DOI: 10.20472/EFC.2023.019.023

VICTOR VASNETSOV
Caribbean Environmental Development Institute, Puerto Rico

CATHERINE VASNETSOV
Caribbean Environmental Development Institute, Puerto Rico

COVID IMPACT ON CROSS-BORDER M&A: EVIDENCE FROM EUROPEAN UNION

Abstract:

This paper investigates trends in cross-border Mergers and Acquisitions (M&A) in the European Union (EU), both pre-COVID and during the COVID epidemic, in its correlations with several major macroeconomic and financial factors. We established that EU cross-border M&A transaction volume during the 2000-2023 period was positively correlated to European stock market performance, exchange rate (Euro/US dollar), and EU economic uncertainty, and inversely correlated to stock market valuations and cost of debt capital. All these correlations were found to be highly statistically significant. COVID's overall impact could be split into two different phases: first, the initial massive "shock" (March – June 2020) with its highly disruptive effect to all types of economic activities (including cross-border M&A). In the later, longer phase (July 2020 – April 2022), COVID itself had no statistically significant impact on a strong rebound in the economy and M&A activity despite two larger waves of COVID epidemic (winters of 2020-21 and 2021-22). The latter could be explained by the rapid adjustment of economies and societies to effective remote work and by the massive monetary and fiscal interventions by EU governments. This unprecedented government stimulus had a rapid, positive, and sustainable effect on the economies and the stock market more than just offsetting the initial negative impact of COVID, and temporarily distorted historical relationships of M&A activity with macroeconomic factors.

Keywords:

EU mergers and acquisitions (M&A), Cross-border M&A, COVID-19

JEL Classification: G34, I15

COVID Impact on Cross-Border M&A: Evidence from the European Union

Victor Vasnetsov[1*] and Catherine Vasnetsov[1]

[1]Caribbean Environmental Development Institute, Economics Department
San Juan, Puerto Rico

*Correspondence to: Victor Vasnetsov, Research Fellow E-mail: VV@c-edi.org

ABSTRACT

This paper investigates trends in cross-border Mergers and Acquisitions (M&A) in the European Union (EU), both pre-COVID and during the COVID epidemic, in its correlations with several major macroeconomic and financial factors. We established that EU cross-border M&A transaction volume during the 2000-2023 period was positively correlated to European stock market performance, exchange rate (Euro/US dollar), and EU economic uncertainty, and inversely correlated to stock market valuations and cost of debt capital. All these correlations were found to be highly statistically significant. COVID's overall impact could be split into two different phases: first, the initial massive "shock" (March – June 2020) with its highly disruptive effect to all types of economic activities (including cross-border M&A). In the later, longer phase (July 2020 – April 2022), COVID itself had no statistically significant impact on a strong rebound in the economy and M&A activity despite two larger waves of COVID epidemic (winters of 2020-21 and 2021-22). The latter could be explained by the rapid adjustment of economies and societies to effective remote work and by the massive monetary and fiscal interventions by EU governments. This unprecedented government stimulus had a rapid, positive, and sustainable effect on the economies and the stock market more than just offsetting the initial negative impact of COVID, and temporarily distorted historical relationships of M&A activity with macroeconomic factors.

Keywords: EU mergers and acquisitions (M&A), Cross-border M&A, COVID-19
JEL Classification: G34, G150, I15

1. Introduction

In addition to organic growth, the Mergers and Acquisitions (M&A) process is an important tool to achieve profitable growth for companies. M&A allows businesses to purchase cutting-edge technology, diversify their product offerings, and take advantage of economies of scale in a combined larger company. While the broad strategic reasoning for cross-border M&A is clear, the role of specific economic factors impacting the number and volume of cross-border M&A requires a more detailed investigation.

The purpose of this paper is to provide a comparative analysis of EU cross-border M&A before and during the most active phase of COVID (2000-19 vs. 2020-22 periods). Specifically, the paper analyzes the correlation of M&A with several EU macroeconomic factors: media sentiment and consumer sentiment, stock market performance, cost of debt, and exchange rate (Euro to USD). The study results will help policymakers, corporate leaders, and scholars get a better understanding of the forces shaping M&A trends, both retrospectively and in the post-COVID period.

