

M&A in the Payments space: value creation from a PSP perspective

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List of abbreviations

AR – Abnormal return

A2A – Account to Account

BNPL – Buy Now Pay Later

CAPM – Capital Asset Pricing Model

CAR – Cumulative Abnormal Return

ESG – Environmental, Social and Corporate Governance

ID – Institutional Distance

lnAsset – Natural Logarithm of total Assets

M&A – Mergers and Acquisitions

MSCI – Morgan Stanley Capital International

OI – Open Innovation

P2P – Peer to Peer

POS – Point of Sale

PSP – Payment Service Provider

TAM – Total Addressable Market

TPP – Third Party Provider

1. INTRODUCTION

The payments industry has undergone a profound transformation in recent years, driven by technological advancements, changing consumer preferences, and evolving regulatory landscapes. Within this dynamic environment, mergers and acquisitions (M&A) have emerged as a strategic tool for companies operating in the payments space to navigate challenges and seize opportunities. Payment Service Providers (PSPs), key players in facilitating electronic transactions, have been at the forefront of this M&A activity. Their involvement in mergers and acquisitions has not only reshaped the competitive landscape but has also raised critical questions regarding the value created through such transactions.

Extraordinary transactions of the M&A type are generally carried out to achieve companies' premeditated strategic goals, with multiple purposes and motivations, but with the sole objective of creating value for the company's shareholders. In a simplistic manner, they can be described as a tool of the market for corporate control, based on the ratio whereby one entity combines with another, resulting in a change of ownership. In a broad context, in a typical M&A transaction, there are two fundamental players, namely the bidder company, acquiror or buy-side, and the target company, also referred to as seller or sell-side.

Speaking broadly, there are two primary procedures via which a public corporation might undergo a change in ownership: acquisition by another company or group of individuals, and the merging of two firms. In both scenarios, the acquiring party engages in the acquisition of either the stocks or the pre-existing assets of the selling party, utilising a process known as takeover, which involves the exchange of either cash or shares.

In addition, M&As typically have robust rationales, which will be extensively described in this dissertation, in particular describing the effects that such transactions have on the acquirer's short-term returns and the factors that explain this impact. Specifically, in literature, a popular method for analysing such performance is to look at the bidder's Cumulative Abnormal Returns (CARs) around the announcement date of the M&A transaction. Furthermore, researchers typically conduct a multivariate regression analysis to examine the various factors that may amplify or diminish the impact on these returns.

The main purpose of this dissertation is to delve into the complexities of mergers and acquisitions, considering them as a single tool for value creation in the extremely dynamic Payments industry.

In particular, this thesis focuses on the payment service provider side, seeking to unravel the underlying motivations, strategic considerations and value creation mechanisms that drive PSPs to engage in mergers and acquisitions.

Over the years, PSPs have come to play a pivotal role in the everyday lives of individuals and businesses, being able to respond to needs and requirements quickly and reliably. The revolution in the Payments industry, accelerated by the outbreak of the Covid-19 pandemic and the consequent need for technological advancement, has reached its peak through the concept of digitization, which has fostered new players in the market, also referred to as disruptors. Encouraged by regulatory interventions, such as Payment Service Directive 2 (PSD2), and the implementation of new advanced technologies, have gradually gained larger and larger market shares, making this sector very competitive at the expense of the incumbents.

The rise of the payments world is driven by a steady shift to digital payments, in fact global cashless payment volumes are expected to increase by more than 80% from 2020 to 2025, from about 1 tn transactions to almost 1.9 tn, and almost to triple by 2030.¹

A well-established feature of the new era of payment service providers is to act as end-to-end players, acting across the entire payments' value chain, which will be described in detail in chapter 3.

A widely used technique to achieve this is to resort to M&As, to offer a range of new and alternative services, such as Account to Account payments or Buy Now Pay Later, which are attracting attention on the consumer side. Furthermore, it will be analysed during the dissertation the trends that are mainly driving the M&As in this industry, namely a consolidation of the market, in particular of processors, as seen in the multi-billion dollar acquisitions, such as Global Payments with TSYS, Fiserv with First Data and FIS with Worldpay; but also of merchant services such as the acquisition conducted by Worldline with the Point-of-Sale (PoS) terminal provider Ingenico.

