



US Financial Conditions & the Spillover on Cross-Border M&A: A Study Focusing on the European Market

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Abstract

We study the spillover from the US financial conditions on mergers and acquisitions (M&A) in Europe between the years 2000 and 2020, by performing a panel regression analysis. Our study shows a short-term positive spillover effect, followed by a delayed negative spillover effect. The negative effect is stronger for acquiring countries with higher exposure to foreign exchange liabilities. Moreover, our study distinguishes differences in the spillover effect depending on the industry. Lastly, we observe that M&A activities in Europe are negatively affected by an appreciation in the US nominal effective exchange rate. Conversely, an appreciation in the local currency of either the acquirer or the target exhibits a positive effect on M&A activity.

Keywords: Financial Conditions, Nominal Effective Exchange Rate, Foreign Exchange Liabilities, Mergers and Acquisitions, Monetary Policy.

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1. Introduction

By the end of 2022, the dollar represented approximately 60% of the global reserve currency, making the United States the dominant core reserve currency country, followed by the Euro representing approximately 20% (Iancu et al., 2023). This puts the US in a unique position holding a preeminent role affecting global trade and financial markets. Hence, monetary policy decisions endorsed by the Federal Reserve to steer the domestic economy in a certain direction, are inclined to spill over globally. Understanding macroeconomic implications as an important driver of global mergers and acquisitions (M&A) activity enables a better understanding of the cyclical nature of M&A.

The paper “*Cross-border spillovers: How US financial conditions affect M&As around the world*” by Bergant, Mishra and Rajan (2023) provides compelling research on how US financial conditions affect cross-border M&A worldwide. The researchers argue that given the status of the US dollar as a core reserve currency, financial conditions of the core reserve currency country will likely affect financing options for acquisitions around the world. Hence, these conditions will *indirectly* influence cross-border M&A activity. The topic is interesting due to various factors: firstly, the recent years have provided turbulence in financial conditions and FX rates around the world. How might this turbulence affect M&A activity? Secondly, M&A activity is a well-researched topic where researchers typically aim to understand drivers, often firm-specific or macroeconomic. However, few articles provide research on indirect factors contributing to an increase or decrease in M&A activity, such as easier or more restrictive financing options. Thirdly, understanding the indirect global effects originating from financial conditions in the US can provide possibilities to predict higher or lower M&A activity in the future.

Prior research studies the impact of macroeconomic events, such as changes in monetary policies on corporate activity. Adra, Barbopoulos and Saunders (2020) and Fischer and Horn (2023) examine US monetary policy and its domestic effect on M&A activity and deal values. The studies find that monetary tightening impacts deal activity and deal value negatively in the United States. Diamond, Hu and Rajan (2020) extend their research across borders and determine that global corporate activity follows the broader economic cycle through easier lending opportunities in economic prosperity. Additionally, researchers such as Chen, Mancini Griffoli and Sahay (2014) and Kalemli-Özcan (2019) study the monetary policy

spillover effect from the US and establish differences in the response between emerging and developed markets.

The numerous studies within the field of monetary policy, along with substantial findings, indicate relevance and broader interest in the topic. Since a country's monetary policy and financial conditions are closely linked, studies examining monetary policy could be complemented by including additional factors rather than solely the effects of monetary changes. A suitable index would be the national financial conditions index of a country, consequently, such integration of the two topics enables a more nuanced perspective. Bergant, Mishra and Rajan (2023) explore this further and find evidence of a global spillover effect from the US financial conditions on cross-border M&A. The spillover effect is found to be stronger for countries holding a higher amount of net foreign exchange liabilities. Moreover, the authors observe that the spillover effect on global M&A activities is predominantly driven by changes in the US financial conditions as opposed to changes in the Euro Area. The study, rather new in its area, provides an interesting start to a topic of less considered drivers of M&A activity.

We extend the research conducted by Bergant, Mishra and Rajan (2023) by continuing the focus on the US financial conditions with respect to country-specific factors, such as the nominal effective exchange rate and net foreign exchange liabilities. Additionally, we examine whether certain industries are more sensitive to changes in the US financial conditions. To further differentiate our research, we focus on the European market. As Bergant, Mishra and Rajan (2023) provides research applicable to global economic relations, it is of interest to narrow our study, allowing for a more detailed view of regional outcomes and the isolated effect. Seeing that the Euro is the national currency of approximately 40% of the European countries (European Union, 2023), this leads to a large part of the exchange rate dynamics following a common pattern, thereby suggesting a potentially different outcome from Bergant, Mishra and Rajan (2023). Additionally, since the Euro is the second largest dominant reserve currency in the world (20%), our study provides insights into whether the European market is more resistant to changes in the US financial conditions. The choice of US financial conditions is closely followed by the findings of Bergant, Mishra and Rajan (2023), suggesting that the main driver of the spillover effects of financial conditions originates from the US market rather than the Euro Area, giving incentives to further the research and keep the US as the core reserve currency country.

The effect of financial conditions is assumed to impact M&A activity mainly through easier or tougher lending opportunities. Hence, given that the acquirers are arguably the most affected by changes in lending opportunities, we isolate the location of acquirers to Europe,

while capturing targets within and outside of Europe. Continuously, the ongoing globalization and increased integration between countries have led to cross-border M&A activity in the past 30 years to grow significantly (Erel, Jang & Weisbach, 2022). Nonetheless, despite the considerable expansion of cross-border acquisitions, many studies focus on domestic M&A deals. Although many of the reasons for domestic M&A deals are intercorrelated with cross-border, there are several drivers for cross-border activity that do not apply to domestic. Thus, to extend the research of cross-border M&A drivers, we limit the scope of this study to include only cross-border deals. By doing so, we enable us to obtain a better understanding of different country dynamics and the response to financial conditions.

Interestingly, our findings indicate that a 1% tightening in the US financial conditions leads to an increase in cross-border M&A activity in Europe of 17.6%. However, this positive effect is only present in the short term, followed by a negative effect when the index is lagged one year. More specifically, when performing a lag function on the financial conditions, we find that a 1% tightening of the index leads to a decrease in M&A activity of 7.6%. The outcome of the nominal effective exchange rate's implications on M&A deals indicates a quicker response, displaying that a 1% appreciation of the nominal effective exchange rate decreases M&A deal value by 1.7% in the contemporary period. The local nominal effective exchange rate of the target and acquirer both present a positive relationship, suggesting that the increased lending opportunities for the acquirer outweigh the enhanced valuation of the target that follows from the target's currency appreciation. Moreover, countries with a high degree of net foreign exchange liabilities are less prone to engage in M&A activity. Finally, we distinguish significant industry differences in the US financial conditions impact. The relationship is significant and positive for a majority of the industries short term, and negative and statistically significant long term. Remarkably, the industries affected by the short-term boost are not the same as the ones negatively impacted by the lagged effect.

The thesis is structured as follows: Section 2 provides an insight into the literary background and prior research on the subject matter. Section 3 provides a description of the data and the main variables. Section 4 presents the empirical framework and the method used to conduct the study. Section 5 includes a presentation of our main findings as well as a discussion and critical analysis of the results. The chapter ends with a discussion of limitations and suggestions for further research. Lastly, section 6 concludes the study.

2. Literature Review

2.1 Cross-border M&A Activities

For both the acquirer and target, a large acquisition could potentially be considered one of the most important occurrences of the firm's existence. Given this, there exist numerous studies within the field of mergers and acquisitions covering different aspects of the topic (Erel, Jang & Weisbach, 2022). As of the year 2000, authors Gregoriou and Renneboog (2007) mention that it was broadly acknowledged that five M&A waves during the 1890s, 1920s, 1960s, 1980s and 1990s had taken place. Continuously, the last wave portrayed a significant increase in cross-border M&A activity. During the 21st century, two additional M&A waves have been recognized, “the sixth wave” ranging from 2003-2009, and “the seventh wave” from 2012-2022 (Cho & Chung, 2022). Prior studies have attempted to understand the drivers of the said M&A waves, focusing on different aspects, to better understand the nature of the M&A cyclicity. Historically, one driver of M&A waves has been recognized as economic recovery periods. The aforementioned are usually accompanied by a rapid increase in lending to stimulate the economy (Gregoriou & Renneboog, 2007). Since the 1990s, cross-border deals have gone from making up approximately 1500 deals per year to 4000 deals per year in the years leading up to 2022. Out of the deal fraction by amount, cross-border deals represent roughly 26% to 33%, whereas the deal fraction by value represents a larger amount between 24% and 52%. Cross-border deal values generally involve a significantly higher value, consequently dragging up the average cross-border deal value (Erel, Jang & Weisbach, 2022).

2.2 Monetary Policies

Research on monetary policies dates back to 1962, however, following the global financial crisis³ and the unconventional monetary policies adopted by the central banks, the topic received new attention (Ammer et al., 2016). Monetary policies refer to using tools to control the supply of money, where a common tool is adjusting interest rates. The main objective is to maintain price stability by controlling for inflation and shaping a stable economic environment. A monetary policy tightening entails an increase in the interest rate, leading to a reduction of the money supply. Conversely, during a monetary easing, central banks lower the interest rate hence increasing the supply of money (Mathai, 2022).

³ The global financial crisis (GFC) originated in the US as a mortgage market crisis. The crisis, referred to as one of the worst economic downturns in history, led to a global economic recession lasting 18 months (Yilmaz, 2016).

Numerous studies have researched the impact of monetary policy on domestic M&A activity. A monetary tightening typically leads to increased expenses for acquiring firms when raising external capital, heightening their risk of default. Consequently, this lowers corporate investments and reduces M&A activity as well as the likelihood of deal completion (Adra, Barbopoulos & Saunders, 2020). Continuously, Fischer and Horn (2023) discuss the potential contradictory effect of monetary policy on firms' M&A activities. During a monetary tightening, the simultaneous increase in the cost of financing for acquiring firms and the decrease in the market value of potential targets due to a lower expected future cash flow could cause the net effect on M&A activities to be either positive or negative. Granted that the increased financing costs outweigh the target's decrease in valuation, the net effect will be negative. Conversely, if the reduction of the target's market value offsets the increased financing costs, the net effect is positive. The authors discover that a tightening of monetary policy reduces both M&A deal value as well as activity, indicating that the cost of financing is of higher importance than the potential discount on target valuation.

Expanding the research across borders, Ammer et al. (2016) investigates the international spillover effect from changes in monetary policies and determine that the spillover effect is dependent on the strength of country-specific features such as exchange rates, domestic demand, and foreign financial conditions. The authors find that when US monetary policy steers the US economy in a certain direction, foreign economic activity moves accordingly. Relating to the findings of Fischer and Horn (2023), this would suggest that international M&A activity is reduced when US M&A activity decreases following a monetary tightening. Moreover, the international spillover effect of US monetary policy is found to be stronger in emerging markets compared to advanced (Chen, Mancini Griffoli & Sahay, 2014; Kalemli-Özcan, 2019). Additionally, Gajewski et al. (2019) find similar evidence of an effect on emerging markets, specifically for Korea and Chile, but to a lesser degree in Poland.

2.3 Financial Conditions

A significant metric, closely associated with monetary policy, is the financial conditions of a country. The term "financial conditions" does not encompass a distinct universal definition. Rather, it generally signifies a group of underlying influences, such as assets and interest rates, affected by elements including monetary policies and economic circumstances. Hence, measuring financial conditions is a complex and multifaceted task (Ajello et al., 2023). Numerous researchers aim to reflect the financial conditions by composing different financial

conditions indexes (FCI) in which they construct a singular measure that summarizes different underlying variables, using various methods. The objective of the measure is to reflect the overall health of financial markets and the conditions in an economy (Arrigoni, Bobasu & Venditti, 2020; Hatzius et al., 2010; Matheson, 2012; Mayes & Viren, 2002). Most recently, Ajello et al. (2023), formed a new estimation method referred to as the financial condition's impulse on growth (FCI-G), aspiring to more accurately capture the growth component reflecting on the following year, to forecast economic activity over time. Several financial organizations and economic databases, such as The Federal Reserve Bank of Chicago and Thompson Reuters, publish their own framework for establishing a financial conditions index specific to certain countries, particularly the US FCI for the said examples. The FCIs are updated in different intervals, most commonly weekly or monthly. Generally, when macroeconomic factors contribute to easier and more affordable lending, the financial conditions are referred to as easier, reflecting a decrease in various FCIs, and vice versa (Chicago Fed, n.d.; Reuters, n.d.).

There exists limited research within the domain of US financial conditions and spillover effects. A majority of the research on financial conditions per se includes the construction of an index or measure reflecting the matter. However, few studies look at the impact of the financial conditions on other economies than the domestic one. Kose et al. (2017) studied the impact of the US economy and global financial conditions. They find that shocks to US growth, leading to changes in monetary policy and uncertainty of future financial conditions, have a significant spillover effect on the global economy. This suggests that expectations of future US financial conditions affect investor sentiment which could affect M&A activity.