This paper is structured as follows: Section 2 explains data sources and methodology, then Section 3 presents results and discussion of multivariant regressions. Finally, Section 4 formulates conclusions and policy implications.

2. Methodology and Descriptive Data

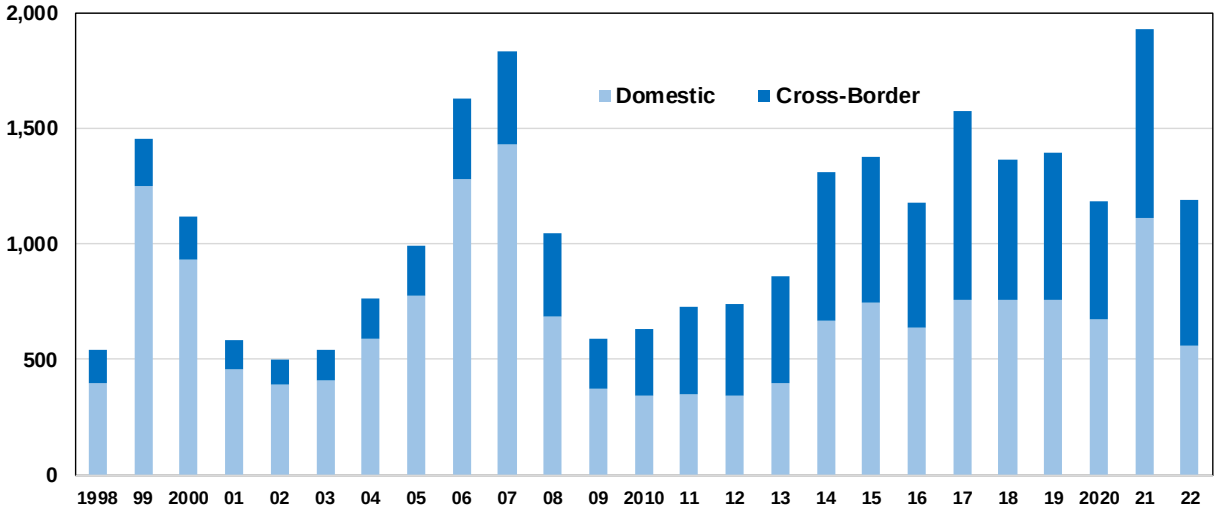
Among several M&A datasets, *Dealogic Ltd* stands out as the most comprehensive and up-to-date information source widely used by industry practitioners, and hence it was used in this study. Other EU macroeconomic and stock market data was obtained from *Bloomberg*. Statistics on COVID was compiled by *OurWorldinData.org*, which was the source of COVID-related EU data.

2.1 M&A trends

All M&A transactions could be split into domestic and cross-border. In domestic transactions, both the acquirer and the M&A target are from the same “home country or region”, while in cross-border EU M&A the acquirers are foreign, and the targets are EU-based. Although the investment horizon of large investment decisions is measured in decades, M&A decisions are significantly influenced by the phase of business cycles and hence are very cyclical. All big investment decisions are made by balancing attractive growth opportunities vs. risks of making a big decision at the wrong time of the cycle, which would significantly reduce financial return on such investment, as discussed by Ferreira (2009).

The macro-economic cyclicality of EU M&A is clearly seen in Figure 1, as total M&A activity is peaking along with the EU economic cycle peaks in 2000, 2007 and 2021. Total EU M&A declines during economic recessions of 2002 and 2009 (and a potential recession of 2023-2024). The cross-border part of EU M&A is even more cyclically volatile, as foreign acquisitions are generally viewed as riskier by foreign acquirers than a comparable domestic M&A transaction. On average, cross-border EU M&A was about 20% of the total EU M&A in the 2000-09 decade, then grew to 45%-50% of the total in the next decade (2010-2019), as shown in Figure 1.