¹ <https://www.pwc.com/gx/en/industries/financial-services/publications/financial-services-in-2025/>

The purpose of this dissertation is to analyse and draw conclusions on the effects of M&A transactions on PSPs players. Specifically, Payments play a key role in commerce and the digital economy with a market of around \$240 bn², with 221 deals in Year To Date (YTD), accounting for more than USD12,000m in deal value, and 486 deals in 2022.³

Therefore, given the aforementioned disruptive impact of payment service providers (PSPs) on the financial services industry and the intention to examine the outcomes of mergers and acquisitions (M&A) announcements and their underlying factors, a primary research investigation of this thesis is to examine whether M&A transactions involving PSP firms result in value creation for the acquiring firm's shareholders. To do so, an event-study methodology is used, aimed at analysing the CARs for the shareholders of the bidders around the announcement date. The empirical analysis prepared is based on a panel of transactions in which the buy-side is a PSP company listed in a major market, to analyse the reaction of the stock market. Conversely, another crucial investigation of the study concerns the most likely variables that can increase or worsen these abnormal returns. The primary objective of this thesis is to assess whether transaction-specific characteristics, together with the distinctive attributes of the acquiring and target companies, have a significant impact on the outcome of M&A transactions. In particular, the analysis aims to determine whether these factors contribute to the creation or reduction of value for the acquiring company's shareholders.

In order to answer these questions, an empirical study was conducted based on the work previously carried out by Collevocchio et al. (2023), in which they analysed the main factors that make an M&A transaction that targets a fintech company favourable.

Specifically, the empirical analysis proposed in this dissertation is conducted on a panel of 48 observations and will be described in detail in the third and final section of this paper.

To summarise, the thesis has the following structure. In the first section, the main motivations and purposes of an M&A transaction are discussed, with the focus on fintech M&A, with multiple references to the literature over the years. The second section will provide a detailed overview of the PSP world, describing trends and key regulatory interventions, as well as an accurate representation of the payments value chain. Finally, in the last and third section,

² EY analysis

³ Refinitiv Eikon

starting with chapter number 4, the main empirical evidence will be presented and described by a multivariate regression analysis.

2. LITERATURE REVIEW

The following section aims at framing a theoretical framework of the impact of M&As on value creation and analysing how a transaction can benefit the bidder company. Initially, the first part will fully analyse the M&A phenomenon and the motives behind deal activity, and then present empirical evidence on value creation through the measurement of Cumulative Abnormal Returns (CARs) and its determinants analysed through a multivariate regression analysis in a wide context. It is specified, that for the purposes of the analysis, the Payments industry as defined by most of the literature is a branch of the broader Fintech universe, hence most of the references in the literature come from papers concerning the Fintech world. Finally, the paper will focus on the effects of M&A transactions in the Payments space and more specifically, when the buy or sell-side is a Payment Service Provider (PSP), which will be extensively described in the third chapter. This analysis has as its foundation the study on Fintech firms presented by Collevocchio et al. (2023), which is the focus of the empirical part of this dissertation. Thus, this review, by presenting research following both the event study and cross-sectional regression analysis methodology, provides the basis that eventually builds up the logical reasoning of the tested hypothesis.

2.1 Definition of M&A

Mergers and Acquisitions (M&A) refer to the strategic activities through which companies combine or consolidate their operations, assets, or ownership to create synergies, gain competitive advantages, or achieve specific strategic goals.

In fact, the acronym ‘M&A’ represents a process involving a change in the ownership of a company, whether private or public:

- The acquisition by another firm, individual or group of both of them;
- The merger of the two companies.

Target’s shares or assets can be acquired by the acquiror for cash or through the issuance of new or existing shares. The two payment methods have different consequences and purposes, which vary depending on the economic period and the resulting market conditions.

Business combinations can be categorised based on the similarity of the merging firms' industry (horizontal) or their dissimilarity (conglomerate), as well as their respective places within the corporate value chain (vertical).