Moreover, Bergant, Mishra and Rajan (2023) argue that an increase in M&A activity from easier financial conditions is not necessarily compelled by actual economic circumstances, but rather an effect of altered asset valuation and access to financing. The various mechanisms involved in the financial conditions index, representing a country's conditions, can spill over to other countries leading to easier lending through for example different exchange rates and credit expansion. Diamond, Hu and Rajan (2020) argue that monetary policy in the US, a capital funding country, affects the exchange rate, thus impacting global liquidity. This effect is through two mechanisms: one being through asset pledgeability where some assets serve as collateral against debt, and the second being future expectations of liquidity which can impact risk-taking in terms of debt collateral. More specifically, many firms borrow using future expectations of asset valuation as collateral. The second mechanism is in line with Kose et al.'s (2017) proposition on how expectations of US financial conditions alter

investor sentiment. Continuously, when the exchange rate moves as a result of easier or tighter financial conditions in a source country, typically the United States, the valuation of assets in capital-receiving countries will be affected. This can either result in increased liquidity, particularly during easier financial conditions, or decreased liquidity during tighter financial conditions. Following, this contributes to a procyclical pattern making companies more likely to engage in activities such as mergers and acquisitions when the overall economy is good. Conversely, a crisis or an economic recession can decrease the possibility of debt financing significantly and in turn, affect corporate choices including M&A initiatives. The effect is assumed to be mainly prevalent among the acquirers, as they often require financing for acquisitions. However, acquisitions can also be financed by using the assets of the target as collateral, hence an increase in target valuation can enhance M&A activity (Diamond, Hu & Rajan, 2020). Bergant, Mishra and Rajan (2023) further investigate this by looking at the effect of US financial conditions on cross-border M&A activity globally and find that an increase in the US financial conditions index by 1% leads to a 10% decrease in cross-border M&A activity around the world. We build upon this study, focusing on the European market, hence our first hypothesis:

<p>Hypothesis 1: US financial conditions have a significant spillover effect on cross-border M&A deals in Europe</p>

2.4 Nominal Effective Exchange Rate

One way in which the US financial conditions could transmit across borders is through the appreciation or depreciation of the nominal effective exchange rate (NEER). NEER refers to the value of a currency compared to a weighted average of several foreign currencies. An increase in NEER denotes an appreciation of the currency against the foreign currencies. Similarly, a decrease reflects a lower value compared to the weighted average (IMF Data help, n.d.). The nominal effective exchange rate is thereby affected by local currency movements and dynamics between other currencies. Monetary policies, which include adjusting interest rates to manage inflation and economic issues, typically impact the NEER (Mathai, 2022). When the interest rate in a country rises, investors gain a better return by holding the currency of the country. Accordingly, the demand for the currency rises and the value appreciates (Nasdaq, 2023). More specifically, as the US financial conditions tighten through contractionary monetary policy, the NEER usually responds by increasing in value. The

findings of Bergant, Mishra and Rajan (2023) suggest that an increase in US FCI leads to decreased cross-border M&A value. Subsequently, an increased NEER should lead to lower M&A values globally. Comparing the effect of NEER to the effect of the US FCI can facilitate broader insights into whether one has a more pronounced effect over the other. Bergant, Mishra and Rajan (2023) further test this hypothesis and find that an increase in NEER reduces the value of cross-border acquisitions. Consistent with the authors, we evaluate whether changes in US NEER can impact cross-border mergers and acquisitions, isolating the findings to the European area. This leads us to our second hypothesis:

Hypothesis 2: The US nominal effective exchange rate has a significant spillover effect on cross-border M&A deals in Europe

The impact of the US NEER across borders is highly likely to extend to the local exchange rates in other countries and their respective NEER. Moreover, as suggested by Diamond, Hu and Rajan (2020), this would affect local financing conditions as a result of changes in financial conditions in the core. Bergant, Mishra and Rajan (2023) argue that the effect of the acquirer should be consistent, inducing more acquisitions when the NEER in a country appreciates. However, the effect on the target country could portray contradictory results. As the NEER in the target country appreciates, the value of companies increases, theoretically leading to a decrease in cross-border M&A activity targeting the said country. However, an increase could also lead to easier financing using the target as collateral, thus increasing cross-border M&A activity. The authors find a positive relationship between both the NEER of the acquirer and the NEER of the target, suggesting that the increased financing trumps the enhanced valuation of the target (Bergant, Mishra & Rajan, 2023). This aligns with the findings of Fischer and Horn (2023).

2.5 Foreign Exchange Liabilities

Foreign exchange liabilities refer to liabilities held in a currency other than the domestic currency (Fontenay & Jorion, n.d.). One reason why companies raise foreign exchange liabilities is because of cost efficiency as it can be cheaper to borrow in foreign currency compared to domestic (Keloharjub & Niskanen, 2001). Additionally, with the increase in cross-border M&A activities and companies with business operations outside of their home country, firms are exposed to foreign exchange currency risk (Kim et al., 2020). To mitigate this,

companies raise foreign currency debt to hedge against the risk of currency fluctuation (Keloharjub & Niskanen, 2001). Kedia and Mozumdar (2003) further investigates this and observe that US firms raise foreign debt to protect themselves from the risk of currency exposure, that is, issuing debt in the currency that the companies have exposure to. In particular, emerging markets are more prone to borrow in foreign currency for the reason that it is the most available hedging tactic, as other instruments are not properly developed or available (Kim et al., 2020). Countries with higher amounts of net foreign exchange liabilities are more vulnerable to capital outflows, especially observable during an economic crisis or downturn, as investors will move their money out of the country (D. F. I. Folkerts-Landau & Cassard, 2000).

Diamond, Hu and Rajan (2020), study the sensitivity of capital-receiving countries to source countries' monetary policy. The authors infer that emerging markets, due to their substantial amount of foreign exchange liabilities, are more responsive to changes in interest rates. This arises from the large shifts in company valuations of the receiving countries that can come from a currency appreciation or depreciation, as their foreign debt valuations vary with the currency fluctuations. Moreover, this fosters higher risk among emerging markets and those holding more foreign exchange liabilities, and thereon higher sensitivity to changes in a source country's financial conditions, induced by the monetary policy. Adding to this, the spillover effect from US financial conditions is found to be more pronounced in countries with a higher amount of foreign exchange liabilities, and conversely, lower for countries with a smaller amount (Bergant, Mishra & Rajan, 2023). Given this vulnerability of countries with higher net foreign exchange liabilities, we hypothesize:

<p>Hypothesis 3: The spillover effect on Europe is stronger for countries with higher stock of net foreign exchange liabilities</p>
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2.6 Industries

One model distinguishing industry differences is Blonigens' (1997) asset acquisitions hypothesis. Because cross-border acquisitions can involve firm-specific assets rather than location-specific assets, they can generate asset returns in foreign currencies. The theory suggests that when a country's currency decreases, the companies holding firm-specific assets in that country become attractive targets to foreign investors. As the currency depreciates, target valuation decreases, thus foreign acquirers can purchase the company for a lower price

while benefiting from the profits in the local currency. Furthermore, firm-specific assets are more prevalent in certain industries such as high technology and product innovation. Adding to this, Georgopoulos (2008) conducted a study of how exchange rates affect cross-border M&A in the US and Canadian markets. They find that a real currency depreciation in the home currency leads to increased M&A activity, particularly within R&D-intensive firms. Consistent with Blonigen (1997), the study introduces the perspective that high-tech firms are more susceptible to exchange rate movements, arguably due to the reason that they have firm-specific assets.

Fischer and Horn (2023) finds that contractionary monetary policy, which typically leads to a tightening of the US FCI, reduces M&A activity. This effect is particularly pronounced in financially constrained companies. This could suggest that firms with high debt levels are more affected by changes in the US FCI, and industries with high debt ratios adhere to a similar trend.

Moreover, relating to the relationship of the US FCI on M&A activity as suggested by Bergant, Mishra and Rajan (2023), the effect is indirectly driven by mechanisms such as easier lending opportunities due to higher valuations of assets. Maintaining this assumption, a possible implication would be that firms operating in capital-intensive industries are more affected by changes in the FCI. With the aforementioned in mind, we introduce a new aspect reflecting the effect of the US FCI on mergers and acquisitions, namely, industry-related differences. There exists limited research on the subject overall, still there are papers suggesting industry differences in related fields. Narrowing it down to industries adds a novel dimension to the research question. Hence, our fourth hypothesis:

<p>Hypothesis 4: The US financial conditions spillover effect in cross-border M&A activity will differ across industries</p>

3. Data Gathering & Main Variables

This section presents the data used for the study, more specifically the sources which we gathered our data from and the structure of the datasets, as well as presents the main variables for the analysis.

3.1 Dependent Variable

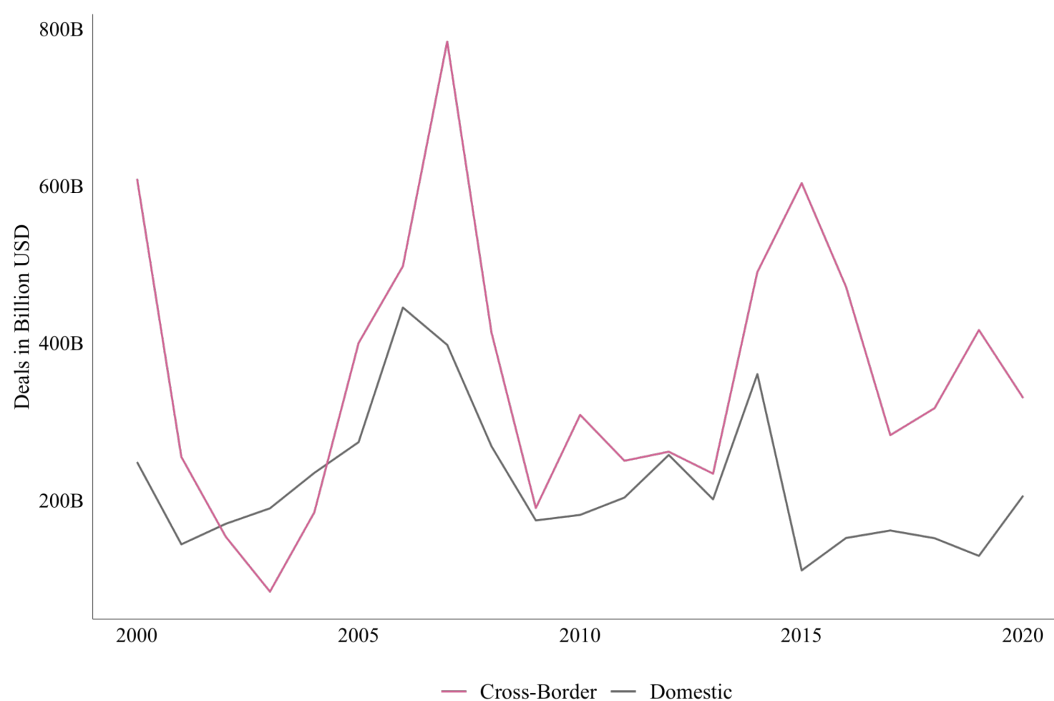
M&A Transactions and Deal Value

The M&A transactions used in this study are gathered from Capital IQ's database. Capital IQ is a platform providing data, research, and analysis on both public and private companies and transactions. For the purpose of this study, the data is downloaded isolating the acquirer's location in Europe, whereas the targets are located globally. Making both the acquirer and target located in Europe could narrow the scope of the study, leading to the loss of important data on the subject matter. Hence, we focus on the acquirer's position for the reason that the potential spillover effect is expected to primarily impact the acquirer.

We use Capital IQ's screening function to filter by company type, date, acquisition features, transaction value, and industries. Specifically, the datasets are filtered to only include closed deals for private and public companies between the years 2000-2020, including both domestic and cross-border deals. In line with Bergant, Mishra and Rajan (2023) and Erel, Liao and Weisbach (2012), we exclude the following features in our screening process: LBOs, recapitalization, privatization, and acquisitions of minority stakes. Further to the screening criteria, the data is downloaded to include Capital IQ's industry classification, namely: energy, real estate, material, industrial, consumer discretionary, consumer staples, health care, financials, information technology, communication services, and utilities.

The raw dataset consists of 50,854 deals in 174 countries, representing a total deal value of 12.2 trillion USD. The fraction of cross-border transactions compared to the total amount is 43%. However, when considering the total value of transactions, cross-border deals amount to 62%. **Figure 1** depicts cross-border and domestic deals. The dataset filtered for only cross-border includes 22,044 observations and a deal value of 7.5 trillion USD. Out of the total transactions in the dataset, 83% represent transactions wherein both the acquirer and target are located in Europe.