Figure 1. Cyclical nature of EU M&A (all values in $Billion)

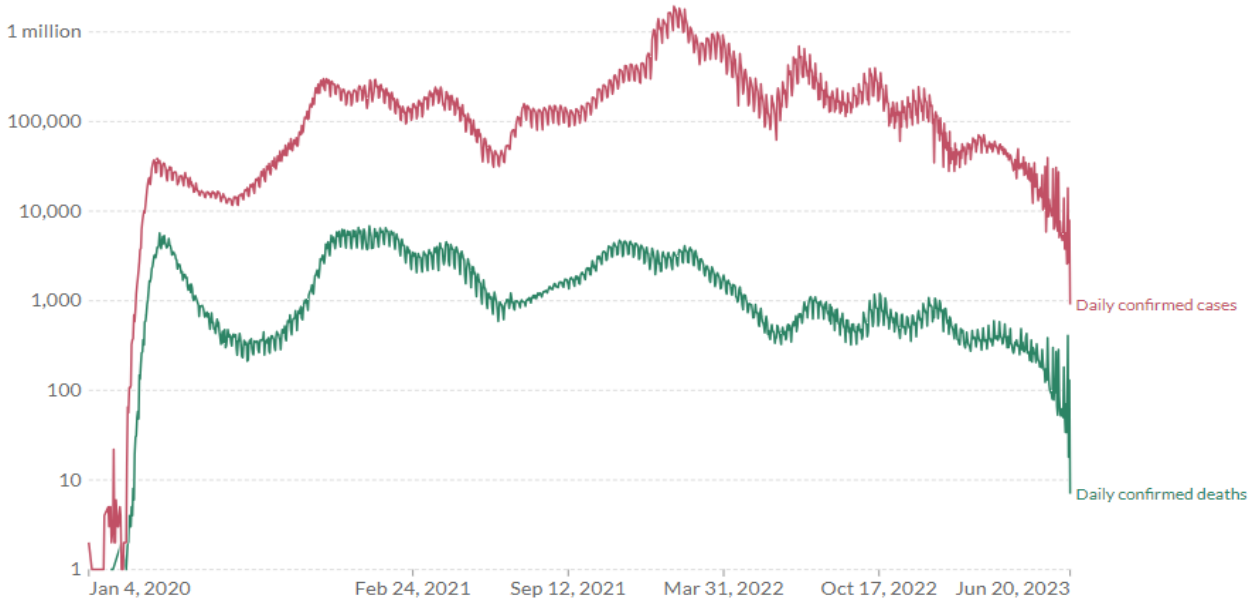


Source: Own calculations based on data compiled by Dealogic and Bloomberg

2.2 COVID Epidemic: Timeframe, waves and impact on society

Since its emergence, COVID has an extended and uneven impact in several stages (waves) that could be defined in both direct medical terms and by its broader, indirect impact on the EU economy. Obviously, the timing and magnitude of impact varied significantly across seasons, with European winters being most COVID active seasons, as shown in Figure 2.

Figure 2. COVID-19 daily confirmed cases and deaths in Europe (log scale)



Source: https://ourworldindata.org/covid-cases-death

Several factors were responsible for such “wave-like” patterns: weather seasonality in northern hemisphere weather (traditionally more respiratory diseases in winter), partially offset by gradually improving capabilities of the EU medical system to treat patients, and a large-scale availability of COVID vaccines (gradually available on a larger scale from the early 2021).

2.3 Selection of Independent Variables

Determinants of M&A activity have been a subject of research from different angles. Erel (2012) focused on factors influencing the volume of M&A activity: economical (imports/exports, GDP growth), social (regional proximity, same or similar culture and religion) and legal (corporate governance and tax regime). Meanwhile, Xie (2017) focused mostly on outcome of M&A activity and factors influencing better or worse outcomes in terms of M&A return for shareholders.

