# The Environment for Merger Arbitrage: 2021

**Deepak Gurnani**
Versor Investments, Founder and Managing Partner

**Ludger Hentschel**
Versor Investments, Founding Partner

March 2021

www.versorinvest.com investors@versorinvest.com
1120 Avenue of the Americas, 15th Floor, New York, NY 10036

## Firm Overview

Versor Investments is a quantitative investment boutique where data, innovation, and market expertise drive every decision. Headquartered in New York, Versor's investment team merges decades of quantitative research with an ethos that fosters ingenuity and innovation.

Leveraging modern statistical methods and vast datasets, Versor Investments creates diversified sources of absolute returns across multiple asset classes. Alpha forecast models, portfolio construction, and the trading process rely on the ingenuity and mathematical expertise of 40+ investment professionals, which is underpinned by a rigorous scientific, hypothesis-driven framework. Versor implements state of the art technology infrastructure for risk management, portfolio optimization, and trade execution, developed over 200+ human work years.

Versor upholds client interests with 100% employee ownership and substantial co-investment from partners. Versor offers two categories of investment products: Hedge Funds and Alternative Risk Premia. Both product lines are designed to provide superior risk-adjusted returns while exhibiting low correlation to traditional and alternative asset classes.

# The Environment for Merger Arbitrage: 2021

## Executive Summary

Merger arbitrage capitalizes on the spread between a company's current share price and its final acquisition price.

After a tumultuous first half in 2020, the merger market has come back strongly with a large number of deals, low failure rates, many improved offers, and moderate times to completion. These and related characteristics of the merger markets should allow merger arbitrage strategies to build well-diversified portfolios with relatively low risks of deal failure and attractive returns.

Fully exploiting the attractive environment requires a sophisticated investment strategy that can distinguish more attractive mergers from less attractive mergers and position the portfolio accordingly. Versor Investments has implemented an advanced systematic merger arbitrage strategy. The alpha forecast model for that strategy uses machine learning and a proprietary database covering more than 4,000 mergers to estimate the probability that a merger will close, determine downside risk, and perform competing bid analysis. The strategy invests in announced merger deals across the US, Canada, UK, and Europe.

# Contents

# 1 Introduction

Merger arbitrage principally aims to earn the spread remaining between the target shares and the total value of the offer in announced mergers while minimizing the market exposures of the portfolio. For stock offers, this involves hedging the acquirer-specific risk by shorting an appropriate number of acquirer shares. While the risks of deal failures can be diversified across a portfolio with a large number of mergers, there is room to improve performance by reducing positions in riskier deals. When these trades are well executed, they earn attractive returns with close-to-zero correlations with equity markets.

Interestingly, the opportunity set for such merger arbitrage portfolios varies over time based on the number of mergers in the market and their characteristics. We describe several environment metrics and conclude that the current environment is attractive compared to historical norms.

# 2 The Merger Arbitrage Environment over Time

We now outline the most important aspects of the environment for merger arbitrage over time. Of course, we do so with an eye on how the current state of the environment compares to historical norms and the recent past.

## 2.1 Deal flow

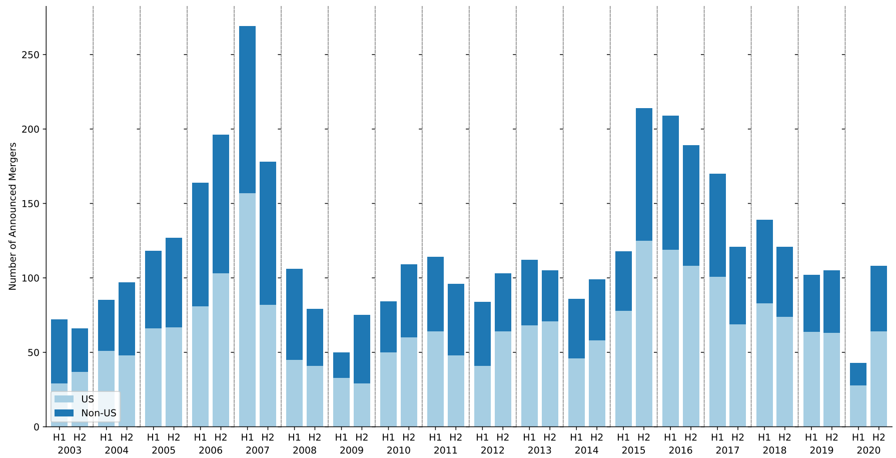
A larger number of mergers increases the demand for merger arbitrage, elevates spreads, increases liquidity and capacity for merger arbitrage, permits more diversified portfolios and higher portfolio leverage. Merger deal flow varies over time. As a result, there are periods when merger portfolios are more or less attractive than is typical based on deal flow.

In early 2020, merger deal flow was materially reduced due to Covid-19. In March 2020, the global health crises triggered large market swings, which left potential acquirers uncertain about appropriate valuations. The associated uncertainty about economic growth also reduced deal flow. Finally, Covid-19 restrictions on travel and meetings made traditional merger negotiations impossible. As market volatility declined and many firms devised new operating modes, investment bankers adjusted to remote negotiations. The figures in this section show that deal flow overall has strongly recovered throughout the second half of 2020, after an understandably slow period during the first half of 2020.