Figure 1. Total Value of M&A Deals



Skewness

A normal distribution has a skewness and mean of zero, where a positive or a negative skew indicates an asymmetric distribution with one tail being longer or fatter. In our dataset, the median for cross-border deal values is significantly lower than the mean value, insinuating heavily skewed data. The aforementioned aligns with our expectations as the highest M&A deal values are assumed to represent a large part of the total. The statistics are illustrated in *Table 1*.

Table 1. Summary Statistics of Cross-Border Deal Value (USD Millions)

Mean	326.42
Median	30.43
Minimum	1.00
Maximum	116,120.61
Skewness	24.26

Industry

Industry classification is a complex exercise as there are different categorization methods. To stay consistent, we use Capital IQ's industry classification resulting in 11 different industries: energy, real estate, material, industrial, consumer discretionary, consumer staples, health care, financials, information technology, communication services, and utilities. *Table 2* exhibits the summary statistics of the M&A deals within each industry. See further *Figure 2* in the appendix for visual representation of deal values.

Table 2. Summary Statistics Industry

	Mean	Median	Min	Max	SD
Communication Services	414.72	29.60	1.02	60489.49	2347.18
Consumer Discretionary	216.30	25.59	1.02	45343.90	1316.53
Consumer Staples	580.79	36.57	1.03	116120.61	4180.33
Energy	437.01	57.10	1.00	17992.59	1221.77
Financials	469.84	68.73	1.01	52839.07	1959.69
Health Care	469.17	34.28	1.01	72911.33	2919.14
Industrials	174.06	22.08	1.00	26226.46	770.38
Information Technology	126.97	13.82	1.00	23055.92	822.80
Materials	372.68	34.32	1.02	53395.47	2067.85
Real Estate	168.75	46.17	1.04	10865.10	616.86
Utilities	575.29	73.91	1.10	29100.53	2199.77

3.2 Independent Variables

National Financial Conditions Index

The United States national financial conditions index (NFCI) is derived from the Federal Reserve Bank of Chicago's website over the years 1971-2024. The Chicago Fed's NFCI includes weekly estimates of the US financial conditions in debt and equity markets, money markets, and both traditional and "shadow" banking systems. The index reflects three categories; risk, credit, and leverage, and includes indicators such as the 3-month Libor/CME Term SOFR-Treasury Spread, the 1-month Nonfinancial commercial paper A2P2/AA credit spread, the 30-year Jumbo/conforming fixed rate mortgage spread, the Markit Investment Grade (IG) 5-year Senior CDS index and the CBOE Market Volatility Index (VIX). Each indicator is assigned a weight to capture its relative importance to the overall index. Moreover, an additional measure of the NFCI called the adjusted national financial conditions index

(ANFCI) is presented. Differing from the NFCI, the adjusted index is intended to provide updates excluding US economic conditions, by isolating an element of financial conditions that is independent of the monetary state. Thus, presenting an index not influenced by or correlated with the broader state of the economy and instead focusing on solely financial conditions, such as purely financial market dynamics. Both indices are scaled in standard deviations from the average conditions. An increase in the respective indexes represents a tightening of financial conditions and more restrictive borrowing and lending conditions, whilst a decrease signifies a loosening in financial conditions and easier access to lending (Chicago Fed, n.d.). Continuously, we filter the data to include observations between the years 2000-2020.

Although the Chicago Fed provides a comprehensive measure of NFCI, some critics argue that there are drawbacks to this index. Hence, a new index measurement was created by Ajello et al. (2023), namely, the financial conditions impulse on growth (FCI-G) index. Existing indexes differ depending on which variables are included, as well as the methods used. Despite not being mutually exclusive, the new measurement is mainly based on economic modeling, as opposed to statistical modeling used by the Chicago Fed. The authors criticize the old indexes, predominantly as the weights used to aggregate the underlying financial variables do not represent precise economic interpretation. With the new FCI-G index, the idea is to include the growth component and improve the existing index by incorporating a more forward-looking approach, capturing real economic activity rather than historical occurrences.

Nominal Effective Exchange Rate

The nominal effective exchange rates (NEER) are extracted from the BIS Data Portal, a database providing global statistics in collaboration with central banks and national authorities. NEER is a measure of a country's currency against numerous foreign currencies. An increase in NEER represents an appreciation of the local currency against this basket of different foreign currencies and vice versa (IMF Data help, n.d.).

Foreign Exchange Liabilities

Comparable to Bergant, Mishra and Rajan (2023), we will use the dataset compiled by Bénétrix et al. (2020) to retrieve the net foreign exchange liabilities (NFXL). The dataset consists of countries and their international investment positions, building on prior estimates by Lane and Shambaugh (2010) and Bénétrix, Lane and Shambaugh (2015). Nevertheless, compared to the prior estimates in which they use 117 countries in their dataset, the most recent compilation by

Bénétrix et al. (2020) includes 50 countries. The authors acknowledge that the reduction is due to limitations of available data, however, argue that the 50 countries represent over 90% of the world's GDP. Henceforth, we believe the dataset provides a comprehensive base for the objective of our study.

Continuously, the authors' main data is retrieved from the International Monetary Fund (IMF) for the period 1990-2017. The IMF is a global database, comprising 190 member countries and includes data on international trade, exchange rates, and monetary relations, among others. In addition to obtaining data from the IMF, Bénétrix et al. (2020) extract data from the IMF's Coordinated Portfolio Investment Survey (CPIS), the European Central Bank (ECB) and the Bank of International Settlements (BIS). Bergant, Mishra and Rajan (2023) argue that Bénétrix et al. (2020) provide the most reliable data on the subject matter using IMF. However, as a robustness test, Bergant, Mishra and Rajan (2023) create two additional alternative measures using distinct sources, in which they find that the IMF measure remains robust. Given this observation, we assume that their conclusion holds, and the compiled dataset is trustworthy.

From the composed dataset we calculate net foreign exchange liabilities by subtracting the external assets held in foreign currency from the external liabilities held in foreign currency. The net foreign exchange liabilities of the various countries aim to reflect the liabilities in a foreign currency held by corporations operating in each country. The data is expressed as a percentage of the respective countries' GDP ensuring comparability by eliminating size differences. *Figure 3* in the appendix shows a visual representation of the average net foreign exchange liabilities held by each country.

Due to limitations in country observations and the shorter timeframe, including NFXL narrows our datasets. Despite the shorter duration and drop in observations, the study still captures big events such as the financial crisis in 2008⁴, the debt crisis in 2009 and 2010⁵, and the “oil price plunge” in 2014-2016⁶, and contains enough observations for a vigorous study.

⁴ The global financial crisis (GFC) originated in the US as a mortgage market crisis. The crisis, referred to as one of the worst economic downturns in history, led to a global economic recession lasting 18 months (Yilmaz, 2016).

⁵ GFC was one of the triggering factors to the European Sovereign Debt Crisis, which jeopardized monetary integration in the Euro Area (Yilmaz, 2016).

⁶ Between June 2014 and March 2016, real price of oil declined approx. 65%, impacting the economy in different ways (CEPR, 2017).

3.3 Control variables

Following the methodology performed by Bergant, Mishra and Rajan (2023), we create bilateral country pairs each year spanning from 2000-2020. In total, 1602 unique country pairs are identified from the dataset. We include the country pairs as a fixed effect to control for time-constant factors impacting the M&A activity.

To minimize the risk of omitted variable bias and control for countries' economic growth we add countries' GDP growth per capita as a control variable, in line with Erel, Liao and Weisbach, (2012) and Bergant, Mishra and Rajan (2023). The data is extracted reflecting the period 2000-2020 from the World Banks' database DataBank, a platform containing time-series data on different topics for analysis purposes.

An additional factor that could influence the model outcome and should be controlled for, is the inflation of the involved countries. Each country's annual inflation rate is retrieved from the World Bank's database throughout the years 2000-2020. The World Bank base the data on IMF's International Financial Statistics datasets.

4. Empirical Framework

4.1 Variables Construction

This section aims to elaborate on the variables used in the construction of the regression models as well as describe the robustness tests used to ensure reliability. Summary statistics of all independent and control variables are summarized in *Table 3* at the end of the chapter.

4.2 Dependent Variables

Aggregated Value

Following Bergant, Mishra and Rajan (2023), we start by addressing missing values in the datasets and assume them to take a value of zero. Furthermore, we continue by collapsing the raw deal data and grouping it by year, acquirer country and target country. Thus, we identify unique bilateral country pairs and compile an aggregated value per year, per identified country pair. Moreover, we create a rectangular dataset ensuring that each identified country pair retains a value throughout the years in the sample period. In sum, if country pair A and B have an identified positive value in either of the years, any remaining years with missing values are

substituted with zero. In the instance of no value identified in the sample period between a specific country pair, we assume no deals.

In contrast to Bergant, Mishra and Rajan (2023), we cannot sum the aggregated value assessing both directions of a country pairs transactions, specifically, when the respective countries take on the role of both acquirer and target. The limitation arises due to our decisions to exclusively constrain the location of acquirers in the datasets. Despite that, if we were to limit both acquirers and targets to Europe the dataset would be narrower, potentially leading to a less robust analysis. Consequently, potential implications such as limited generalizability could emerge. Nevertheless, as Bergant, Mishra and Rajan (2023) conduct a generalized study with a universal approach, we aim to nuance the research and limit the area of focus. This further enables us to perform a comparative analysis and identify patterns related to their results, hence, increasing the generalizability.

Applying logarithmic transformation is comparable to the method used by Bergant, Mishra and Rajan (2023). The log transformation formula is as follows:

$$y = \log_e(x)$$

The above is a common approach when encountering skewed data to obtain a more symmetric distribution in a panel data regression model. Seeing that our testing data is highly skewed, we log the aggregated value at time t, thus excluding unwanted effects such as outliers.

When performing log transformation, Bellégo, Benatia and Pape (2021) explain different views on how to handle observations concerning the value zero. The simplest solution to perform log transformation is to eliminate zero-values. However, our data is structured in a rectangular data set, deliberately including the value of zero to illustrate the interaction between countries throughout the sample period. Excluding the zero values would create a selection bias and change the scope of our study drastically, as we would lose a significant amount of observations. Alternatively, Bellégo, Benatia and Pape (2021) explain that the most frequent practice involves applying a positive constant (Y+1) to all observations to obtain non-zero values. The authors highlight that the size of the constant makes a difference, whereas applying the smallest possible constant does not ensure a more accurate result. To keep the zero values after logging the data, a value of one for the added constant was determined as a suitable positive value as the log of one is zero. Although adding a constant slightly changes the data and could create biases, the logging practice improves the interpretability of the models and minimizes the variances as well as mitigates the influence of outliers.

Industry

To test the relationship of the US NFCI effect across industries, we perform similar steps as above where we aggregate the values for the respective years conforming to the relevant industry. Due to the large quantity of observations that the prior step results in, we perform a separate regression using the aggregated value of each industry as the dependent variable. This allows us to analyze whether certain industries are more sensitive to changes in the US NFCI. Given that the US NFCI has an indirect effect reflecting aspects such as lending opportunities, we assume its impact to vary across industries. Consequently, we expect each industry to impact cross-border M&A activity in Europe differently.

4.3 Independent Variables

National Financial Conditions Index

The NFCI component is included as the main independent variable in its contemporary format to capture the relationship between cross-border M&A deals and the US financial conditions. Moreover, we calculate an annual average value from the weekly estimates. The reasons for adopting annual average values are manifold. Firstly, it smooths out volatility and mitigates the risk that the value is heavily influenced by year-end happenings. Secondly, it enables us to maintain a value that is descriptive of the trend throughout the year and not based on one value at a single point in time. Following the findings of Bergant, Mishra and Rajan (2023), we expect similar outcomes that an easing of the US NFCI will result in increased cross-border M&A activity in Europe.

Nominal Effective Exchange Rate

To distinguish the effect of the US exchange rate, we replace the US NFCI variable with the US NEER. Due to the multiplicative nature of the NEER, we perform a log transformation of the values. To gain a deeper understanding of the dynamics between the US NFCI and the respective countries' local currencies, we include NEER for both acquirer and target countries.

The NEER data is extracted on a monthly basis and recalculated to represent an annual average, smoothing out volatility and maintaining coherence with the NFCI. It is of particular importance to utilize similar methodologies as we replace the NFCI with the NEER for comparison purposes. Bergant, Mishra and Rajan (2023) conclude a negative relationship between the US NEER and cross-border M&A activity, suggesting that an appreciation of the

dollar decreases cross-border deal values. Hence, we expect a tightening of the US NFCI, which is represented by an appreciation of the US NEER, will result in lower cross-border M&A deal values when acquirers are located in Europe. Additionally, we expect that an appreciation of the local currencies of the acquirer and target will lead to an increase in M&A deal values, resulting from easier financing opportunities, as pointed out by Bergant, Mishra and Rajan (2023) and Fischer and Horn (2023).