In addition, transactions can be unfriendly or hostile deals, which happens when the target company does not want to be acquired.

2.2 M&A rationale

One of the most interesting aspects concerning mergers and acquisitions lies in the rationale for which such operations are put in place. As mentioned earlier, there are multiple reasons for such an extraordinary transaction, ranging from the company's ability to enter new markets to the acquisition of new customers, from technological advancement to the diversification of services offered. Several academics have done important work in elaborating the motivations behind an M&A transaction.

Specifically, the main reasons for conducting an M&A transaction are:

- Industry-specific requirements;
- Globalization leading to scale requirements;
- Speed and cost considerations of growth;
- Product and service range expansion;
- Risk reduction and diversification;
- Leverage of core competencies or technology changes (G.V.M. Kode, 2003)

A main feature presented in every M&A transaction is the payment of a premium for the acquisition of a company, with the latter being able to make synergies, which are widely defined by the literature as the key drivers of every transaction.

Technically, synergies are defined as the value realised from the incremental cash flows generated by combining two businesses. Synergies can only be achieved or realised through the post-merger integration of both processes and people and, in the case where an

acquisition premium has been paid, the slower the integration, the slower the realisation of synergies and the more costly the repayment of the premium paid (Bena and Li, 2014)

Thanks to M&A, on the bidder company side, more value can be generated from the combination of the two entities than from the stand-alone entity, through synergies that mainly fall into two main types: cost reductions and revenue enhancement (Berk and De Marzo, 2014).

Cost reduction synergies are more common and easier to achieve because they typically imply layoffs of overlapping staff and the elimination of unnecessary resources. Otherwise, a takeover may open up possibilities for revenue enhancement, as market shares are acquired in new markets and new consumers are reached.

The literature also proposes other reclassifications of synergies, the main one that is useful to present is the division into operating and financial synergy. Operating synergies are in fact gains in efficiency and flow mainly into economies of scale, scope, acquisition of complementary technical assets and skills, and diversification into new products and markets. On the other hand, financial synergies refer to the reduction of the acquirer's cost of capital due to an M&A transaction, caused mainly by the non-correlation between the cash flows of the acquirer and the acquired company and producing a de facto reduction in the specific risk intrinsic to the consolidating company (DePamphilis, 2017)

Further, from an analysis conducted by Hoberg and Philips (2008), M&A transactions tend to elicit greater market responses and yield favourable outcomes over an extended period when the acquiring companies operate in product markets characterised by pre-existing competition. Additionally, these deals are more likely to enhance the differentiation of the acquirer's product market compared to its nearest competitors.

2.3 Introduction to Fintech M&A

As mentioned earlier, the specific industry of this dissertation's analysis, that is Payments, is a niche of the broader industry that answers to fintech, given the subdivision proposed by the Financial Stability Board Framework 2020.

For this reason, most of the references in the literature come from the latter reference.

2.3.1 Fintech emergence and disruption with financial institutions

During this two decades, there have been many challenges for the world of financial institutions, mainly related to the Global Financial Crisis and the outbreak of the Covid-19 pandemic, which led to very low profitability margins and a deterioration of public trust.

After the outbreak of the Covid-19 pandemic, the financial services industry reacted with unprecedented technological development and acceleration of digital innovation, culminating in the rise of machine learning and artificial intelligence enabled by an abundance of non-financial data, and the dominance of digital platforms and smartphones (Boot et al., 2020). These new developments have given rise to the rise of the world of fintech, which can be regarded as disruptors in comparison to the traditional world of financial services.

To introduce, the Financial Stability Board defines the fintech industry as “technologically enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services. FinTech innovations are affecting many different areas of financial services”⁴.

Given this definition, we can understand that the fintech industry has an application to all sectors and services/products provided by the financial industry.

The emergence of novel communication channels allows specialised providers to bypass the distribution networks of banks and provide financial services that do not necessitate access to a balance sheet. These services, such as payments and wealth management, do not involve the undertaking of credit risk or maturity transformation (Boot et al., 2020).