### Number of mergers

Figure 1 shows the number of mergers over time. The total numbers are divided into semi-annual periods, shown in pairs of bars for each calendar

### Figure 1: Number of Announced Mergers




The figure shows the number of announced mergers by semi-annual calendar period. For each period, the total number is separated into US and non-US mergers, respectively. The bottom portion of each bar indicates the number of mergers with US targets; the top portion of each bar indicates the number of mergers with non-US targets. Non-US mergers constitute mergers with target stocks in Canada, Europe including the UK, Australia and Japan.
Source: Versor Investments, Bloomberg.

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

year. Moreover, the bars are subdivided into mergers with US and non-US targets.[1] The figure clearly shows that the last few years have produced an unusually high number of mergers, especially in the US. Although the number of mergers fell noticeably during the Covid-related market turmoil in the first half of 2020, deal flow has strongly recovered since then. In fact, the flow of new mergers continued to rise during the second half of 2020 and appears to continue at very high levels in early 2021.

### Value of mergers

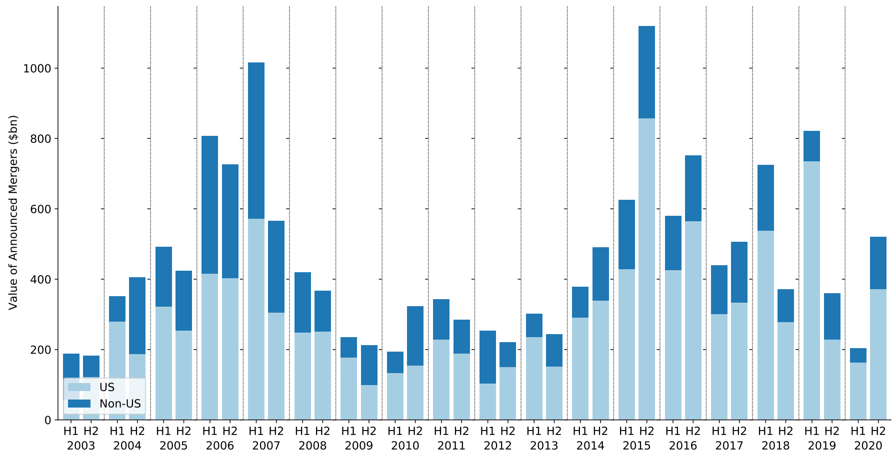
While more mergers are better for liquidity, spreads, diversification, and leverage, a large number of small mergers is less attractive than a similar number of large mergers. Small deals have less impact on market liquidity and overall spreads.

Figure 2 shows the dollar value of mergers over time. For each deal, the size is equal to the market value of the total offer. As for the number of mergers in figure 1, we subdivide the totals for each six-month period by US and non-US acquirers.

The figure shows that the dollar value of announced mergers strongly recovered during the second half of 2020, along with the number of deals.

[1] A target stock is considered a US target if its primary equity listing is on a US stock exchange. Non-US mergers have target stocks with primary equity listings in Canada, Europe including the UK, Australia, and Japan.

### Figure 2: Value of Announced Mergers




The figure shows the dollar value of announced mergers by semi-annual calendar period. For each period, the total is separated into the value of US and non-US mergers, respectively. The bottom portion of each bar indicates the value of US mergers; the top portion of each bar indicates the value of non-US mergers. Non-US mergers constitute mergers in Canada, Europe including the UK, Australia and Japan.
Source: Versor Investments, Bloomberg.

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

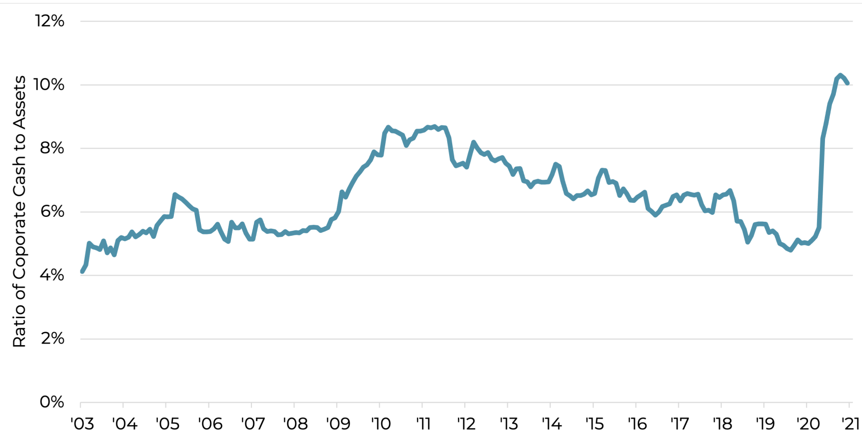
While the value of announced mergers in the first half of 2020 was below recent values, the second half was higher than the corresponding periods during 2017, 2018, or 2019, all of which had very strong merger activity. Like the number of mergers, the value of mergers continued to rise during the second half of 2020 and into early 2021.