Net Foreign Exchange Liabilities

To accurately capture the effects of FX liabilities in the model, we consider the effect to be delayed by one year. Aligning with Bergant, Mishra and Rajan (2023), we lag the values throughout the years 1999-2017 for both the acquirer and target dataset. The following covers the period 2000-2018, resulting in a loss of two years compared to prior regression estimates. Prior studies suggest a stronger spillover effect for countries that possess a higher amount of liabilities denominated in foreign currency. Given this, a larger effect is expected for the countries with a higher degree of NFXL.

4.4 Control Variables

The inclusion of the bilateral country pairs fixed effect is performed by composing a dummy variable containing the unique identified pairs of the acquirer and target. The dummy variable is included as a fixed effect to capture time-constant factors influencing cross-border M&As. Erel, Liao and Weisbach (2012) suggest that such factors could reflect the rate of economic growth, average income per capita, and monetary policies of the respective country pairs. To further analyze time-constant factors, we include the control variables GDP growth and inflation rate. Ubl (2014) infers that an increase in GDP growth is associated with intensified M&A activity. Considering this, we anticipate an increase in M&A activities with GDP growth. Besides, Oner (n.d.) states that heightened inflation generates lower purchasing power. Elaborating on this, Uddin and Boateng (2011) denote that an increase in inflation in an acquiring country leads to higher prices for domestic targets, ultimately encouraging investors to seek opportunities abroad. Moreover, when the inflation rate in a target country increases, it leads to higher prices and increased cost of financing, making the targets less attractive for cross-border M&A deals. Considering this, we expect a dual effect of inflationary increase. An increase in inflation in the acquiring country is expected to generate a positive relationship in

cross-border M&A activity. Conversely, an increase in inflation in the target country is expected to decrease cross-border M&A activity.

4.5 Robustness and Sensitivity Test

As the NFCI is our main independent variable, it is important to ensure reliable results of the chosen data. Hence, we include robustness checks and sensitivity analysis. The first robustness test is performed by extracting the NFCI from the last week of December every year instead of the annual average. See *Figure 4* in the appendix for average and year-end NFCI. Second, instead of using the NFCI, we include the adjusted national financial conditions Index (ANFCI) in our model. We expect the ANFCI and year-end NFCI to yield similar results as the annual average NFCI. To test the sensitivity of the chosen index, we replace the NFCI with the FCI-G. Including an additional index enables us to provide a more nuanced analysis of the effect and sensitivity of the selected method.

In line with the NFCI calculation, we test for year-end NEER in the model. Although a small variation depends on the calculation used, the overall measure does not appear to yield extreme outliers, as seen in *Figure 5* in the appendix. Henceforth, we expect the year-end NEER to generate similar results as the annual average NEER.

Table 3. Summary Statistics of the independent and control variables

Variable	Mean	Median	Min	Max	SD
NFCI	-0.34	-0.48	-0.74	1.18	0.46
ANFCI	-0.25	-0.43	-0.78	1.72	0.60
NFCI YE	-0.30	-0.53	-0.79	2.43	0.68
FCIG	-0.36	-0.47	-1.11	1.11	0.49
GDP Acquirer	1.31	1.45	-14.75	23.30	3.35
GDP Target	2.11	2.08	-55.18	96.95	4.18
Inflation Acquirer	2.14	1.79	-4.47	168.62	3.74
Inflation Target	4.13	2.48	-10.06	168.62	7.18
NEER	89.11	89.96	76.57	100.43	7.99
NEER YE	89.31	88.36	78.04	101.14	8.14

4.6 Regression Specifications

A pooled OLS model is deemed appropriate when maintaining panel data with observations over time and cross-sectional units, as well as testing for multiple explanatory variables. Subsequent to aggregating the deal values per year and adding zeros for missing years, the observations amount to 34,839. The ultimate dataset, after including GDP growth per capita and inflation consists of 28,035 observations.

The fundamental model in this study adopts the following structure:

Regression 1:

$$\begin{aligned} \text{Aggregated value}_t = & \beta_0 + \text{Country}_A \times \text{Country}_T + \beta_1 \times \text{NFCI}_{US} \\ & + \beta_2 \times \text{GDP per capita growth}_{A,t} \\ & + \beta_3 \times \text{GDP per capita growth}_{T,t} && \text{(Model 1)} \\ & + \beta_4 \times \text{Inflation}_{A,t} \\ & + \beta_5 \times \text{Inflation}_{T,t} + \varepsilon_t \end{aligned}$$

Where *Aggregated value_t* represents the total log-transformed value of cross-border M&A deals in USD between the acquirer country and the target country, at time *t*. *NFCI_{US}* illustrates the financial conditions in the United States at time *t*. Additionally, the dummy variable *Country_A × Country_T* controls for all bilateral country pair fixed effects that may influence the regression outcome, whereas *Country_A* stands for the acquirer country and *Country_T* represents the target country. Moreover, we include *GDP per capita growth* to reflect countries' economic growth and *inflation* as an indicator of countries' monetary policies. As NFCI is constant throughout the years, including a time-fixed effect would create perfect multicollinearity.

Furthermore, in regression 2, replacing the *NFCI_{US}*, we add *NEER_{US}* (in logs) as the independent variable. By performing separate regressions including both the NFCI and the NEER we are able to perform a more comprehensive analysis indicating different channels through which the financial conditions can spill over. As the NFCI includes multiple indicators representing the overall financial environment, the NEER isolates the spillover effect to understand the impact of currency movement. Additionally, we add NEER for both the target and acquirer countries as independent variables:

Regression 2:

$$\begin{aligned} \text{Aggregated value}_t = & \beta_0 + \text{Country}_A \times \text{Country}_T + \beta_1 \times \text{NEER}_{US} \\ & + \beta_2 \times \text{GDP per capita growth}_{A,t} \\ & + \beta_3 \times \text{GDP per capita growth}_{T,t} \\ & + \beta_4 \times \text{Inflation}_{A,t} \\ & + \beta_5 \times \text{Inflation}_{T,t} + \varepsilon_t \end{aligned} \quad \text{(Model 2.1)}$$

$$\begin{aligned} \text{Aggregated value}_t = & \beta_0 + \text{Country}_A \times \text{Country}_T + \beta_1 \times \text{NEER}_{US} \\ & + \beta_2 \times \text{NEER}_A \\ & + \beta_3 \times \text{NEER}_T \\ & + \beta_4 \times \text{GDP per capita growth}_{A,t} \\ & + \beta_5 \times \text{GDP per capita growth}_{T,t} \\ & + \beta_6 \times \text{Inflation}_{A,t} \\ & + \beta_7 \times \text{Inflation}_{T,t} + \varepsilon_t \end{aligned} \quad \text{(Model 2.2)}$$

To further analyze the relationship between the aggregated value at time t and the $NFCI_{US}$, the $NFXL$ is included as an interaction term in the regression for both the acquirer and target countries ($\beta_3 \times NFCI_{US} \times NFXL_A$, $\beta_3 \times NFCI_{US} \times NFXL_T$). The aim is to test if the relationship between the $NFCI_{US}$ and aggregated value is dependent on countries' net foreign exchange liabilities. When filtering the data based on the availability of M&A cross-border deals in the respective countries and their $NFXL$, the sample size becomes smaller with a total of 46 countries, 654 unique country pairs, and 11,772 observations.

Following multicollinearity between the $NFXL_A$ and $NFXL_T$, arising from having a rectangularized dataset, we conduct two separate regressions representing net foreign exchange liabilities of the acquirer and target individually:

Regression 3:

$$\begin{aligned} \text{Aggregated value}_t = & \beta_0 + \text{Country}_A \times \text{Country}_T + \beta_1 \times \text{NFCI}_{US} + \beta_2 \times \text{NFXL}_A \\ & + \beta_3 \times \text{NFCI}_{US} \times \text{NFXL}_A \\ & + \beta_4 \times \text{GDP per capita growth}_{A,t} \\ & + \beta_5 \times \text{GDP per capita growth}_{T,t} \\ & + \beta_6 \times \text{Inflation}_{A,t} + \beta_7 \times \text{Inflation}_{T,t} + \varepsilon_t \end{aligned} \quad \text{(Model 3.1)}$$

$$\begin{aligned} \text{Aggregated value}_t = & \beta_0 + \text{Country}_A \times \text{Country}_T + \beta_1 \times \text{NFCI}_{US} + \beta_2 \times \text{NFXL}_T \\ & + \beta_3 \times \text{NFCI}_{US} \times \text{NFXL}_T \\ & + \beta_4 \times \text{GDP per capita growth}_{A,t} \\ & + \beta_5 \times \text{GDP per capita growth}_{T,t} \\ & + \beta_6 \times \text{Inflation}_{A,t} + \beta_7 \times \text{Inflation}_{T,t} + \varepsilon_t \end{aligned} \quad \text{(Model 3.2)}$$

Lastly, we distinguish the relationship between the NFCI_{US} and Aggregated value by industry. We perform *Regression 1* on 11 different datasets, isolating the specific industry tested:

$$\begin{aligned} \text{Aggregated value per industry}_t = & \beta_0 + \text{Country}_A \times \text{Country}_T + \beta_1 \times \text{NFCI}_{US} \\ & + \beta_2 \times \text{GDP per capita growth}_{A,t} \\ & + \beta_3 \times \text{GDP per capita growth}_{T,t} \\ & + \beta_4 \times \text{Inflation}_{A,t} \\ & + \beta_5 \times \text{Inflation}_{T,t} + \varepsilon_t \end{aligned} \quad \text{(Model 4)}$$

5. Results & Discussion

In this section, we present our main findings from the regressions performed utilizing the above methodology. The first section describes the spillover effect induced by national financial conditions in the United States on cross-border M&A activity in Europe. The second segment discusses the relationship between the US nominal effective exchange rate to M&A in Europe, accounting for factors such as local exchange rates affected by a tightening or loosening of the US NFCI and fluctuations in NEER. The third section discusses the results obtained from including net foreign exchange liabilities of the target and acquirer country. Lastly, we discuss the differences between industries and their respective impact on the NFCI spillover effect. The chapter concludes by discussing the limitations of the research study as well as further research within the area.

5.1 Relationship between US NFCI and Cross-border M&A Activity

5.1.1 Model 1 Results

Model 1, presented in *Table 4*, suggests that US financial conditions have a positive significant effect on the M&A deal value when the acquirer is located in Europe, concluding that the results support *Hypothesis 1*. More specifically, accounting for all control variables, the result is statistically significant on a 1% level and suggests that a one-unit increase in the US NFCI (a tightening in the financial conditions in the US), leads to an *increase* of 17.6% in M&A deal value when the acquirer is located in Europe. Additionally, the GDP of the acquirer country and the GDP of the target country show positive statistically significant results on a 1% significance level, indicating that the GDP of the countries involved in the transactions are of relevance and influence the dependent variable. Moreover, the inflation of the target country has a negative significant relationship to the deal value, in line with our expectations. However, the inflation of the acquiring country is not statistically significant, making us unable to draw a conclusion from the variable outcome. The constant displays a positive statistically significant result suggesting that the deal value of M&A is positive when all variables in the model are zero. This could potentially suggest that other factors or unobserved variables not included in our model influence the M&A deal values.

The aim of the study is to evaluate the spillover effect and obtain a better understanding whether easier financial conditions in the US could be considered a driver of M&A activity. As identified by Gregoriou and Renneboog (2007), economic recovery periods have been

recognized as a driver of M&A activity, which is usually accompanied by an increase in lending to stimulate the economy. This observation would suggest a negative relationship between US NFCI and M&A activity, as easier lending opportunities is generally reflected by a decrease in financial condition indexes. Similarly, Bergant, Mishra and Rajan (2023) present a negative relationship between the US NFCI and the M&A deal value. Notwithstanding, our findings indicate contradictory results. Given that the authors look at the spillover effect globally, whereas our study focuses only on the deal values where the acquirer is located in Europe, the conflicting results could indicate that the findings differentiate depending on where the M&A deals take place. One such reason could be that the spillover effect is stronger in emerging markets than in advanced markets (Bergant, Mishra & Rajan, 2023; Chen, Mancini Griffoli & Sahay, 2014; Kalemli-Özcan, 2019). As the Euro Area includes four of the world's 20 emerging markets (Duttagupta & Pazarbasioglu, 2021), excluding a majority of the emerging markets in our study could explain the difference in the outcome compared to Bergant, Mishra and Rajan (2023). Additionally, researchers Havranek and Rusnák (2012) propose that there is a lagged effect for core countries' monetary policies to spill over across borders. The prior mentioned is particularly prevalent in developed economies. Seeing that emerging markets yield stronger results and potentially respond more swiftly, it further strengthens our theory that the results from our study deviate due to the limited scope of emerging markets.