The rise of fintech, which, as mentioned, coincides with the financial crisis, can be explained by the unwillingness of financial institutions to undertake a true digital transformation of business processes and business models. A 2013 report on the support of business processes

⁴ <https://www.fsb.org/work-of-the-fsb/financial-innovation-and-structural-change/fintech/>

states: “across Europe, retail banks have digitized only 20 to 40 percent of their processes; 90 percent of European banks invest less than 0.5 percent of their total spending on digital” (Olanrewaju, 2014).

These low innovation investments are surprising in the amount that banks invest in IT facilities, more than any other sector.

Further, the disruption of fintechs in comparison to traditional financial institutions lies mainly in technological development and specifically in the rise of the internet and the use of non-financial customer data, such as online shopping customer ratings for online vendors or online shopping behaviour of individuals, as opposed to the classic data that can be extrapolated from payment flows and accounting records. Combining non-financial and financial data can create added value for individuals, with the opportunity for large BigTechs, due to the amount of information they collect, to compete and outperform banks in financial service provision.

This hypothesis is confirmed, by the work of Frost et al. (2019), which analyses the activities of BigTech, belonging to a particular subset of broader FinTech innovations, and shows that Mercado Libre, an online marketplace in Latin America, predicts default risk better than credit scores.

In conclusion, we define the fintech world as the application of digital IT to deliver financial solutions. This includes various business models enabled by digital technologies, which are mainly applied in customer interactions, payment services, funding and lending, and insurance (Alt et al., 2018)

2.3.2 Motivations of M&A in the Fintech industry

Banks and financial institutions are used to adopting new technologies and introducing changes in back-office functions, but since the 2008 financial crisis and increasing regulation, there has been a rise of fintech start-ups that can provide innovative financial services that banks were not used to offering. Examples of these innovations are the rise of cryptocurrencies, digital wallets, cryptocurrencies and peer-to-peer (P2P) lending (Elsaid, 2021).

Empirical evidence underscores the potential for large synergies that may arise from the acquisition of technology. Infact, in accordance with Al-Sharkas, Hassan and Lawrance (2007), the most significant cause of efficiency between merged banks and non-merged banks is technical efficiency, inferring that the former is able to exploit the technologies of the acquired targets. From the empirical analysis prepared by the authors, it emerges that merged banks show greater productivity growth, caused mainly by technological advances.

Having said that and considering the main leverage, described in the previous section 2.3.1, namely the exploitation of synergies through an M&A transaction, it can be really useful for a bank or financial institution to acquire a fintech firm in order to master new technologies and improve efficiency, and thus generate value.

In addition, according to Ranft and Lord (2002), bidders tend to implement M&A strategies to solve potential managerial problems, which might arise from the introduction of new skills and expertise in knowledge-intensive and innovation-driven areas into the company. In fact, this hypothesis is confirmed by the study of Ma and Liu (2017), who point out that Bidders engage in the acquisition of Fintech companies with the aim of increasing their technological expertise, both to facilitate expansion into new areas and to modernise their current technological capabilities. Instead of allocating significant resources to research and development, a larger acquiring entity may choose to assimilate the skills of a smaller, more innovative target company.

The motivations that lead financial institutions to do M&A transactions with fintech targets are many and consist of providing new services to an existing customer base and strengthening their market power by adding an established knowledge of regulations (Mao et al., 2022). Moreover, according to Collevocchio et al. (2023), the adoption of fintech mergers and acquisitions (M&A) can serve as a beneficial approach for traditional banks. This strategy enables them to obtain advanced technologies and assimilate the extensive knowledge base of fintech companies. Consequently, it facilitates the bridging of the substantial digital gap that currently exists, allowing traditional banks to swiftly regain the demand that has been lost as a result of the considerable shift in consumer preferences.

On the strategies banks adopt when financing fintech startups, the main empirical evidence comes from the work of Bellardini, Del Gaudio, Previtali and Verdoliva (2021). In fact, they found, through a sample of 803 rounds of worldwide investments in fintech companies, that the probability of an investment going to a fintech is negatively influenced by the number of banks present in the investment round. On the contrary, when the target company is a tech-native fintech, the number of banks present in the investment round will be higher, due to the riskier nature of the investment and the consequent sharing of the inherent risk.