In contrast to the above and other prior researchers, our approach was on the analysis of macroeconomic factors influencing M&A activity over a much longer time period: January 2000 – March 2023. Based on thorough review of academic literature and considering some input from M&A practitioners, the following list of independent variables were considered:

• **Strategic rationale** is defined by companies’ interests in additional growth opportunities or market consolidation options. The strategic driver is always present (although varies in different industries and countries), but it is impossible to measure the strategy objectively. Hence, regretfully, the most important driver of M&A could not be addressed in this quantitative study.

• **Market Price index** is a value for STOXX 600 European Index. The first hypothesis is that higher stock market index will result in higher M&A volume, incentivizing more sellers.

• **EU Policy Uncertainty** is tracking the pulse of major news media, as it is based on number of articles mentioning "uncertainty" in the top ten EU newspapers (two newspapers per each of five major countries: Germany, France, Italy, Spain and the UK (even after Brexit, for consistency of the long-run index series and for importance of the Financial Times as a truly global newspaper) The second hypothesis is that higher Policy Uncertainty will result in lower M&A values, as both buyer and seller become more reluctant to complete M&A transaction at times of high uncertainty.

• **Consumer Sentiment index** is generated from the regular harmonized surveys conducted by the Directorate General for Economic and Financial Affairs. The third hypothesis is that higher consumer uncertainty (lower consumer sentiment index) will result in lower M&A volume.

• **Market Valuation index** is defined as a change in Price / Book Value ratio for the STOXX 600 European Index. The fourth hypothesis is that lower valuation multiple will result in higher M&A volume, as cheaper targeted assets are more attractive for the acquirer to buy.

• **Capital Cost of M&A** Capital M&A cost is typically funded from various combinations of new debt, new equity (the acquirer’s new stock issuance), and the acquirer’s cash on the balance sheet. Volatility in financing costs is predominantly caused by the cost of new debt. The fifth hypothesis is that lower financing costs will result in higher M&A volume, as with lower interest rates, buyers could afford to pay a higher transaction price, which is attractive to target companies.

• **Euro-Dollar FX rate** The sixth hypothesis is that higher FX rate should be positively associated with M&A volume, as it is reported by Dealogic in US$ Billions.

Table 1. Descriptive Statistics for EU Cross-Border M&A (monthly, Jan 2000 – March 2023)

#	Factor	Mean	Median	St.Dev	SD / Mean, %	R2 correlation of pairs among listed factors						
						2	3	4	5	6	7	8
1	Monthly Value ($B) Cross-Border EU M&A	34	25	31	91%	62%	31%	41%	57%	4%	-54%	4%
2	Monthly Deals # Cross-Border EU M&A	200	173	88	44%	- -	35%	67%	78%	7%	-55%	-19%
3	EU Consumer Sentiment	99	100	10	10%		- -	-12%	64%	54%	-31%	-26%
4	EU Policy Uncertainty	173	162	79	45%			- -	32%	-38%	-34%	-18%
5	Stock Market	321	328	72	22%				- -	34%	-44%	-30%
6	Market Valuation	1.74	1.67	0.33	19%					- -	-23%	-4%
7	Cost of Debt, %	4.48	3.61	3.04	68%						- -	-14%
8	FX rate Euro / USD	1.21	1.21	0.15	13%							- -

Item	Variable	Definition and data source	St.Dev. = SD = Standard Deviation
1 - 2	EU M&A Activity	Announced Value and Number of M&A transactions, compiled by Dealogic, reported by Bloomberg	
3	EU Consumer Sentiment	Calculated Index from EU Commission's Business and Consumer Surveys	
4	EU Policy Uncertainty	Index based on number of articles on "uncertainty" in 12 top EU newspapers (2 per each of 6 countries)	
5	Stock Market (SPXX 600)	STOXX Europe 600 index, based on largest 600 publicly traded EU stocks	
6	Price / Book Ratio	Stock market's valuation of a company relative to its book value	
7	Cost of Debt, %	Benchmark yield of EU high grade and high yield bonds, blended (50%-50%)	
8	FX rate Euro / USD	Market-based value of currency pair {Euro-US dollar}	

Source: Own calculations based on data compiled from Bloomberg

Table 1 describes initial observations on pair relationships between EU cross-border M&A and several independent macroeconomic variables. Notably, M&A volume (expressed in $Billions) and number of M&A transactions have positive correlation with EU consumer sentiment and EU Policy Uncertainty index, very positive correlation with EU Stock Market Value, neutral correlation with stock market valuation, negative correlation with cost of debt and very low correlation with the impact of Euro/US dollar foreign exchange rate.