Further to the above, Hanisch (2019) finds evidence that contractionary US monetary policy, inducing a tightening of the NFCI, can lead to a short-term spillover effect that boosts economic activity in Europe. Although the author refers to economic activity in general, the findings could explain our outcome of a positive relationship between the US financial conditions and M&A value when using the contemporary NFCI. The author implies that short-term, contractionary monetary policy in the US causes investors to seek investment opportunities abroad. This could lead to increased access to capital for firms in Europe, potentially explaining the increase in M&A activity. Even so, the effects are temporary and diminish when the Euro Area interest rates increase with a few quarter's delay. Following, our results could suggest that European M&A deals have a delayed effect on the US financial conditions and are not yet present in our model. We test this theory by lagging the US NFCI value by one year in all of our models, in order to capture a potential delay. We find that lagging the US NFCI by one year does indeed lead to an inverse relationship between the NFCI and M&A values. The negative relationship stays consistent when we replace the NFCI with the lagged NFCI value in all regressions, see *Table 4* and *Table 9-10* in the appendix. As the results

follow the same general pattern, it further strengthens the theory that there exists a delayed effect stemming from the US financial conditions to the European market.

It is important to note the period during which our analysis is conducted. The event window of our study covers the timeframe between 2000-2020. This includes the Global Financial Crisis, one of the most significant economic shocks in postwar history leading to the Great Recession, and ultimately an unconventional monetary policy adopted by central banks (Yilmaz, 2016). An event like the aforementioned causes many dimensions to be affected, including changes in GDP growth, inflation, and overall economic activity, factors known to affect M&A deals. During a time of crisis, the central banks incorporate a more aggressive monetary policy to stabilize the economy (Chen et al., 2016). In *Figure 4* in the appendix, it is apparent that the NFCI is highly affected by such an event. Furthermore, it likely affects the outcome from our data, compared to if one examines a timeframe without this occurrence. Nonetheless, although perhaps affected, excluding the time period of the financial crisis would alter biased results. Hence, we believe it is still important to maintain the data as it is, simply highlighting this event and its implications for the study. Furthermore, as we live in a turbulent world, there is a high likelihood of similar events recurring, and therefore of important to assess turbulent time periods as well.

Another potential issue inflicting wrongful results is the issue of reverse causality. Nevertheless, given that the scope of this study involves looking at macroeconomic variables and their effect on firm-level activity, the risk for reverse causality is of low concern. The likelihood that individual firms' activities at a granular level would influence national-level monetary policies, interest rates, and money supply is minimal.

Although this study concludes that there is a spillover effect of US financial conditions, argued to mainly be driven by easier or tighter lending conditions, one needs to keep in mind other implications following macroeconomic changes. Kose et al. (2017), suggest that investor sentiment and expectations of US future economic conditions are a large driver of the spillover effect. This could suggest that easier lending opportunities arising from an easing in US financial conditions is not the ultimate driving factor, and further highlights the complexity of macroeconomic consequences and the difficulties to assert one underlying reason.

5.1.2 GDP & Inflation

The results of our regression analysis are in line with our expectations, suggesting a positive correlation between GDP growth and M&A activity. Although a small but significant effect,

the outcome aligns with Ubl (2014), indicating that the country pair's fixed effect reflecting economic aspects of the respective countries in a transaction is of importance in the regression.

An increase in inflation would suggest a decreased purchasing power (Oner, n.d.), leading acquirers to seek investment opportunities across borders. For targets, an increase in inflation, leading to enhanced valuation, should lead to lower cross-border M&A activity (Uddin & Boateng, 2011). Surprisingly the effect is only significant for the target country and not the acquiring country. This could indicate that the economic environment of the target is of higher importance when conducting a deal, than that of the acquirer. A potential reason could be that although the acquirers' incentives to invest abroad seemingly increase, their purchasing power might decrease enough to offset the effect. Even so, due to the insignificant outcome, we are unable to draw a definitive conclusion.

The analysis encompasses deflationary pressure in several countries included in our dataset, perhaps influencing the outcome and predictability of the variables (Bonam et al., 2019). Furthermore, when including the control variables, the NFCI coefficient increases potentially due to the suppressor effect, meaning that when more variables are added to the model, the error term is reduced, and the explanatory power is stronger (Conger, 1974).

Table 4. Model 1 Regression Results

<i>Dependent variable: M&A Deal Values (in logs)</i>							
	Model 1a	Including GDP	Including Inflation		Model 1a	Including GDP	Including Inflation
	(1)	(2)	(3)		(1)	(2)	(3)
US NFCI	0.114*** (0.021)	0.157*** (0.023)	0.176*** (0.023)	US NFCI 1-year lag	-0.097*** (0.021)	-0.079*** (0.023)	-0.076*** (0.023)
GDP Acquirer		0.011*** (0.004)	0.013*** (0.004)	GDP Acquirer		0.001 (0.004)	0.001 (0.004)
GDP Target		0.011*** (0.003)	0.012*** (0.003)	GDP Target		0.009*** (0.003)	0.009*** (0.003)
Inflation Acquirer			-0.004 (0.003)	Inflation Acquirer			0.0001 (0.003)
Inflation Target			-0.007*** (0.002)	Inflation Target			-0.005*** (0.002)
Constant	0.716** (0.362)	0.675* (0.362)	0.703* (0.362)	Constant	0.644* (0.362)	0.612* (0.363)	0.625* (0.363)
Observations	28,035	28,035	28,035	Observations	28,035	28,035	28,035
R ²	0.502	0.502	0.503	R ²	0.502	0.502	0.502
Adjusted R ²	0.477	0.478	0.478	Adjusted R ²	0.477	0.477	0.477
Target x Acquirer (country FE)	YES	YES	YES	Target x Acquirer (country FE)	YES	YES	YES

Note:

*p<0.1; **p<0.05; ***p<0.01

5.2 Relationship between US NEER and Cross-border M&A activity

5.2.1 Model 2 Results

In *Model 2*, we find a negative relationship between the US nominal effective exchange rate and M&A deal values on a 1% significance level. The model indicates that a one-unit increase of US NEER, an appreciation of the nominal effective exchange rate, decreases the deal value by 1.7%. The GDP for both acquirer and target countries demonstrates a positive and significant impact on deal values on a 1% significance level. Moreover, the inflation of the acquirer and target country display a negative relationship to deal values, significant on a 5% and 1% significance level respectively. The constant is positive and statistically significant, indicating that the deal value is positive when all variables are zero. When adding additional

variables to the regression, the effect of the US NEER remains statistically significant and relatively constant, signifying a stable model. In relation to the NEER in the acquirer and target countries, we find a positive and statistically significant relationship, indicating that an appreciation of the acquirers' and targets' nominal effective exchange rate increases M&A deal value by 0.89% and 0.34% respectively. In sum, the outcome supports *Hypothesis 2*, that there exists a spillover effect between US NEER and M&A deals in Europe.

The above findings are in line with Bergant, Mishra and Rajan (2023), inferring that the US nominal effective exchange rate in its isolated format has a negative impact on M&A activity. Though the effect of the US NEER and the US NFCI move in opposite directions, the magnitude of their respective effect on the model differs substantially (1.7% decrease in value versus 17.6% increase in deal value). Assuming that the NFCI portrays a delayed effect, the negative relationship between NEER and M&A value compared to the positive relationship between NFCI and M&A value in *Model 1*, could potentially suggest that exchange rate spillover and currency dynamics react quicker than the spillover effect from changes in US financial conditions on the global market.

The negative relationship between the US NEER and the M&A value, along with a positive relationship between the local NEER of the acquirer and target, suggests that our results are uniform. As the US NEER appreciates, ultimately decreasing the M&A values, there is a strong chance that the NEER in the acquirer and target country weakens, similarly leading to a lower M&A value. The results suggest that an increase in the nominal effective exchange rate of an acquirer country has a more noticeable effect on deal values compared to fluctuations in target countries' nominal currency, compliant with the findings of Bergant, Mishra and Rajan (2023). This is expected as an appreciation in the acquiring country's NEER is assumed to increase the purchasing power of the companies in the country as a result of higher valuations. The targets, however, may display a lower coefficient due to the dual effect that could follow from a target country's currency appreciation. Nevertheless, the positive coefficient of the target NEER suggests that the higher price of targets resulting from a higher NEER in target countries, is less important than the additional lending opportunities for acquirers using the target company as collateral. As our dataset consists of 80% transactions within Europe (both acquirer and target located in Europe), there is a high probability that the exchange rate of the acquirer and target are correlated. This is especially pronounced among the countries where both possess the Euro currency (approximately 40%)⁷. Therefore, since the

⁷ 20 countries in the European Union had adopted the Euro as their national currency as of 2023 (European Union, 2023).

coefficient of the NEER in the acquirer country is stronger, the increase in M&A transactions could be mainly driven by the acquirer country's currency increase influencing the coefficient to become positive in the target country.

Lastly, adding the local nominal effective exchange rates of the acquirer and target countries, we find an increase in the coefficients and significance levels of GDP and inflation. This could potentially be explained by inflation and GDP being correlated to their respective country NEER, hence increasing the effects. Further to this, we note that the inflation variable of the acquiring country becomes significant upon adding the respective local NEERs, potentially indicating that the added variables help to capture dynamics and economic interactions that contribute to explaining the observed outcome. Interestingly, the negative coefficient of the acquiring country contrasts with the theory of Uddin and Boateng (2011), adhering to an increase in cross-border M&A during inflationary surges. A possible explanation is that the decreased purchasing power as mentioned by Oner (n.d) supersedes the desire to find cheaper targets across borders.

Table 5. Model 2 Regression Results

<i>Dependent variable: M&A Deal Values (in logs)</i>		
	Model 2	Including Acquirer & Target
	(1)	(2)
US NEER (in logs)	-1.696*** (0.110)	-1.699*** (0.137)
NEER Acquirer (in logs)		0.889*** (0.142)
NEER Target (in logs)		0.337*** (0.093)
GDP Acquirer	0.012*** (0.004)	0.013*** (0.005)
GDP Target	0.005* (0.003)	0.012*** (0.005)
Inflation Acquirer	-0.002 (0.003)	-0.010** (0.005)
Inflation Target	-0.006*** (0.002)	-0.012*** (0.003)
Constant	8.272*** (0.613)	2.781** (1.128)
Observations	28,035	21,378
R ²	0.506	0.512
Adjusted R ²	0.481	0.488
Target x Acquirer (country FE)	YES	YES
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01	

5.1.2 Sensitivity and Robustness Analysis

The regression outcomes from our sensitivity and robustness tests are presented in *Table 6* and *Table 11* in the appendix. We find a similar though slightly stronger relationship between the year-end NFCI and M&A deal value in Europe, relative to our results when using the average NFCI. With the difference being negligible, we conclude a robust model. The results align with our expectations, given that the year-end NFCI is more volatile and captures a singular value, whilst the average NFCI takes fluctuations throughout the year into account, see *Figure 4* in the appendix.

Interestingly, as ANFCI excludes factors correlated to US economic conditions and isolates financial conditions in its sole format, the results indicate that when macroeconomic effects are disregarded, US financial conditions exclusively have a less observed effect on M&A deal values in Europe. The dissimilarity, while it is small, highlights the importance of macroeconomic factors and their impact on M&A activity.

When replacing the NFCI with the FCI-G, we find an inverse relationship contradictory to our original model. This could be explained by the lag effect included in the FCI-G which accounts for growth and future economic activity. The results align with our analysis in relation to *Model 1*, where we discuss a potential lagged effect of the NFCI on European M&A activity. One could argue that the FCI-G is more appropriate to use, specifically when analyzing countries that are at risk of having a delayed effect on the US financial conditions. Nonetheless, it is important to consider that the FCI-G index is rather new while the Chicago Fed's financial conditions index is a well-established index that has existed for decades. Incorporating the FCI-G in our sensitivity analysis emphasizes the complexity and vulnerability of the model depending on the measure utilized to reflect the effect of US financial conditions.