2.3.3 Value creation in the Payments space

Value creation in the Payments space is the hot topic of this dissertation and we will analyse, as mentioned above, a panel of M&A transactions with a PSP company as a buyer.

The analysis conducted by Denecker et al. (2017), collecting financial statements data for 135 private and public companies, highlights the main levers contributing to value creation in the Payments industry, which can be traced back mainly to organic growth and especially to synergies generated through M&A activities. M&A synergies, as extensively described above, involving the Payments industry, account for seven per cent of the deal value and are mainly cost synergies, according to the aforementioned study.

From this, it can be deduced that the combination of new technologies acquired and the possibility of economies of scale, through higher payment volume and the realisation of cost advantages, results in an increase in value for the acquiring company.

2.4 Shareholders' value creation through M&A activity

As already mentioned, the epicentre of this dissertation is the creation of value in M&A transactions, so the best way to assess the effect of a transaction is to see whether it has created value for the buy-side company and the respective shareholders.

The main and most important sources of literature on this subject analyse the impact of the transaction on buy-side and sell-side short-term performance. Regarding this, according to

researchers, mergers and acquisitions have a conflicted short-term impact on firm stock returns because investors may evaluate their expectations of merger and acquisition gains differently following the announcement depending on the deals' specifics (Dranev et al., 2019).

In most cases, the authors rely on the event case study to assess the impact of the acquirer and target short-term performance, which allows them to measure the market reaction to an M&A announcement. Specifically, the event study methodology focuses on the concept of abnormal returns, which is defined as “the actual ex post return of the security over the event window minus the normal return of the firm over the event window” (MacKinlay et al., 2012).

Focusing on the returns to the bidder company, multiple studies have shown that the value created by M&A transactions is close to zero or negative. In fact, although the goal of all M&As is to generate value, many of them actually create negative value because they produce problems that managers are unable to solve. In fact, most literature believes that the inability to create value is determined by ineffective integration of the target company (Hitt et al., 2012).

Supporting the evidence of negative returns from M&A activities by bidder companies is the study presented by Moeller, Schlingemann and Stulz (2003), in which they show capital losses for shareholders of bidder companies between 1998 and 2001. Specifically, in the sample considered, shareholders of bidder companies lost 12 cents at the announcement of acquisitions for every dollar spent on acquisitions. This conclusion is explained by the existence of negative synergies resulting from these acquisitions.

The traditional M&A literature affirms the tendency of value destruction for the shareholders of acquiring companies when they enter into an M&A transaction with a listed target and especially in large transactions. Specifically, this empirical observation has been repeatedly highlighted in academic and market research, as well as in the business press, over the past two decades.

To contradict, this neoclassical theory of value destruction, it is useful to highlight the work of Alexandridis et al. (2016), who shows that this trend has reversed post-2009. In fact, analysing takeovers in the 2010-2015 period, it was found that in the short term public takeovers generate positive abnormal returns for acquiring shareholders, whereas stock-for-

stock transactions are no longer subject to particularly significant market reactions. This evidence proves an increase in the quality of decision-making by managers regarding M&A transactions and consequently a significant development of the corporate governance environment, capable of generating value for buy-side shareholders

2.4.1 Results of the multivariate regression analysis: determinants of the CARs

Many authors in the field of M&A go beyond simply examining whether value is generated through these transactions. Instead, they find it more compelling to explore the various factors that may impact the returns of such deals. These factors can be analysed through a multivariate regression analysis, where the cumulative abnormal returns (CARs) serve as the dependent variable and other firm and deal-specific are used as independent variables.

In fact, there are particular contingencies that have an absolutely positive impact on the announcement of a transaction, as shown in the study conducted by Faccio, McConnell and Stolin (2006). Specifically, the analysis of abnormal returns on a basket of transactions consisting of listed and unlisted targets in the time period 1996-2001 shows that on average positive CARs of 1.48% are reached, around the announcement date, when the acquiror acquires an unlisted target. The studies conducted by Fuller, Netter and Stegemoller (2002), confirmed this hypothesis, with a sample of 3,135 takeovers.