Most of the above pair correlations are in line with initial intuitive expectations, with two exceptions: positive correlation with EU Uncertainty index and apparent low correlation of stock market valuation multiple on M&A activity. The former is due to fact that EU Uncertainty index reflects European view on EU prospects, thus motivating potential EU-based targets to accept M&A offer. Meanwhile, foreign buyers could have their own, potentially different view on EU.

The latter could be explained by required balance of opposite interests of a buyer and a seller, who must agree on a mutually "fair price" for a "friendly" M&A transaction to take place (given that the vast majority of M&A transactions are "friendly", i.e. achieved with agreement of both parties).

3. Results of Regression Analysis

The field of M&A research is very broad and complex, depending on one's focus on either its influencing factors or on M&A consequences (value-accretion of acquisitions), as discussed by Collins (2009). Hence, for practical constraint reasons, economists typically narrowed down the scope of their analysis of M&A and its resultant data set by a given industry (energy, industrials, or technology), by a given region, by a given time period or by a given factor. The latter is typically analyzed by financial performance post-acquisition, which could be objectively measured for public companies by absolute share price performance and also relative performance to peers).

Our research approach is differentiated in its much more extensive 23-year time period, encompassing three full EU economic cycles, marked by three cyclical recessionary troughs of 2002, 2009 and 2020. This is the longest data series compared to existing M&A literature research.

3.1 Results of Regression Analysis for the pre-COVID period (Jan 2000 – Dec 2019)

A logical starting point for the analysis of COVID's impact was to define the baseline correlations for the prior 20-year time period (2000-2019), just prior to COVID, which infected the Western world in February 2020. Table 2 shows the key results of a multivariant regression analysis. Notably, with the exception of EU consumer sentiment, all other five independent variables had highly statistically significant correlations with cross-border EU M&A volume (in $Billion).

Table 2. **Linear Model Regression for EU cross-border M&A (monthly, Jan 2000 – Dec 2019)**

	Coefficients	***t Stat***	***P-value***	**P-Significance**
Intercept	-46.0	-2.259	0.0247	* *
Stock Market Index	0.151	6.67	0.0000	* * *
Policy Uncertainty	0.046	2.489	0.0134	* *
Consumer Sentiment	0.214	1.344	0.1800	
Valuation (Price / Book)	-11.591	-2.689	0.0076	* * *
Debt Cost, %	-2.083	-4.979	0.0000	* * *
FX USD-Euro	27.14	3.721	0.0002	* * *

The tables presents results of regression analysis of EU cross-border M&A vs. variables

Note that P-values are marked as the following: * p < 0.1, ** p < 0.05, and *** p < 0.01.

Source: Own calculations based on data compiled from Bloomberg

Comparing results of Table 2 with initial hypotheses, we conclude the following:

Hypothesis 1 was confirmed for EU cross-border M&A as higher value of EU stock market index is positively associated with higher EU M&A values with very high statistical significance.

Hypothesis 2 was refuted, as results were contrary to our initial expectations. EU cross-border M&A volume was found to be positively associated with EU Political uncertainly. This result is likely due to a combination of international acquirers being not as much exposed to European major newspapers, thus not sensitive to “EU uncertainty” as it is expressed by the local EU media. Meanwhile, the local European potential sellers are likely to get more motivated to sell their companies at times of higher EU uncertainty, assuming they got offered a fair purchase price.

Hypothesis 3 was also refuted, as EU consumer sentiment had no statistically significant correlation with EU cross-border M&A activity. Plausible explanation is similar to the above provided arguments: foreign M&A acquirers are not much influenced by EU views on itself.