Table 6. Robustness NFCI

<i>Dependent variable: M&A Deal Values (in log)</i>			
	NFCI YE	ANFCI	FCIG
	(1)	(2)	(3)
NFCI YE	0.189 ^{***} (0.015)		
ANFCI		0.148 ^{***} (0.017)	
FCIG			-0.051 ^{**} (0.021)
GDP Acquirer	0.007 ^{**} (0.004)	0.012 ^{***} (0.004)	0.003 (0.004)
GDP Target	0.009 ^{***} (0.003)	0.011 ^{***} (0.003)	0.009 ^{***} (0.003)
Inflation Acquirer	-0.007 ^{**} (0.003)	-0.004 (0.003)	-0.0003 (0.003)
Inflation Target	-0.008 ^{***} (0.002)	-0.008 ^{***} (0.002)	-0.006 ^{***} (0.002)
Constant	0.724 ^{**} (0.362)	0.684 [*] (0.362)	0.632 [*] (0.363)
Observations	28,035	28,035	28,035
R ²	0.505	0.503	0.502
Adjusted R ²	0.480	0.478	0.477
Target x Acquirer (country FE)	YES	YES	YES

Note:

*p<0.1; **p<0.05; ***p<0.01

5.3 FX liabilities

5.3.1 Model 3 Results

When conducting this regression, our sample size drops to approximately 40% of its original size. The substantial drop in observations could potentially cause a reduced statistical power in the regression, with the implication that it poses greater challenges to detecting significant results. We account for this by initially testing *Model 1* on the smaller dataset, to ensure that the significance of the NFCI is intact. As seen in the regression *Table 7*, the model generates positive and statistically significant results, similar to the results of *Model 1*, with an increase of the US NFCI impact on the M&A deal value. The higher value of the coefficient could suggest that the random variation in the smaller dataset has a greater impact on the estimated coefficient, in turn leading to a stronger relationship. This further proves that our model maintains robustness even when dropping a significant number of observations.

Model 3 aims to capture the effect that the magnitude of countries' net foreign exchange liabilities has on the relationship between the NFCI and M&A deal activity. We do so by adding foreign exchange liabilities for the acquirer and target country respectively. The results denote that the US NFCI maintains its significance on a 1% level and conveys an effect of approximately a 25% increase in deal value for a one-unit increase in the NFCI when adding the NFXL for both the acquirer and the target countries. The control variables demonstrate that the GDP for both acquirer and target country is significant, however, inflation is only significant in the target country with all significant variables portraying results ranging from 1% to 5% significance level. The results closely correspond to those of *Model 1*. Moreover, we see that the net foreign exchange liabilities of both the acquirer and target have a negative and significant relationship on a 1% significance level. A one-unit increase in the NFXL of the acquirer or target country independently leads to a 0.3% decrease in M&A value. The interaction term between the US NFCI and the NFXL of the acquirer and target country is insignificant in both aspects, making us unable to conclude the effect of one variable on another. Thereby, we reject *Hypothesis 3* stating that the spillover effect is stronger for countries with higher stock of net foreign exchange liabilities. However, when conducting the regression where we perform a lag function on the US NFCI, our results exhibit a significant relationship between the interaction term of the NFCI and the NFXL of the acquirer, refer to *Table 9* in the appendix. The results support our findings in *Model 1* regarding a delayed spillover effect of the NFCI and subsequently, when accounting for the delayed effect, conform

to Bergant, Mishra and Rajan's (2023) paper that the spillover effect is stronger for countries with higher net foreign exchange liabilities.

Our results for the NFXL coefficient in the target countries could be explained by D. F. I. Folkerts-Landau and Cassard (2000) that connects countries' NFXL amount and vulnerability. As countries increase their foreign exchange debt, the risk increases, hence the M&A value should decrease which would explain our inverse relationship. Furthermore, our regression results differ from those of Bergant, Mishra and Rajan (2023). While we find significance for both the acquirer and target country's NFXL amount, they only find significance for the acquiring country. Likewise, their interaction terms between US NFCI and NFXL were significant, whereas ours were not, making us unable to draw any conclusion about the potential impact of countries' NFXL on the NFCI effect. The difference could be explained by Kim et al. (2020) and D. F. I. Folkerts-Landau & Cassard (2000) who argues that emerging markets borrow more in foreign currency and are more sensitive to economic fluctuations, compared to developed markets. Owing to the fact that the US NFCI reflects fluctuations in the US market, the higher sensitivity of emerging markets could influence the significance of the interaction term. Since we isolate our study to acquirers in Europe, our dataset contains fewer emerging markets than the study of Bergant, Mishra and Rajan (2023), possibly explaining why they find significance and we do not. Another potential explanation could be that the observed increase of M&A activity, as a short-term response to a tightening of the US NFCI, is simply not influenced by the amount of countries' net foreign exchange liabilities. Considerably, it is when the delayed effect of the tightening becomes evident, presumably caused by the Euro Area responding to the changes in interest rates (Hanisch, 2019), that the net foreign exchange liabilities of the respective countries become of relevance. This rationale would support our findings of the significant interaction term presented in **Table 9** in the appendix.

The similarity of our results for the acquirer and target country's NFXL and their impact on M&A deals could be on account of 80% of our dataset reflecting transactions where both target and acquirer are located within Europe, alongside 40% having Euro as their national currency. Accordingly, the appreciation or depreciation in the Euro could affect the M&A value in similar ways, granting similar results for both the acquirer and the target.

Table 7. Model 3 Regression Result

<i>Dependent variable: M&A Deal Values (in logs)</i>			
	Model 3a	Including NFXL Acquirer	Including NFXL Target
	(1)	(2)	(3)
US NFCI	0.290*** (0.042)	0.255*** (0.051)	0.254*** (0.047)
GDP Acquirer	0.032*** (0.008)	0.018** (0.008)	0.034*** (0.008)
GDP Target	0.032*** (0.008)	0.036*** (0.008)	0.025*** (0.008)
Inflation Acquirer	-0.018 (0.014)	0.017 (0.015)	-0.0002 (0.014)
Inflation Target	-0.022*** (0.006)	-0.019*** (0.006)	-0.020*** (0.006)
NFXL Acquirer (% of GDP), 1-year lag		-0.003*** (0.0004)	
US NFCI * NFXL Acquirer (% of GDP), 1-year lag		-0.0003 (0.0004)	
NFXL Target (% of GDP), 1-year lag			-0.003*** (0.0004)
US NFCI * NFXL Target (% of GDP), 1-year lag			-0.0004 (0.0004)
Constant	0.948** (0.461)	0.811* (0.460)	0.888* (0.460)
Observations	11,772	11,772	11,772
R ²	0.522	0.525	0.524
Adjusted R ²	0.494	0.497	0.496
Target x Acquirer (country FE)	YES	YES	YES
<i>Note:</i>		*p<0.1; **p<0.05; ***p<0.01	

5.4 Industry Differences

5.4.1 Model 4 Results

Our results for *Model 4* illustrate that a majority of the industries portray a positive and significant result on a 1% significance level, these being Communications Services, Consumer Discretionary, Energy, Financials, Health Care, Industrials, Materials, and Utilities. Additionally, Information Technology has a positive relationship on a 5% significance level. The three industries with the highest effect are Utilities, Energy, and Industrials, whereas the three with the lowest are Communication Services, Materials, and Information Technology. The industry's coefficients range from the lowest relationship of approximately 6.5% in Information Technology to the highest relationship in Utilities of 26%. Only two industries portray insignificant results, namely Consumer Staples and Real Estate. The results support our *Hypothesis 4*, that the spillover effect differs among industries.

Furthermore, the GDP in the acquirer countries displays a stronger relationship in terms of significance than the GDP in the target country, however, for all significant values, the results suggest a positive relationship for both the GDP acquirer and target. In regards to inflation in the acquirer country, only one industry depicts a significant result (Health Care). Moreover, the inflation in the target countries is slightly more relevant as three industries (Consumer Discretionary, Financials, and Industrials) show significant inverse relationships on a 5 and 10% significance level. The constant is only significant on a 10% level for one industry (Financials), making it difficult to interpret the overall effect in the regressions.

The results of *Model 4* along with the results when performing a lag function on the NFCI (*Table 9* in the appendix) are consistent with *Model 1*, indicating that there is a potential delayed effect of the NFCI and a short-term increase in economic activity. Interestingly, comparing the outcome of the contemporary NFCI, potentially reflecting the short-term expansive economic effect, to the lagged NFCI capturing the potential delayed effect, the results differ substantially. Assuming the theory holds, our results indicate that the industries affected positively by the short-term economic boost, are not the same as the ones negatively impacted by a tightening of the NFCI. The strongest relationship is found between utilities and the contemporary NFCI (26.1%), suggesting a substantial effect on the M&A deal values. Moreover, utilities, with the strongest effect, also depict the lowest R². This further indicates that more variables are needed to increase the explanatory power of the model. The three industries reflecting the strongest relationship between the contemporary US NFCI and M&A deal values (Utilities, Energy, Industrials) are commonly viewed as rather capital intensive,

however, finding a common denominator for their outputs of an increase short term, is inherently unobservable.

Examining the differences among industries when performing the lagged functions on the NFCI, the findings reflect a negative relationship between the US NFCI and M&A activity. Real estate depicts a strong and highly significant negative impact on M&A deal value, which could be explained by the high amount of capital in the real estate industry. The prior mentioned enables easier lending for the acquirer during easier financial conditions, as suggested by Bergant, Mishra and Rajan (2023), followed by higher sensitivity to a tightening of US NFCI (Fischer & Horn, 2023). Albeit with smaller effects, the financials industry, which is typically viewed as a capital-intensive industry, follows a similar trend. However, the high relationship between NFCI and M&A deal value in the information technology industry could instead be driven by factors such as holding firm-specific assets rather than location-specific assets, as explained by Blonigen (1997) and Georgopoulos (2008). It is noteworthy that defining an industry as capital-intensive is not often a universal definition. Hence, our assessment is based on common assumptions about industries' capital structures.

Due to the limited prior research in this subject it is difficult to, within the scope of this study, assess the characteristics that define the differences among the industries. Our findings support the hypothesis of distinguishing differences, however, more research is needed as the relationship between the NFCI and specific industries seems to be multifaceted. Furthermore, looking at the R² in the respective regressions, it is fairly low compared to our prior models implying a less fitted model to reflect the data. Another factor to consider is the significant drop in observations when dividing the industries into separate regressions, as well as the differences in observations between the industries. This makes comparability more difficult and could impact the statistical power, potentially explaining the reason for the low R². Nonetheless, our model can be considered a first draft to identify differences between industries, setting the path for future research within the area.

Table 8. Model 4 Regression Results

<i>Dependent variable: M&A Deal Values (in logs)</i>											
Acquirer Dataset											
	Communication Services (1)	Consumer Discretionary (2)	Consumer Staples (3)	Energy (4)	Financials (5)	Health Care (6)	Industrials (7)	Information Technology (8)	Materials (9)	Real Estate (10)	Utilities (11)
NFCI	0.099*** (0.037)	0.113*** (0.030)	0.023 (0.033)	0.168*** (0.045)	0.104*** (0.034)	0.125*** (0.036)	0.150*** (0.028)	0.065** (0.030)	0.078*** (0.030)	0.003 (0.053)	0.261*** (0.045)
GDP Acquirer	0.017*** (0.007)	0.022*** (0.005)	0.0003 (0.006)	0.005 (0.008)	0.015** (0.006)	-0.004 (0.006)	0.014*** (0.005)	0.017*** (0.005)	0.010* (0.005)	-0.009 (0.010)	0.022** (0.008)
GDP Target	0.009 (0.006)	0.009* (0.005)	0.012** (0.005)	0.001 (0.006)	0.010** (0.004)	0.009 (0.006)	0.010** (0.004)	-0.0005 (0.005)	0.007* (0.004)	0.019** (0.010)	-0.009 (0.006)
Inflation Acquirer	0.010 (0.011)	-0.010 (0.009)	-0.002 (0.005)	0.028 (0.017)	-0.001 (0.006)	-0.042*** (0.011)	0.001 (0.006)	-0.011 (0.007)	0.004 (0.004)	-0.015 (0.013)	-0.004 (0.010)
Inflation Target	-0.001 (0.003)	-0.005** (0.003)	-0.001 (0.002)	-0.005 (0.005)	-0.006** (0.003)	-0.002 (0.004)	-0.004* (0.003)	-0.005 (0.003)	-0.003 (0.002)	-0.008 (0.006)	-0.004 (0.004)
Constant	0.178 (0.321)	0.073 (0.284)	0.009 (0.302)	0.301 (0.312)	0.675* (0.359)	0.232 (0.303)	0.144 (0.307)	0.409 (0.256)	0.245 (0.307)	0.130 (0.321)	0.372 (0.316)
Observations	8,610	10,584	9,744	5,691	12,852	8,295	13,671	8,883	11,634	4,263	5,586
R ²	0.192	0.236	0.172	0.137	0.239	0.343	0.354	0.367	0.204	0.206	0.090
Adjusted R ²	0.151	0.197	0.131	0.093	0.201	0.310	0.322	0.335	0.163	0.165	0.044
Target x Acquirer (country FE)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note:

*p<0.1; **p<0.05; ***p<0.01

5.5 Limitations & Further Research

As with many studies, one major limitation is the accessible data on hand. This limitation is especially present when combining data from different websites into a panel dataset. We encountered this issue when combining the FX liabilities and the NEER of the acquirer and target countries into the dataset. Our original dataset included 174 countries while the data of the NEER and FX liabilities only reflected 50 countries over our estimated time frame, reducing our observational count to approximately a third of the original dataset. The reduction of observations might impact the study and its outcome and cause wrongful estimates when interpreting the data. An additional limitation can be missing values in the data, also present in our dataset. The missing values were dealt with through careful consideration by replacing them with zeros. Concerning the overall study, the missing values were quite few and are not expected to affect the outcome.