### Cash available for future mergers

While it is difficult to make precise predictions about future deal flow, the cash on hand at both corporate and private equity acquirers gives some indication of possible future deal flow. Harford (1999) shows that cash-rich firms are more likely to attempt acquisitions. In part, this is true because potential acquirers with large amounts of available cash can make offers without accessing the debt markets. Of course, the cash can be used for either new mergers or competing offers on existing deals. Either one should benefit merger arbitrage portfolios.

Figure 3 shows the median cash to asset ratio for US large-cap and mid-cap firms. Clearly, many US firms have accumulated an unusual amount of cash during 2020. These firms may continue to hold some of that cash as a precaution against future operating cash demands. Most likely, however, they will also spend some of this cash on acquisitions, especially if the economy progresses on the road to recovery before large parts of the cash reserves are consumed for ongoing business reasons.

**Figure 3: Corporate Cash**

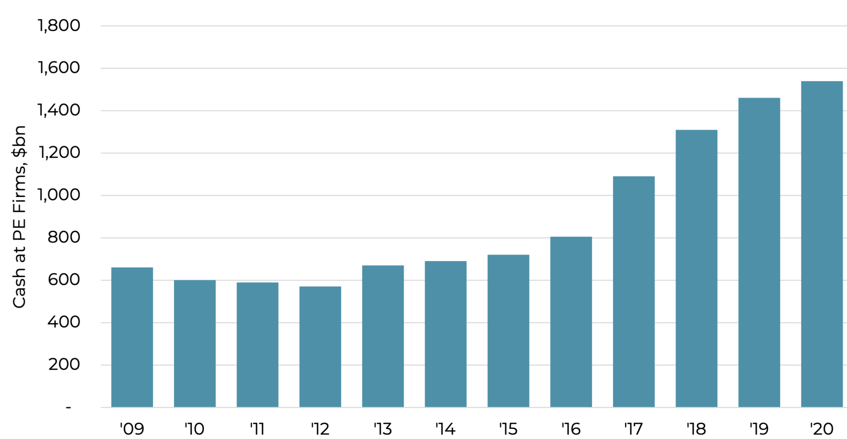



The figure shows the cross-sectional median cash to assets ratio for US large-cap and mid-cap firms. The firms are the constituents of the large-cap and mid-cap components of the US S&P Broad Market Index.
Source: Versor Investments, S&P, Worldscope.

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

Figure 4 shows that private equity funds have also accumulated large amounts of cash, although this trend has built up over several years. Unlike corporations, private equity funds must spend their cash at some point. While PE funds may use some of the cash to support existing investments, a large fraction is likely to fund future acquisitions. Some of the acquisition targets will be private companies in which merger arbitrage cannot take

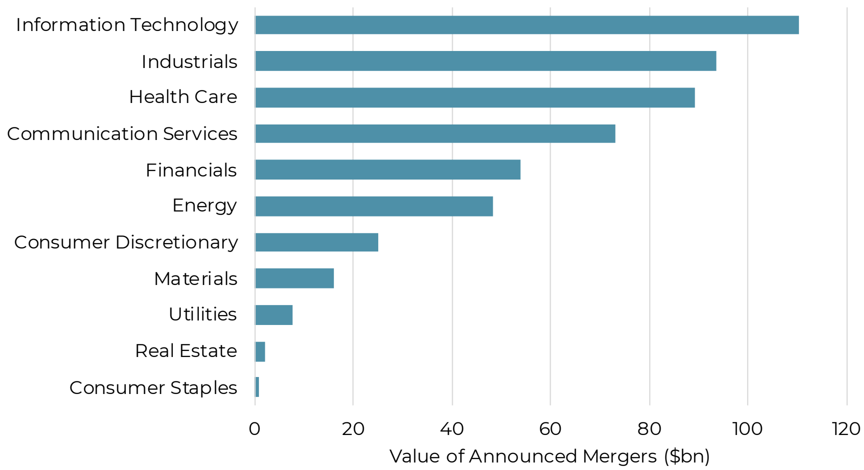
**Figure 4: Dry Powder at PE Funds**




The figure shows estimates of cash held by private equity funds. Values prior to 2020 are at year-end; the value for 2020 is for the end of March.
Source: Goldman Sachs.

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

**Figure 5: Value of Announced Mergers by Sector**




The figure shows the value of announced mergers by sector during the second half of 2020. Source: Versor Investments, Bloomberg.

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

positions. However, many of the acquisition targets will be public companies that will become part of merger arbitrage portfolios.

As the figures show, cash at public and private potential acquirers is at exceptionally high levels. This should contribute to higher future merger activity.

Most recently, deal flow has been concentrated in the technology, industrial, and health care sectors. Figure 5 shows deal flow, in dollars, by sector during the second half of 2020. It is likely that high cash holdings (and high equity values) at some technology firms have contributed to mergers in that sector and will continue to do so.

