of a fund. It includes middle and back-office functions such as accounting, the processing of trades, valuation, and administrative processes.[379] In an analysis dating from 2005, it was found that of all hedge fund failures, more than 56% were directly related to failures in operational processes[380] with the most common operational issues

378 ibid 93.

379 Capco, 'Understanding and Mitigating Operational Risk in Hedge Fund Investments' (2003) The Capital Markets Company White Paper 4 <https://cdn2.hubspot.net/hubfs/4256284/Understanding_mitigating_hedge_fund.pdf?__hssc=198419440.5.1539346866247&__hstc=198419440.ea4263a8db6d9c56961b7c6f045f2509.1525959406150.1539289383539.1539346866247.162&__hsfp=2029327947&hsCtaTracking=b00d986c-8b92-4c3f-90f0-370927707998%7C946b2a69-17f0-4081-bf49-56458d4f52b9&t=1539474306514> accessed 26 August 2020. See also section 3.3.5.

380 Jean-René Giraud, 'Mitigating Hedge Funds' Operational Risks: Benefits and Limitations of Managed Account Platforms' (EDHEC-RISK Institute 2005) 7 <https://

consisting of the following: misrepresentation of investments, misappropriation of funds, unauthorized trading, and inadequate resources.[381]

While these findings are primarily related to hedge funds and cannot be transposed directly to all investment funds, they nonetheless underline the importance of dealing with operational risks. The systemic implications of operational risk failures are related to reputational damage and loss of confidence. Where a fund or multiple funds have operational difficulties, this may impact their reputation, leading to a loss of confidence by investors, which in turn might lead to redemption requests. This reputational damage might not necessarily be limited to the individual institution, but may have effects on other similar institutions, whereby a loss of confidence in these other institutions and subsequent additional redemption requests may be the consequence. The transfer of client accounts in such situations may be difficult as well. In addition, if a fund is involved in providing critical services to other financial institutions, the operational difficulties or failures may also result in the transmission of these difficulties to these other institutions if the fund cannot continue to provide the critical services, which could result in consequences of systemic importance.[382]

3.6.5.3 Securities Lending Activities

Investment funds will act both as beneficial owners and as borrowers of securities, and a limited number of funds will also act as agent lenders.[383] When acting as an agent lender, an investment fund can offer borrower or counterparty indemnifications, which are similar to insurance commitments. Borrower or counterparty indemnifications provide insurance against losses incurred when counterparties default or do not return borrowed securities, and collateral is not sufficient to make up for these losses.[384] Securities lending activities by investment funds generate financial stability risks, which range from fire-sales of collateral to insufficient valuation practices. Further risks are composed of maturity and liquidity transfor-

---

risk.edhec.edu/sites/risk/files/pdf/Mitigating Hedge Funds Operational Risks.pdf> accessed 26 August 2020.

381 Capco (n 379).

382 Financial Stability Board (n 14) 30.

383 Borrowers are usually hedge funds that are covering short positions. Beneficial owners will also frequently facilitate lending through the use of agent lenders. See ibid 30–31, 35.

384 ibid 35.

mation issues and leverage in connection with reinvestment of cash collateral and procyclical effects connected to financing transactions.[385]

Large scale agent lender indemnifications pose another threat to financial stability. The chain of events given for this threat to become relevant is this: If borrowers became unwilling to engage in securities lending unless indemnification was provided, the indemnification commitments could lead to lenders withdrawing from the market, which would force borrowers to find other lenders. Defaults on indemnification commitments could then lead to confidence in other indemnification commitments being lost.[386] Whether this explanation is sufficiently probable and realistic for it to become a reality and to justify regulatory efforts, it would need to be examined in greater detail; the concept does warrant mentioning, however.

3.6.6 Effects on Financial Stability

It is unlikely that an individual fund would have the financial leverage to trigger a systemic crisis singlehandedly.[387] Investment funds are comparably small, which becomes evident when the AuM of even the largest individual fund is compared to a systemically important financial institution.[388] From a systemic perspective, investment funds are therefore much more likely to amplify and transmit existing financial instability to other market participants through procyclical behavior and spillover effects.[389] The potential effects of investment funds on financial stability

385 ibid 14, 35, 37.

386 ibid 35. See also Schwarcz, ‘Systemic Risk’ (n 34) 202–203.

387 Even LTCM arguably did not cause a crisis, but was swept up in the effects of the Russian default. In addition, LTCM at its most dangerous was highly leveraged. This leverage would be difficult to achieve in Europe today without alerting the national regulatory authority monitoring leverage levels of the fund. For a detailed description of leverage requirements in AIFMD and UCITS regulation, see chapters 4 and 5. See also fn 347

388 If many funds are in a state of distress or fail at the same time, then this may, however, have systemic implications. See Andrew W Lo, *Hedge Funds: An Analytic Perspective* (2nd edn, Princeton University Press 2010) 199.

389 van der Veer and others (n 353). See also European Systemic Risk Board, ‘Recommendation of the European Systemic Risk Board of 7 December 2017 on Liquidity and Leverage Risks in Investment Funds’ (n 353) recital 2. ESRB 2017/6, recital 2.

are primarily related to contagion and amplification effects.[390] It is important to note that the size of individual funds does not automatically render them benign in a systemic sense. While size can serve as an indicator of systemic importance, it is not the sole determinant of an institution's contribution to systemic risk. As the systemic risk framework analyzed above indicates, an institution which takes on risks that are highly correlated with one another might cause these institutions to become, as a collective, 'jointly systemic'.[391] This correlation becomes even more difficult to detect if phase-locking phenomena described above occur and institutions taking on previously uncorrelated risks abruptly see these risks become highly correlated.[392] Market conditions are a further element that, unconnected to an institution's actual size, can render an institution systemically relevant.[393] Finally, the size of an institution's positions relative to the specific market it operates in can render the institution systemically relevant. This concentration issue becomes relevant if the fund or institution can materially disrupt the function of the specific market, which may in turn hamper the function of other markets through contagion and spillover effects.[394] These four elements, namely correlation, contagion, market conditions, and concentration, all are relevant to certain investment funds and result in financial stability risks.