The risk for omitted variable bias is present when conducting regressions as in this study. Omitted variable bias occurs when an important variable is excluded from the model, potentially impacting the relationship between the dependent and the independent variable.

Efforts have been made to account for the risk by including control variables and performing sensitivity analysis in this study, however, it cannot be guaranteed that the risk is eliminated.

When distinguishing industry differences to be generalized, one limitation is the industry classification that is presented by Capital IQ. Classification of industries can vary greatly between different websites and databases, thereby making it difficult to compare. There is the commonly used standard industry classification (SIC) code list, nonetheless, it was not possible to match Capital IQ's classification against the SIC codes through programming. Following this, due to the large amount of observations in our dataset, manual execution would be unfeasible.

Lastly, the prior studies within the field are few, making it difficult to draw universal conclusions, notably when encountering different outcomes from the previous research. The larger the quantity of existing research within a particular field, the more likely it is to find aligning outcomes and conclude the outcomes to be deemed accurate. A major limitation when there is little research to rely on is that each study is influenced by variables such as data selection, chosen time frame, and geographical location. When multiple studies investigate the same field utilizing different criteria, a more comprehensive and robust understanding of the subject matter is substantiated. In light of this, further research is recommended to expand the area of study geographically, throughout different time periods, and study the effect of financial conditions in other core currencies such as the Euro, the Japanese Yen, and the British sterling pound. The research might also be enhanced by continuing our focus on different industries and distinguishing the drivers of the effects of each industry.

6. Conclusion

This study aims to investigate the impact of a core country's financial conditions and the spillover effect on M&A activity in Europe. The research is conducted by looking at the US financial conditions index and M&A activity in Europe between 2000-2020. Other factors potentially affecting the outcome such as net foreign exchange liabilities and industry differences are taken into consideration, as well as isolating the impact to only account for currency fluctuations by replacing the US NFCI with the US NEER. We find that a tightening of US financial conditions has a significant positive impact on European M&A activity. The effect is found to be temporary, whereby when performing a lag function on the NFCI we find a negative effect on the M&A activity. The results imply that in the short term, the European market can experience a boost in M&A activity following a tightening of the US NFCI. Within a year of the tightening, the NFCI negatively impacts the European market which we can see through lower M&A activity present in all of our regression models. Furthermore, we establish a negative relationship between the US nominal effective exchange rate and M&A activity, although smaller than the NFCI effect. When using the contemporary US NFCI, we find no evidence that the spillover is affected by the magnitude of countries' net foreign exchange liabilities. Nonetheless, when incorporating a lagged function on the US NFCI, our findings indicate a negative significant interaction term for the acquiring country, supporting the hypothesis that NFCI yields a stronger spillover effect on countries with a larger stock of foreign exchange liabilities. Lastly, we apply a novel approach by attempting to distinguish the NFCI effects by industries and find statistically significant relationships among certain industries. The findings suggest that the effect of the NFCI differs across industries, although not further established the reasons for the differences.

The paper complements Bergant, Mishra and Rajan (2023) and contributes to a further understanding of the US NFCI and its global impact. The findings of a delayed effect when isolating the M&A activity in Europe are particularly interesting as they deviate from their results. Understanding this effect enables better predictability of M&A activity as financial conditions in a core country change, leading to a further understanding of macroeconomic effects on corporate activity. Further research within the field is recommended to strengthen the reliability of the present findings. To create a deeper and more nuanced analysis, industry-specific effects and sensitivity to NFCI movements are of interest.

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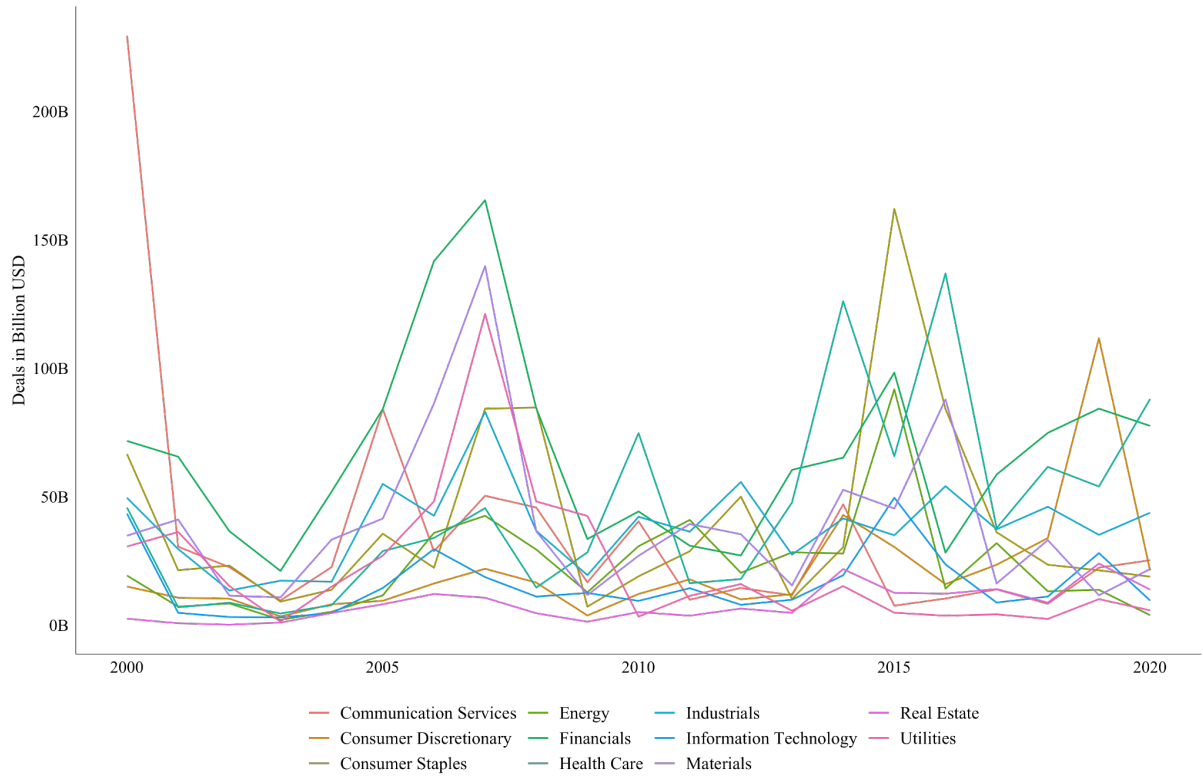
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APPENDIX

Figure 2. Total Value of Cross-Border M&A Deals per Year by Industry



A. Supporting Details

Figure 3. Average Net Foreign Exchange Liabilities per Country (1999-2017)