Hypothesis 4 was confirmed, as lower valuation multiple (lower Price/Book ratio) is found to be positively associated with in higher M&A values.

Hypothesis 5 was confirmed, as lower financing costs (lower blended interest rate for loans) is indeed positively associated with in higher M&A values.

Hypothesis 6 was confirmed, as FX rate was positively associated with higher M&A values, as those are reported in US dollar terms in the data providers (Dialogic and Bloomberg).

All the above hypotheses were tested for the purpose of establishing “baseline” trends and correlations for M&A across economic cycles, but in the absence of COVID or any other large-scale epidemic.

In terms of expected COVID impact, we formulated a seventh hypothesis that suggests that COVID intensity (illness or related deaths) is inversely correlated with cross-border EU M&A activity volume. The logic is that COVID epidemic was highly disruptive to all kinds of human activity (both professional and social), hence COVID impact is expected to be negative. This hypothesis is tested in the next chapter (3.2) based on results for the 2020-2022, which was the most intense COVID period.

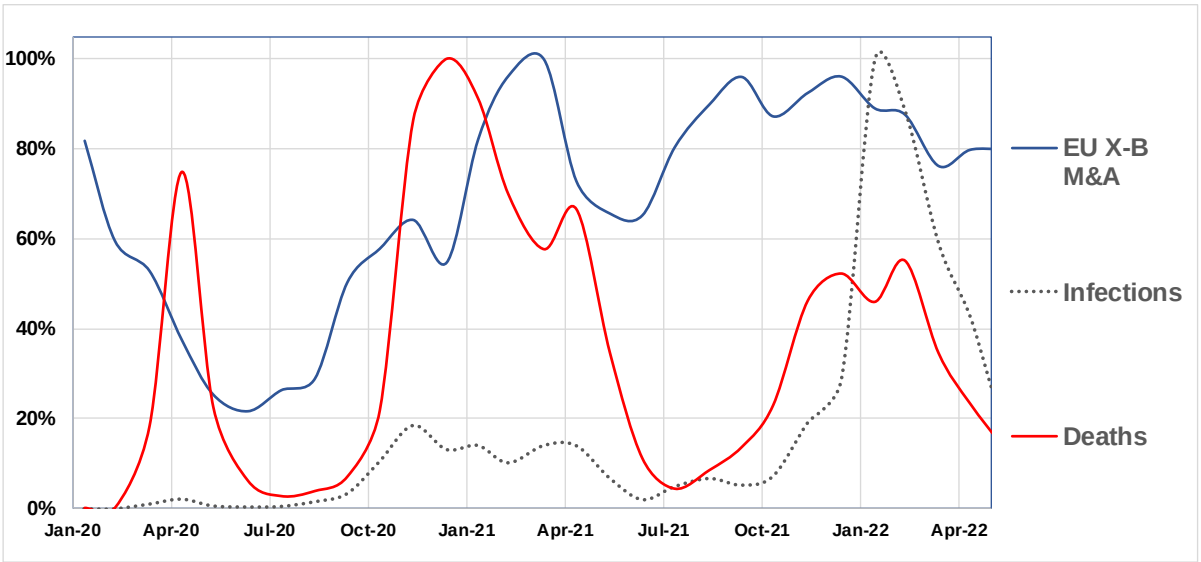
3.2 Impact of COVID epidemic on EU M&A (March 2020 – April 2022)

Starting from early 2020, COVID severely disrupted lives of all people and economies in the world, as described by Kooli (2021) and many other scholars. The direct impact of COVID on people was expressed in healthcare statistics, by the number of people infected, hospitalized, or passed away (either entirely or partially due to COVID). The secondary indirect impact was much broader and larger, due to limitations on people's mobility dictated by governments (either mandated lockdowns or recommended social distancing) and private businesses (mandatory or recommended work from home, instead work at offices or other workplaces).