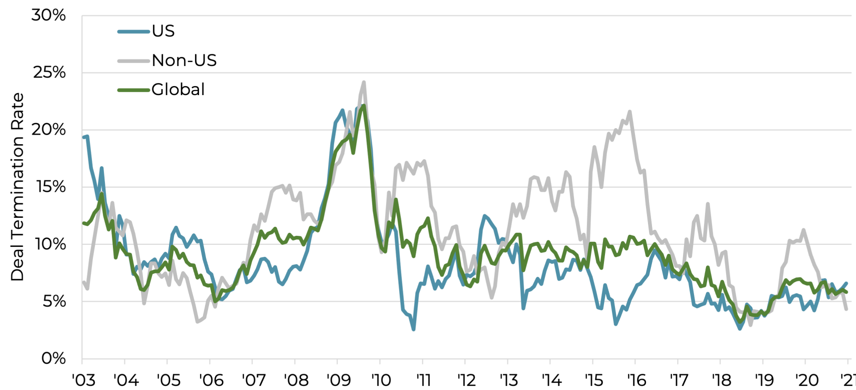
## 2.2 Failures and competing bids

Most mergers complete based on the initial offer. This is a positive outcome for merger arbitrage. A few mergers fail, generally contributing negative returns to merger arbitrage. Interestingly, there is a third possible outcome, in which a merger receives an improved offer from the current bidder or a third party. This is the best possible outcome for merger arbitrage.

### The frequency of failures

The failure of mergers is a key risk for merger arbitrage trading strategies. Although mergers fail infrequently, when they do they often contribute materially negative returns, even in well diversified portfolios. An environment with elevated deal failure rates is likely to detract from overall returns.

### Figure 6: Deal Terminations




The figure shows the failure rate of mergers over time. The failure rate is the number of mergers that terminate divided by the sum of pending and terminating mergers.
Source: Versor Investments, Bloomberg.

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

Figure 6 shows the evolution of merger termination rates over time. The figure shows that typical failure rates are just under 10%. But the rates vary over time. Despite the Covid-19 stresses on the economy and financial markets, recent failure rates have been very low. Although there were some Covid-related deal failures, the overall failure rate in 2020 remained low by historical norms.

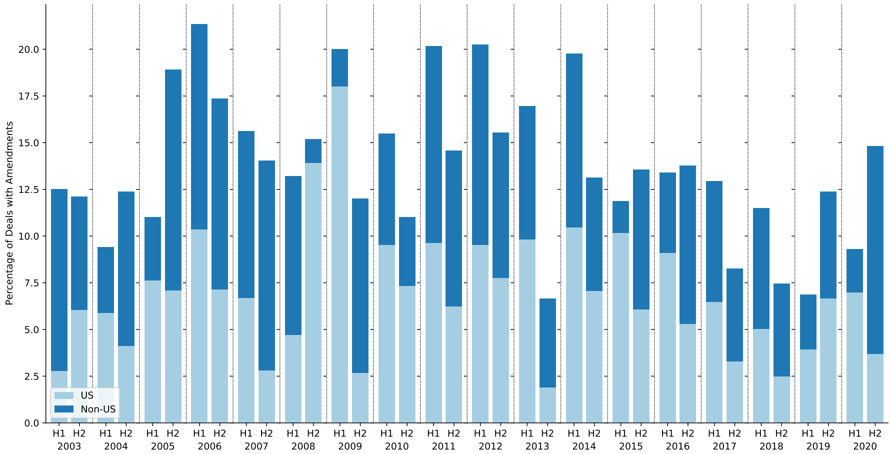
The low termination rates in 2020 are strikingly different from those during the financial crisis of 2008/2009. During those years, merger termination rates reached twice their normal levels. Although early 2020 brought severe stress to financial markets and global economies, financial markets recovered fairly quickly and most mergers proceeded as planned. Part of this relatively high resilience in current mergers is likely to be structural. Over time, merger agreements, especially for definitive mergers, have become much stronger and more difficult to abandon.

Barring a dramatic change in economic conditions, deal failure rates seem to have settled in a range that is highly advantageous for merger arbitrage going forward.

### The frequency of competing bids

Long-term, improved offers occur about twice as frequently as deal failures. Most of the improved offers come from current bidders. Obviously, higher offers are good for merger arbitrage. In portfolios that successfully reduce positions in risky deals that might fail and increase positions in deals that might receive improved offers, the gains from improved offers can largely

**Figure 7: Improved Offers**




The figure shows the number of mergers that received an improved offer from the current bidder or a third party over time. The US and Non-US percentages are as a fraction of the global universe, so they correctly add up to the global fraction.
Source: Versor Investments, Bloomberg.