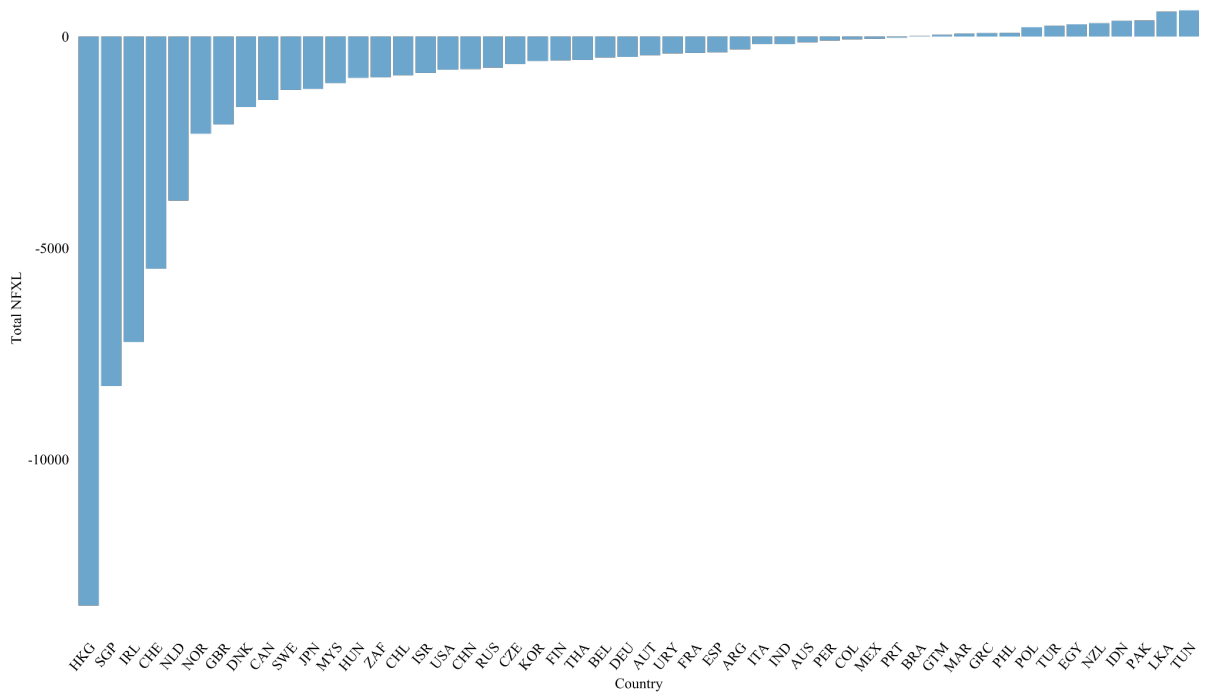


Figure 4. US National Financial Condition Index

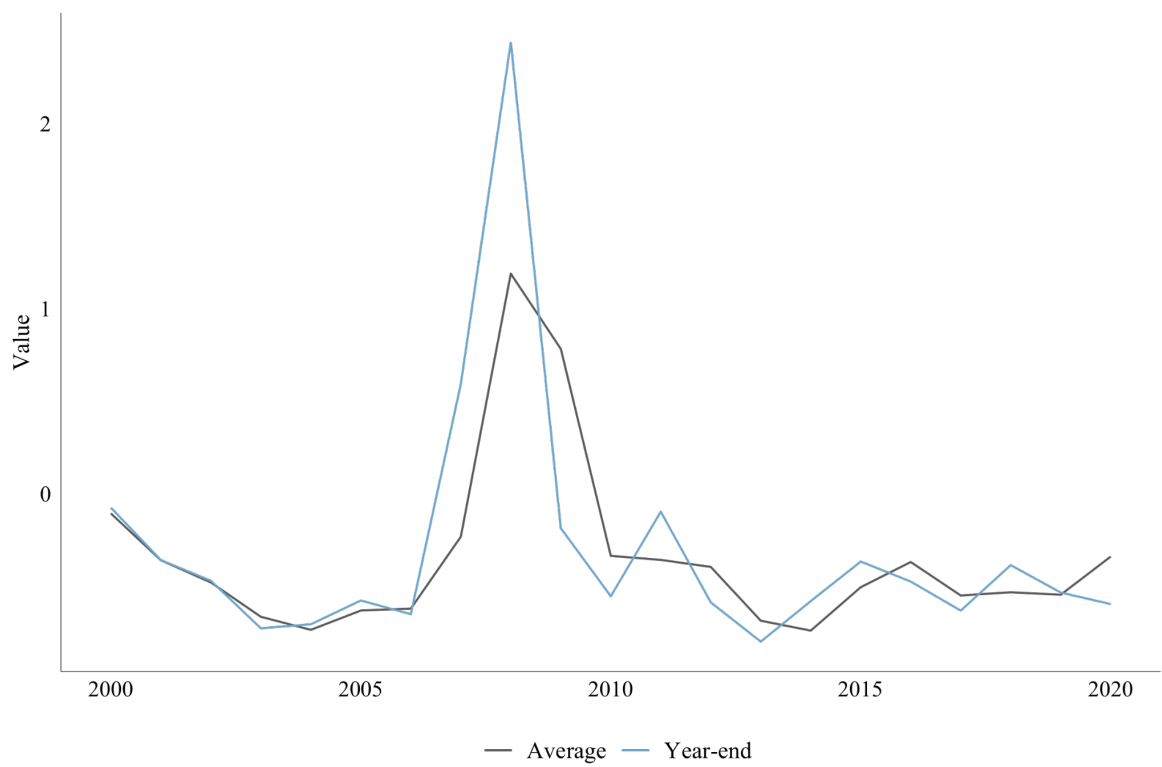


Figure 5. US Nominal Effective Exchange Rate

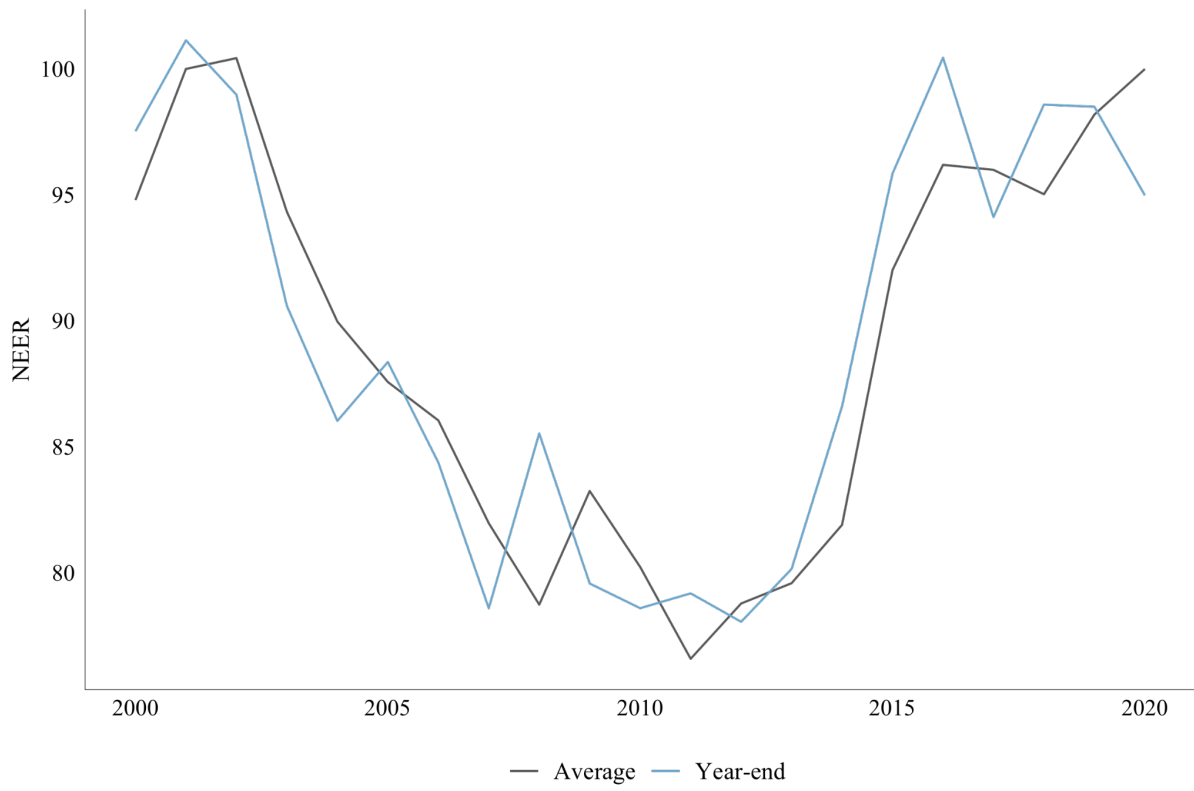
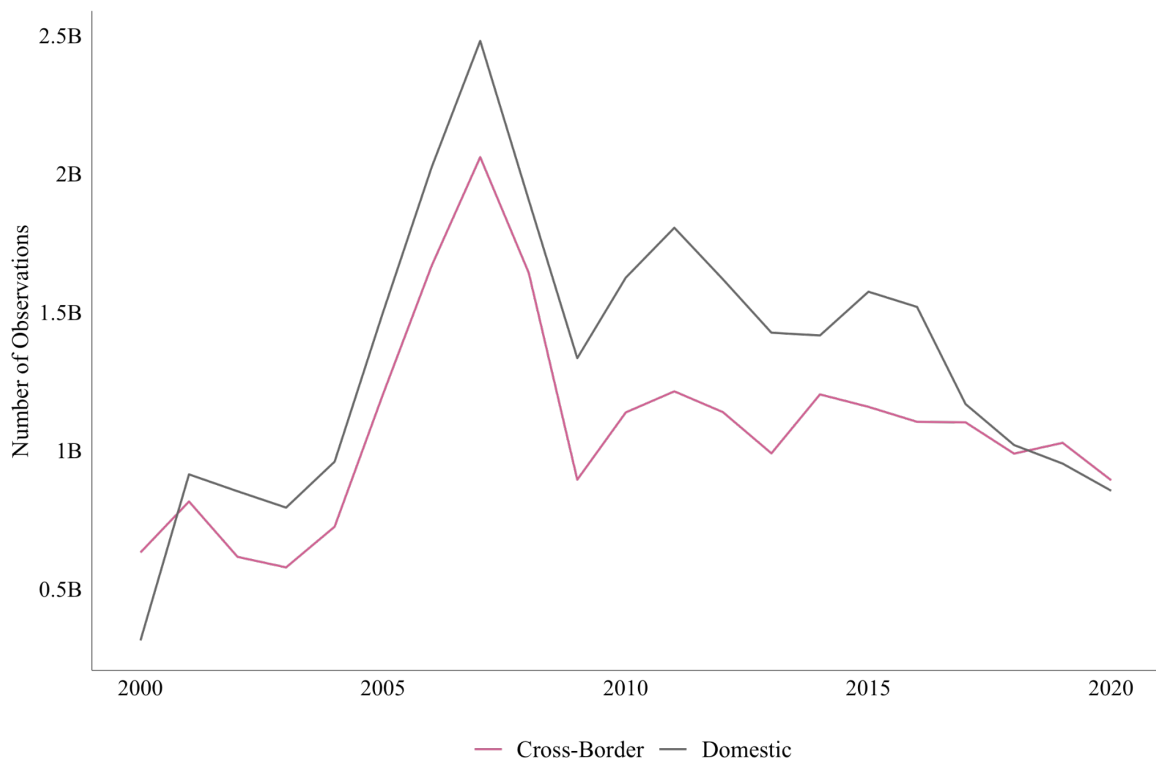


Figure 6. Number of Observations for Cross-Border and Domestic Transactions



B. Regression Extensions

Table 9. NFXL Regression with US NFCI Lagged 1-year

<i>Dependent variable: M&A Deal Values (in logs)</i>			
	Model 3a	Including NFXL Acquirer	Including NFXL Target
	(1)	(2)	(3)
US NFCI, 1-year lag	-0.104** (0.042)	-0.194*** (0.051)	-0.099** (0.047)
GDP Acquirer	0.006 (0.008)	-0.003 (0.008)	0.010 (0.008)
GDP Target	0.015* (0.008)	0.017** (0.008)	0.007 (0.008)
Inflation Acquirer	0.006 (0.014)	0.046*** (0.014)	0.024* (0.014)
Inflation Target	-0.019*** (0.006)	-0.017*** (0.006)	-0.018*** (0.006)
NFXL Acquirer (% of GDP), 1-year lag		-0.003*** (0.0004)	
US NFCI * NFXL Acquirer (% of GDP), 1-year lag		-0.001*** (0.0004)	
NFXL Target (% of GDP), 1-year lag			-0.003*** (0.0004)
US NFCI * NFXL Target (% of GDP), 1-year lag			-0.0002 (0.0004)
Constant	0.822* (0.462)	0.647 (0.460)	0.772* (0.461)
Observations	11,772	11,772	11,772
R ²	0.520	0.524	0.522
Adjusted R ²	0.492	0.496	0.494
Target x Acquirer (country FE)	YES	YES	YES

Note: *p<0.1; **p<0.05; ***p<0.01

Table 10. Industry Regression with US NFCI Lagged 1-year

<i>Dependent variable: M&A Deal Values (in logs)</i>											
	Communication Services (1)	Consumer Discretionary (2)	Consumer Staples (3)	Energy (4)	Financials (5)	Health Care (6)	Industrials (7)	Information Technology (8)	Materials (9)	Real Estate (10)	Utilities (11)
NFCI	-0.063* (0.036)	-0.027 (0.029)	-0.043 (0.032)	0.044 (0.043)	-0.104*** (0.033)	-0.034 (0.035)	-0.061** (0.028)	-0.093*** (0.029)	-0.046 (0.030)	-0.234*** (0.052)	0.082* (0.044)
GDP Acquirer	0.010 (0.007)	0.016*** (0.005)	-0.002 (0.006)	-0.001 (0.008)	0.006 (0.006)	-0.011* (0.006)	0.004 (0.005)	0.011* (0.005)	0.004 (0.005)	-0.016 (0.010)	0.012 (0.008)
GDP Target	0.006 (0.006)	0.006 (0.005)	0.011** (0.005)	-0.001 (0.006)	0.007 (0.004)	0.004 (0.006)	0.006 (0.004)	-0.005 (0.005)	0.006 (0.004)	0.011 (0.010)	-0.011* (0.006)
Inflation Acquirer	0.017* (0.010)	-0.001 (0.009)	-0.001 (0.005)	0.042** (0.016)	0.003 (0.006)	-0.031*** (0.010)	0.007 (0.006)	-0.007 (0.007)	0.005 (0.004)	-0.014 (0.013)	0.005 (0.010)
Inflation Target	0.0003 (0.003)	-0.004* (0.003)	-0.001 (0.002)	-0.004 (0.005)	-0.004* (0.003)	-0.001 (0.004)	-0.003 (0.003)	-0.004 (0.003)	-0.002 (0.002)	-0.006 (0.006)	-0.002 (0.004)
Constant	0.122 (0.321)	0.032 (0.284)	-0.006 (0.302)	0.262 (0.312)	0.614* (0.359)	0.176 (0.303)	0.065 (0.307)	0.361 (0.256)	0.215 (0.307)	0.061 (0.320)	0.316 (0.317)
Observations	8,610	10,584	9,744	5,691	12,852	8,295	13,671	8,883	11,634	4,263	5,586
R ²	0.192	0.235	0.172	0.135	0.239	0.342	0.353	0.367	0.203	0.210	0.085
Adjusted R ²	0.151	0.196	0.131	0.091	0.201	0.309	0.321	0.335	0.163	0.169	0.039
Target x Acquirer (country FE)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 11. NEER Robustness Test

<i>Dependent variable: M&A Deal Values (in logs)</i>	
	Model 2
NEER YE (in logs)	-1.401 ^{***} (0.110)
GDP Acquirer	0.014 ^{***} (0.004)
GDP Target	0.006 ^{**} (0.003)
Inflation Acquirer	-0.001 (0.003)
Inflation Target	-0.005 ^{***} (0.002)
Constant	6.943 ^{***} (0.612)
Observations	28,035
R ²	0.505
Adjusted R ²	0.480
Target x Acquirer (country FE)	YES
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01

C. Data Overview

Table 12. Multicollinearity Test Regression 1

	GVIF	Df	$GVIF^{1/(2 \cdot Df)}$	Interacts With	Other Predictors
US NFCI	1.1694	1	1.0813	--	GDP Acquirer, GDP Target, Inflation Acquirer, Inflation Target, Country Pairs
GDP Acquirer	1.5468	1	1.2437	--	NFCI, GDP Target, Inflation Acquirer, Inflation Target, country Pairs
GDP Target	1.4999	1	1.2247	--	NFCI, GDP Acquirer, Inflation Acquirer, Inflation Target, Country Pairs
Inflation Acquirer	1.4927	1	1.2217	--	NFCI, GDP Acquirer, GDP Target, Inflation Target, Country Pairs
Inflation Target	1.5316	1	1.2376	--	NFCI, GDP Acquirer, GDP Target, Inflation Acquirer, Country Pairs
Country Pairs	3.0607	1334	1.0004	--	NFCI, GDP Acquirer, GDP Target, Inflation Acquirer, Inflation Target

D. AI Disclosure

Chat GPT has been used as a tool to assist us when encountering difficulties creating the code for this thesis. The main use has been to find errors in the code and suggest more efficient solutions, simplifying complex code structures. The aforementioned has helped us to increase the quality of the thesis, by ensuring fewer errors, and giving us a more precise outcome. Chat GPT has not had access to any data or our thesis, rather simply been used to provide objective examples of codes based on our requests. Hence, there is no risk of sharing sensitive data or receiving biased outputs. The risk, as with using any source, is the risk of a wrongful output, contributing to and incorrect analysis. To mitigate this risk, we have continuously in the process critically evaluated the results based on our knowledge from previous research and used their results as a benchmark. Moreover, to ensure that the results reflect our raw data, we have obtained samples throughout the process and each step, to assure that the desired output is in line with the code output. Such measure could be for instance when creating country pairs in our code; we took out several samples, testing to see that each countrypair contained 20 observations each. This type of control has been performed continuously throughout the process. The insights we have gained from using AI tools has been increased efficiency, accuracy and a deeper understanding of codewriting. AI has not been used in any other part of writing our thesis.