The secondary impact was transmitted by the economy towards financial markets and M&A activity. Figure 3 shows a direct comparison of COVID trends (infections and deaths) and EU cross-border (X-B) M&A trends for the two most active years of COVID (March 2020 through March 2022). Due to different scale of these three variables, it is better to show the three trends on a relative basis (marking the highest peak value as 100%, and then expressing all other data points as a percentage of the peak value for each of these three variables).

Figure 3 clearly shows the lack of correlation during the most intense two-year COVID period, except for the negative correlation during the short initial first COVID wave in 1H 2020 – when the fear of COVID was much stronger and widespread than the health impact itself (as measured in the number of infected people or COVID-related deaths). These results agree with the absence of M&A - COVID correlations observed by Lee (2022). Our results of multivariant correlation of cross-border EU M&A with COVID infections and deaths during 2020-22 period showed very poor correlation (R2 was only 18%). In addition, both COVID medical variables (infections and deaths) did not have sufficient statistical significance, as p-values for COVID infections and deaths were in the range above 0.23 – much higher than a typical 0.05 p-threshold for >95% confidence.

Figure 3. Impact of COVID infections and deaths on EU M&A



Data represented on a relative scale, as percentage of the peak value (during this two-year period)
Source: Own calculations based on data compiled by Bloomberg (M&A) and OurWorldinData.org (COVID)

To complicate correlation analysis further, the two-year COVID epidemic period (notably 2020, its first year) contained many large extraordinary macro-economic and financial events, as described by both Gherghina (2023) and Rathnayaka (2021). A partial list includes coordinated rapid and massive response by Western governments (rapidly cutting interest rates and providing massive cash stimulus to various economic sectors and directly to citizens), discussed in detail by Sariyer (2022). In addition, there were influences by a rapid evolution of COVID diagnostics and treatment tools, initial lockdown and then re-opening of workplaces, commute and travel options.

Cumulatively, there were so many large and highly unusual variables acting all at once in one short period of time that it is extremely challenging to normalize for them and sort out correlations in this complicated mix of various factors, many of them off-the historical-charts by scale and speed. There are no published results of attempts for such “normalization” of COVID period by economists or healthcare experts, and it is not clear if this normalization is possible at all.

Hypothesis 7 was refuted, as COVID epidemic (expressed in medical trends through the number of infections and COVID-related deaths) had no correlation with EU M&A, besides initial and very short-term “shock” impact in just few months of March - May 2020 of the COVID epidemic.

4. Conclusions

This paper investigated the correlation of macroeconomic factors with the volume of cross-border EU M&A this century. The first step was to define correlations during 20 years of “healthcare normal”, pre-COVID period (2000-19), and four out of six hypotheses were confirmed.

We found that cross-border EU M&A volume ($B) is directly correlated to EU stock market performance, Euro-US dollar exchange rate, and EU Policy Uncertainty, and inversely correlated to stock market valuations and cost of debt capital. These correlations were statistically highly significant for EU cross-border M&A transaction volume (in $Billion).

COVID had a “shock and pause” effect on all economic and social activities globally, notably in the spring of 2020, when the actual transmission rates and mortality were very poorly understood due to the novelty and massive scale of this epidemic, as described by Cervantes (2022). This fear of the unknown scale and risks were further amplified by the initial lack of proper personal safety equipment, COVID treatments, or even hospital beds (in some locations and times).

However, all Western governments promptly responded with major economic and financial stimuli, and their actions quickly improved investor and consumer sentiment – delivering a “defibrillator jolt”, with a positive effect to the rapid recovery in economic activity in 2H 2020 and afterwards.

M&A activity was briefly and sharply curtailed in April-August 2020, along with most other aspects of investment activity. By mechanics of its process, M&A process has at least 3 months of “in-process pipeline”, thus there is a natural three-month delay in M&A transaction volume after fundamental impact of economic variables.