It is therefore highly beneficial to examine the main risks and dangers that investment funds might pose. In the case of alternative investment funds, three main elements have been identified that are also relevant for many other types of investment funds as well. The three main dangers that emanate from investment funds from a systemic perspective are:

390 See James B Thomson, 'On Systemically Important Financial Institutions and Progressive Systemic Mitigation' (2009) 8 DePaul Business and Commercial Law Journal 135, 139–141 <http://via.library.depaul.edu/cgi/viewcontent. cgi?article=1090 &context=bclj> accessed 21 August 2020.

391 ibid 139–140.

392 See section 3.5.5.3.1; Chan and others (n 224) 13–16.

393 One example of this from the hedge fund sphere is the comparison between the failure of LTCM and Amaranth Advisors. LTCM was considered systemically relevant in 1998 due to turbulent market conditions, while Amaranth in 2006 was not, despite having more than twice the amount of AuM that LTCM had had. See Thomson (n 390) 142. See also Mallaby (n 7) 316–322. See also Ferguson and Laster (n 349) 51. See also fn 347.

394 Thomson (n 390) 135–142.

1. Fire-sales
2. Direct negative spillovers to financial institutions
3. Sudden reductions of debt financing, potentially leading to a credit crunch[395]

Fire-sales are closely related to liquidity risk in investment funds. Fire-sales, as has been mentioned above, can hasten a fund's demise if it is forced into selling otherwise sound positions at a steep discount. Fire-sales are not only damaging to the institution compelled to sell, but can generate externalities which lead to a net loss in a financial system. Fire-sales are also a potential contagion channel which might cause distress in a system to spread from one institution to others.[396] This means that fire-sales can cause systemic risk directly and threaten financial stability. As investment funds can be connected to larger institutions in the financial system, either through various transactions, counterparty exposures, or depositary and brokerage services, investment funds can act as the progenitor of a systemic crisis. Even if the fund or asset management industry as a whole may not be the ultimate cause of a crisis, a fire-sale or the failure of a fund or group of funds could very well constitute the initial shock that triggers it.[397] Closely related to this concept is the second danger of negative spillovers to financial institutions mentioned above. As is the case with fire-sales, other generic forms of spillover could cause losses or the collapse to institutions directly exposed to investment funds.[398] The current high level of interconnectedness in the financial system results in alternative investment funds being connected to other financial institutions, which are exposed to them via various investment channels, such as the credit channel or various brokerage services.[399] Finally, a credit crunch describes a situation where the 'credit availability is unusually restrictive for the current stage of the business

395 van der Veer and others (n 353) 3, 8, 34.

396 For an overview of this phenomenon, see Lorenzo Cappiello and Dominik Supera, 'Fire-Sale Externalities in the Euro Area Banking Sector' (2014) 2 Financial Stability Review 99, 99–100, 108 <www.ecb.europa.eu/pub/pdf/fsr/art/ecb.fsrart201411_01.en.pdf?202b7ccacb7fabd4149e6034dae177cf> accessed 31 August 2020.

397 For the mechanism of fire-sale externalities and systemic risk, see Fernando Duarte and Thomas M Eisenbach, 'Fire-Sale Spillovers and Systemic Risk' (2018) Federal Reserve Bank of New York Staff Report 6–13, 53 <www.newyorkfed.org/medialibrary/media/research/staff_reports/sr645.pdf> accessed 18 August 2020.

398 Ferguson and Laster (n 349) 51–53. See also Tokuo Iwaisako, 'Global Financial Crisis, Hedge Funds, and the Shadow Banking System' (2010) 6 Public Policy Review 347, 361–363.

399 van der Veer and others (n 353) 9.

cycle'.[400] As a result, alternative investment funds potentially could generate a number of externalities and act as initial triggers for systemic crises transmitted through direct or indirect channels.[401]

3.7 Conclusion

This chapter has defined and described systemic risk and also given an overview of various measurement techniques. It has highlighted that currently, data on alternative investment funds, particularly hedge funds, is incomplete and therefore makes precise measurement of exposures by various funds and the industry as a whole a challenging task. The chapter has also described the various risks that alternative investment funds are exposed to and has shown that the two main risks are leverage and liquidity risks. Alternative investment funds as an aggregate appear to provide some benefits to financial markets, which mainly consist of promoting market efficiency through the provision of liquidity and driving prices closer to their fundamental values through arbitrage activities. Unfortunately, at the same time, there are various externalities that alternative investment funds in general and hedge funds in a particular might generate. Alternative investment funds have the potential to act as catalysts and triggers of systemic crises, creating externalities in the form of fire-sales, negative spillovers, and the creation of a credit crunch. As a consequence, regulation of alternative investment funds must account for this reality. It must be designed to enable funds to continue to enhance the efficiency of financial markets while also limiting potential externalities and exposures to other financial institutions and it must address leverage and liquidity risks present in the industry. The following chapters will analyze whether the current European framework satisfies these requirements and what an optimal form of regulation might look like.

400 Richard F Syron, 'Are We Experiencing a Credit Crunch?' [1991] New England Economic Review 3, 4.

401 van der Veer and others (n 353) 9.