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

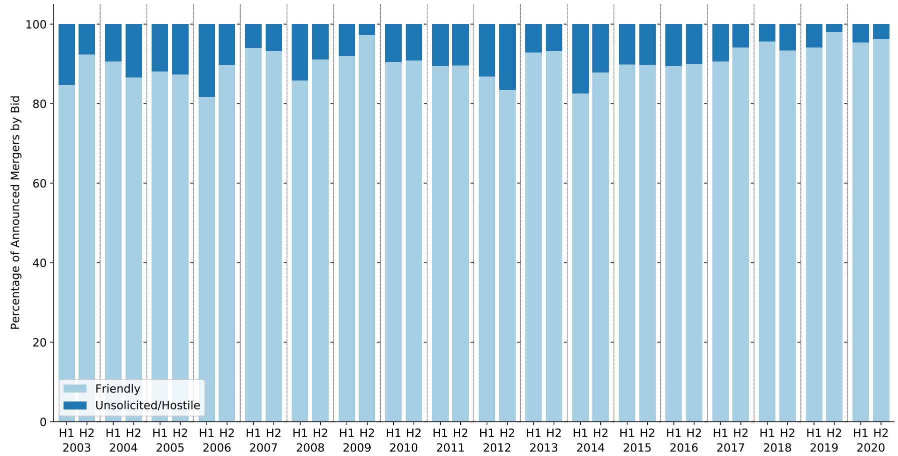
offset the losses from terminated deals. Of course, this positioning requires good forecasts of which deals may fail and which deals may receive an improved bid.

In late 2020 and at the beginning of 2021, mergers have received an unusual number of competing bids. Figure 7 shows the number of improved offers for each six-month period. As the figure shows, improved offers increased to unusually high levels in the second half of 2020. Many of these offers are amendments from the initial bidder, in part because market prices have continued to rise. A smaller fraction of the improved offers are competing bids from a second potential acquirer. Although these competing bids have been relatively rare in the last few years, there was a notable increase in these offers most recently. Clearly, such increased competition is favorable to merger arbitrage.

## 2.3 Deal characteristics

In addition to overall deal volume, merger arbitrage benefits from certain deal characteristics. All else equal, merger arbitrage performs better when mergers enter the market at wider spreads and close faster. While these characteristics always differ across deals, merger arbitrage benefits when more mergers have favorable characteristics. We present the average characteristics across outstanding mergers.

### Figure 8: Fraction of Friendly Mergers




The figure shows the fraction of announced mergers that are friendly or hostile, for successive six-month periods. A merger is "friendly" if both target and acquirer agree to merge at announcement. The bottom portion of each bar shows the fraction of friendly mergers; the top portion of each bar shows the fraction of hostile mergers.
Source: Versor Investments, Bloomberg.

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

### Friendly or hostile?

Whether both parties agree to the deal in a "friendly" merger or whether the target firm is resisting the offer in a "hostile" merger is a key indicator for the likely success or failure of the merger. Hostile mergers fail at roughly six times the rate of friendly mergers, 36% versus 6%. As a result, modest shifts in the proportion of friendly and hostile mergers can have material impact on the likely failure rates across deals.

Figure 8 graphs the fraction of friendly and hostile mergers over time. The figure shows that the current fraction of hostile mergers is unusually small. This should bode well for high rates of successful deal completion in the future.

Recently, the relatively high fraction of friendly mergers likely has contributed to the lower failure rates we showed in figure 6. The anticipation of lower deal failure rates likely has contributed to tighter spreads as well.

Of course, sophisticated merger arbitrage strategies attempt to gauge the failure probability for each deal as one input into determining position sizes. Naturally, however, when there are fewer hostile deals, it is easier to avoid deal failures.

### Merger spreads at announcement

Since merger arbitrage attempts to earn the merger spreads, wider spreads offer better returns – all else equal. Merger spreads consist of two compo-

**Figure 9: Merger Spreads at Announcement**


The figure shows the average merger spread at announcement in excess of the contemporaneous Treasury Bill yield, adjusted to the average deal duration. The spreads are not annualized and a merger arbitrage portfolio would expect to earn these spreads several times per year, depending on deal duration, amplify them with portfolio leverage, and add back the Treasury Bill yield.
Source: Versor Investments, Bloomberg.

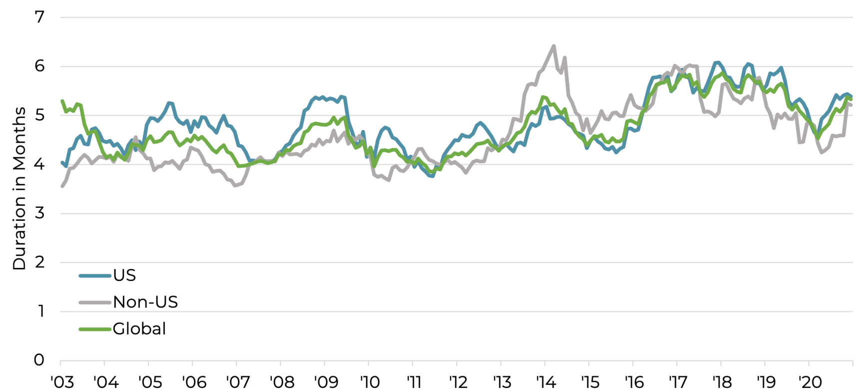
Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

nents: a risk-free interest rate and a risk premium for uncertainty about when, under what terms, and whether the merger will complete. If all mergers succeeded under the announced terms on known dates, merger spreads would be equal to the risk-free rate. The component of the spread over and above the risk-free rate of interest is an expected reward merger arbitrage earns in exchange for bearing the risk that the deal may not close on time, under the current terms. Of course, this return component remains uncertain until the deal actually closes.