Our analysis showed lack of statistical correlation of the above-mentioned macro-economic factors with EU cross-border M&A activity during the two-year COVID period (March 2020 – March 2022), except for apparent negative correlation during very short initial first COVID wave in 1H 2020 – when an intense fear of COVID was prevalent. From the second half of 2020, the pace and volume

of M&A activity rapidly accelerated despite the record high second wave of COVID in the winter of 2020-21 and 2021-22.

There was a rapid decline in COVID cases from early 2022 – both seasonally (after winter) and also with much wider availability of vaccines. Purely coincidentally, in early 2022 all major central banks started raising interest rates in efforts to combat inflation. This led to a sharp decline in all major stock markets and a decline in consumer and investor confidence, which cumulatively resulted in >50% slowdown in M&A activity from April 2022 through spring of 2023 (compared to prior twelve months period). This decline in M&A was due to a different set of economic reasons (mostly due to a sharp increase in interest rates), and it was fundamentally unrelated with the significant decline in COVID infections (due to widespread availability of COVID vaccines and treatments from early 2022). Certainly, this impact of sudden interest rates spike on M&A activity is a worthy subject of further focused research (which is outside of our intended scope of this paper). All of the medical advances made a positive contribution to the society's fight with COVID and certainly mitigated the negative direct impact of COVID starting from spring 2021. However, this also made it difficult to compare the 2020 infection wave vs 2021 and 2022 COVID infection waves.

The main limitations of our research are including only a relatively short list of independent variables, excluding other prominent broader economic factors, such as GDP growth rate, unemployment, inflation and some other factors, as researched by Erel (2012). Our study did not attempt to normalize the reported number of COVID infections and deaths for the entire period of two years (March 2020 – March 2022) for changing factors of mass availability of accurate testing and effective COVID vaccines and COVID drugs. Such "normalization" attempt was outside of scope of this paper, and it deserves multi-disciplinary research by experts in healthcare, government policy, economics and finance areas.

References

CERVANTES, P. et.al. (2022). *The impact of covid-19 induced panic on stock market returns: A two-year experience*. Economic Analysis and Policy. https://www.sciencedirect.com/science/article/pii/S0313592622001783

COLLINS, J. et.al. (2009) *Learning by doing: Cross-border mergers and acquisitions* Journal of Business Research 1329-1334 https://www.researchgate.net/publication/223951049

FERREIRA, M. et.al. (2009). *Shareholders at the Gate? Institutional Investors and Cross-Border Mergers and Acquisitions*. The Review of Financial Studies. https://academic.oup.com/rfs/article-abstract/23/2/601/1605600

GHERGHINA, S. C. (2023). *The Impact of COVID-19 on Financial Markets and the Real Economy*. Economies. https://www.mdpi.com/2227-7099/11/4/107

EREL, I. et.al. (2012). *Determinants of Cross-Border Mergers and Acquisitions*. Journal of Finance. https://leeds-faculty.colorado.edu/bhagat/CrossBorderMergers.pdf

KOOLI, C. et.al. (2021). *Impact of Covid-19 on Mergers, Acquisitions & Corporate Restructurings*. MDPI. https://www.mdpi.com/2673-7116/1/2/8

LEE, H. S. et.al. (2021). *The impact of the COVID-19 pandemic on cross-border mergers and acquisitions' determinants: New empirical evidence from Quasi-Poisson and negative binomial regression models*. Economies. https://www.mdpi.com/2227-7099/9/4/184

RATHNAYAKA, I. et.al. (2022). *The economics of COVID-19: A systematic literature review*. Journal of Economic Studies. https://www.emerald.com/insight/content/doi/10.1108/JES-05-2022-0257/full/html

SARIYER, G. et.al. (2022,). *Fiscal Responses to Covid-19 Outbreak for Healthy Economies: Modelling with Big Data Analytics*. Structural Change and Economic Dynamics. https://www.sciencedirect.com/science/article/pii/S0954349X2200176X

XIE, E. et.al. (2017). *Country-specific determinants of cross-border mergers and acquisitions: A Comprehensive Review and future research directions*. Journal of World Business. https://www.sciencedirect.com/science/article/abs/pii/S1090951616302589