In order to focus on the excess return component of the spread, figure 9 shows deal spreads at announcement minus the contemporaneous risk-free rate of interest. Since mergers are not expected to last a full year, we compound the risk-free rate to the expected deal duration.

Merger spreads are generally small. It is important to note that merger arbitrage attempts to earn these spreads several times per year since the average deal duration is materially less than one year. In addition, merger arbitrage portfolios can amplify these excess returns by applying leverage to the portfolio. Given current deal durations, which we discuss in the next section, we might expect to earn the spread 2 or 3 times per year. Given current deal flow, we might expect to double the spreads again via leverage. The final return might be about 5 times the excess spread plus the Treasury Bill yield, depending on deal durations, portfolio leverage, deal failures,

### Figure 10: Deal Durations




The figure shows the average deal duration for announced mergers over time. The duration is measured from announcement to successful completion or termination. US mergers have targets with primary equity listings in the US. Non-US mergers constitute mergers with target stocks in Canada, Europe including the UK, Australia and Japan.
Source: Versor Investments, Bloomberg.



and improved offers.

Figure 9 shows that current spreads are near, but slightly below, historic norms. As for individual deals, tight or negative merger spreads can be an indication that market participants discount the probability of failures or assign material probability to improved offers. As we showed in figures 6 and 7, both appear to be true at the moment.

### Deal durations

All else equal, faster deal completion is better for merger arbitrage since it means that the portfolio earns the spreads sooner, which translates into a higher annual rate of return.

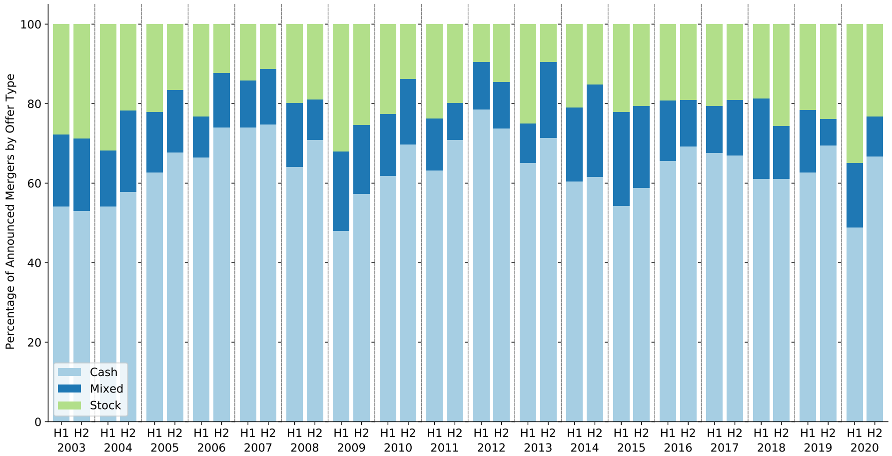
Generally, mergers complete over the course of a few months. Figure 10 shows that Covid restrictions on travel and meetings temporarily slowed deal completion in the first half of 2020. However, that increase started from a low base and deal durations remained at normal levels in the second half of 2020.

It appears that merger participants have found ways of coping with Covid restrictions and manage to complete mergers in fairly normal timeframes.

### Forms of payment

Figure 11 shows the evolution of payment terms for mergers over time. Historically, cash has been the dominant payment form, either in pure cash offers or in combination with stock. In the first half of 2020, however,

**Figure 11: Payment Types for Mergers**




For semi-annual period, the figure shows the fraction of announced mergers by payment type: pure cash, pure stock, or a blend of the two. The bottom portion of each bar indicates the fraction of pure cash deals; the top portion of each bar indicates the fraction of pure stock deals; and the middle portion of each bar indicates the fraction of mergers with offers that include both cash and stock.
Source: Versor Investments, Bloomberg.

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

cash offers were far less prevalent as firms tried to conserve cash. We also saw this cash conservation in figure 3. A similar shift in payment terms occurred during the financial crisis in the first half of 2009. In addition to conserving cash, stock offers can be attractive in an environment of elevated uncertainty about market prices. In the event the value of the merger target falls materially as a result of an overall market decline, a stock offers automatically adjusts to changing market conditions.

As deal flow recovered in the second half, the fraction of cash offers returned to fairly normal levels.

## 3 Summary

We provide a comprehensive review of the global environment for mergers and merger arbitrage investment strategies. Although Covid-19 brought material stresses to the market for mergers in the first half of 2020, the second half of 2020 produced an attractive environment. If anything, these improvements continued to accelerate towards the turn of the year and into 2021.

In the second half of 2020, deal flow was strong with large numbers and large values of mergers. This allows merger arbitrage strategies to build well diversified portfolios. Corporations and private equity funds have unusual amounts of cash on hand, which is likely to contribute to strong deal flow going forward. Not surprisingly, the early recovery in deal flow has been concentrated in sectors that have weathered Covid-19 relatively well, like technology and health care. In addition to continued strong deal flow in these sectors, we anticipate that there will also be a recovery of deal flow in sectors that have suffered under Covid-19, as stronger firms acquire weaker firms.

Despite the extraordinary economic stress from Covid-19, the vast majority of announced mergers completed. In fact the termination rates over the course of 2020 were below long-term average termination rates. Especially in the US, where new merger agreements will include even more stringent material adverse condition clauses, we expect termination rates to remain attractively low.

Similarly, the characteristics of mergers announced in the second half of 2020 indicate an attractive environment for merger arbitrage: spreads are near typical levels, deal durations are the same as they were over the last few years, and the mix of cash and stock offers is near historical norms.

Based on these considerations, we conclude that 2021 begins with a very attractive environment for merger arbitrage.

Fully exploiting the attractive environment requires a sophisticated investment strategy that can distinguish more attractive mergers from less attractive mergers and position the portfolio accordingly. Versor Investments has implemented an advanced systematic merger arbitrage strategy. The alpha forecast model for that strategy uses machine learning and a proprietary database covering more than 4,000 mergers to estimate the probability that a merger will close, determine downside risk, and perform competing bid analysis. The strategy invests in announced merger deals across the US, Canada, UK, and Europe.

## 4 References

Harford, Jarrad, 1999, Corporate cash reserves and acquisitions, *Journal of Finance* 54, 1969–1997.

# Disclosures

## General Disclosures

The information contained herein is provided for informational and discussion purposes only and is not, and may not be relied on in any manner as, legal, tax or investment advice. This document does not constitute an offer to sell or the solicitation of an offer to buy any securities or the solicitation to enter into any investment advisory or similar agreement with Versor Investments LP or any of its affiliates (collectively, "Versor Investments" and formerly "ARP Investments" herein after referred to as "Versor Investments") and may not be used or relied upon in connection with any offer or sale of securities. Any such offer may only be made by means of formal Offering Documents, the terms of which will govern in all respects. Past performance is not indicative of future results. The information set forth herein does not purport to be complete.

Investing in an investment product made available by Versor Investments or its affiliates (a "Fund") involves a high degree of risk. No person has been authorized to make any statement concerning the Fund other than as set forth in such Fund's Offering Documents and any such statements, if made, may not be relied upon. Prior to investing, investors must familiarize themselves with the Fund's offering materials and subscriptions documents (collectively, the "Offering Documents") and be prepared to absorb the risks associated with any such investment, including a total loss of all invested capital. The complete terms regarding an investment in a Fund, including but not limited to the investment program, fees and charges, tax considerations, risk factors, conflicts of interest and liquidity, are set forth in the Fund's Offering Documents.

The information contained herein is unaudited and provided as an accommodation to investors in connection with the monitoring of their investment in a Fund. The materials provided are based upon information included in our records, as well as information received from third parties. We do not represent that such information is accurate or complete, and it should not be relied upon as such. The financial information contained herein does not provide a complete picture of the Fund's financial position or results, in part because it is does not reflect all applicable fees, expenses and other costs that will affect the Fund's net returns. The actual returns of the Fund will be lower – and likely much lower – than the unaudited returns included in this presentation. Please contact Versor Investments for a pro forma calculation of the impact of projected fees and expenses on the returns included herein. In the event of any discrepancy between the information contained herein and the information contained in an investor's audited account statements, the latter shall govern.

Certain information in this document may consist of compilations of publicly-available data. Versor Investments has obtained such data from what it believes to be reliable sources. However, Versor Investments has no ability, and has not attempted independently, to verify any of such information. Versor Investments has not generated or independently verified the data included in this document and assumes no responsibility for it.

Certain information included in this document regarding Versor Investments' "implementation" of different strategies is simulated and back-tested. These are hypothetical records only. These results have been generated by applying Versor Investments' systems to historical pricing data for the publicly-traded instruments (including securities and futures) in which the Versor Investments' accounts will trade. The recipient should understand that Versor Investments, in using its analytics to generate simulated results, necessarily applies Versor Investments' statistical models to historical data on a back-tested basis. Different quantitative analysts will differ as to how statistically to define the different factors. While Versor Investments believes that its method of analysis is reasonable, there are other equally reasonable methods which would generate materially different results. Relying on any form of statistical, quantitative analysis in investment decision-making is speculative and involves a high degree of risk. PAST PERFORMANCE IS NOT NECESSARILY INDICATIVE OF FUTURE RESULTS. Commodity interest trading involves substantial risk of loss.

Because these results are simulated, they are subject to all of the material inherent limitations of back-tested data. Due to these limitations (among others), the U.S. Commodity Futures Trading Commission requires that the following disclaimer accompany such information:

**These results are based on simulated or hypothetical performance results that have certain inherent limitations. Unlike the results shown in an actual performance record, these results do not represent actual trading. Also, because these trades have not actually been executed, these results may have under-**

**or over-compensated for the impact, if any, of certain market factors, such as lack of liquidity. Simulated or hypothetical trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. Specifically, Versor Investments continuously seeks to enhance its methodologies and therefore a survivorship bias is present as these hypothetical performance results are continuously updated to apply what Versor Investments believes to be the most optimal approach at that point in time. No representation is being made that any account will or is likely to achieve profits or losses similar to these being shown. An investment with Versor Investments is speculative and involves substantial risks; investors may lose their entire investment. No one should rely on any simulated performance in determining whether to invest with Versor Investments.**

Certain analysis or statements included herein may constitute forward-looking statements. The forward-looking statements are not historical facts but reflect Versor Investments' current statistical conclusions regarding future results or events. These forward-looking statements are subject to a number of risks and uncertainties that could cause actual results or events to differ materially from history or current expectations. Although Versor Investments believes that the assumptions inherent in the forward-looking statements are reasonable, forward-looking statements are not guarantees of future results or events and, accordingly, readers are cautioned not to place undue reliance on such statements due to the inherent uncertainty therein.

Versor Investments is newly-formed and in addition to the risks of its strategies, is subject to all the risks of a "start-up" business.

This document is confidential and is intended solely for the addressee. The information contained herein is proprietary and confidential to Versor Investments and may not be disclosed to third parties, or duplicated or used for any purpose other than the purpose for which it has been provided. Unauthorized reproduction or the distribution of this document (or any excerpts hereof) is strictly prohibited. The recipient agrees to dispose of this document promptly upon the request of Versor Investments .

## Australia Disclosures

### Australia General Disclaimer

This document is issued by Versor Investments LP ("Versor Investments" and formerly "ARP Investments"), a U.S. investment adviser registered with the U.S. Securities and Exchange Commission. The information in this document (the "Information") has been prepared without taking into account individual objectives, financial situations or needs. It should not be relied upon as a substitute for financial or other specialist advice. This document does not constitute investment advice or any offer or solicitation to sell investment advisory services in any jurisdiction in which an offer, solicitation, purchase or sale would be unlawful under the securities law of that jurisdiction. This document is directed at and intended for wholesale clients, professional clients, eligible counterparties and other "institutional investors" (as such term is defined in various jurisdictions). This document is provided on a confidential basis for informational purposes only and may not be reproduced in any form or transmitted to any person without authorization from Versor Investments (formerly "ARP Investments").

By accepting a copy of this presentation, you agree (a) that the Information is confidential and proprietary to Versor Investments , (b) to keep the Information confidential, (c) not to use the Information for any purpose other than to evaluate a potential investment in any product described herein, and (d) not to distribute the Information to any person other than persons within your organization or to your client that has engaged you to evaluate an investment in such product. This document is supplied on the condition that it is not passed on to any person who is a retail client. Past performance is not indicative of future results. Unless otherwise specified, investments are not bank deposits or other obligations of a bank, and the repayment of principal is not insured or guaranteed. They are subject to investment risks, including the possibility that the value of any investment (and income derived thereof (if any)) can increase, decrease or in some cases, be entirely lost and investors may not get back the amount originally invested. The contents of this document have not been reviewed by any regulatory authority in the countries in which it is distributed. Versor Investments accepts no liability whatsoever for any direct, indirect or consequential loss arising from or in connection with any use of, or reliance on, this document which does not have any regard to the particular needs of any person. Versor Investments takes no responsibility whatsoever for any use, reliance or reference by persons other than the intended recipient of this document.

Opinions and views expressed constitute the judgment of Versor Investments as of the date of this document, may involve a number of assumptions and estimates which may not be valid, are not guaranteed, and are subject to change without notice. Although the information and any opinions or views given have been obtained from or based on sources believed to be reliable, no warranty or representation is made as to their correctness, completeness or accuracy.

The opinions and views herein are not intended to be recommendations of particular financial instruments or strategies to you. This document does not identify all the risks (direct or indirect) or other considerations which might be material to you when entering any financial transaction. You are advised to exercise caution in relation to anyinformation in this document. If you are in doubt about any of the contents of this document, you should seek independent professional advice.

### Legal Disclaimer

It is the responsibility of any persons wishing to engage investment advisory services to inform themselves of and to observe all applicable laws and regulations of any relevant jurisdictions. Prospective clients should inform themselves as to the legal requirements and tax consequences within the countries of their citizenship, residence, domicile and place of business with respect to the acquisition, holding or disposal of any investments in stock or bonds, and any foreign exchange restrictions that maybe relevant thereto. Versor Investments products or services are not registered for public sale in Australia, New Zealand or Papua New Guinea, respectively. The Information is provided for informational purposes only. Opinions, estimates, forecasts, and statements of financial market trends that are based on current market conditions constitute our judgment and are subject to change without notice. We believe the information provided here is reliable. The views and strategies described may not be suitable for all clients. References to specific securities, asset classes and financial markets are for illustrative purposes only and are not intended to be, and should not be interpreted as, recommendations.