Analysing a sample of 255 acquisitions of unlisted targets and 167 of listed targets, out of a basket of US acquirers, positive returns for the acquisition of unlisted targets are also shown by the method of payment, specifically when the acquisition is in stock rather than cash. In the opposite case, cash payments generate a higher average CAR for a listed target (Chang, 1998).

Evidence on the size of the bidder company is provided by Loderer and Martin (1990) and Schwert (2000), for whom a negative effect in terms of acquirers' stock returns is noted for larger bidders, but an extremely positive effect for smaller bidders.

One plausible hypothesis for the divergent market responses observed in the context of acquisitions involving private and subsidiary targets, as opposed to public acquisitions, is that acquirers tend to obtain more favourable pricing outcomes when acquiring nonpublic entities. The observed phenomenon may be attributed to a liquidity impact, whereby the ease of buying and selling private enterprises and subsidiaries is comparatively lower than that of publicly traded firms. The absence of sufficient liquidity renders these assets comparatively less appealing and consequently diminishes their value in comparison to analogous investments with higher liquidity. The acquirer is able to take advantage of this reduction when acquiring the privately held corporation or subsidiary. This observation aligns with the notion that the returns obtained by acquirers tend to be more favourable as the relative size of the target increases for private targets and subsidiaries, but they become more unfavourable as the proportional size of the target increases for public targets (Fuller et al., 2002).

2.5 Shareholders' value creation through Fintech M&A activity

The study analysed for the empirical part of this dissertation is the one conducted by Collevocchio, Cappa, Oriani and Peruffo (2023), which investigates the contingent elements that contribute to the advantages of mergers and acquisitions (M&As) for acquiring banks. It employs a comprehensive methodology that takes into account the characteristics of the firm, the nature of the deal, and the surrounding situation in which M&As take place.

The next three sub-sections will describe and analyse in detail the hypotheses and conclusions drawn from this study.

2.5.1 Collevocchio et al.'s study on Fintech M&A

Although the existing literature has extensively explored the two fields of study of M&As and the fintech world, a reference sector to which the industry under analysis in this thesis also belongs, empirical evaluations of M&A activities involving financial technology companies are limited.

As already mentioned, given the specificity of the Payments industry and the lack of sector-specific empirical evidence, the analysis to be conducted in this thesis is specific to the fintech world, in which a basket of transactions specific to the Payments world will be used.

In particular, the very recent research conducted by Collevocchio et al. (2023) on the drivers that make an M&A transaction beneficial for the acquirer bank, alluding to the concept of open innovation (OI), in the specific context of fintech and banking. Starting from the concept of OI which is the cornerstone of this study, in fact this is defined by Chesbrough (2003) as “a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology”.

In contrast to other studies that mainly focus on the assessment of the short-term performance of the stock price at the announcement of the M&A, see Dranev et al. (2019), the work of Collevocchio et al. (2023) focuses on expected performance, which is defined as a long-term proxy for performance. Specifically, Collevocchio’s aim is therefore to better understand the effects that mergers and acquisitions with fintech companies have on the profits of the buy-side, which in the case under study are banks, by performing an event study and thus analysing the CARs.

Consequently, Collevocchio elaborates contingency factors, which are mainly identified in firm, deal and context factors, which will be described in section 2.5.2, that can positively influence the expected performance of the bank and are drivers for value creation, by means of a multivariate regression analysis. Furthermore, Collevocchio et al. apply a Heckman’s two-step model to control for selection bias, which can influence the initiation of M&A activity. The selected sample is composed of 60 observations over the period 2010-2020 worldwide, considering listed banks as acquirors and fintech companies as targets, according to the business description provided by Refinitiv Eikon.

2.5.1.1 Collevocchio et al.’s CARs analysis

Using an event-study methodology performed in a single time window, the authors calculate the CARs of transactions by adopting only the market model approach. In fact, the CAR is

considered in the regression model as the dependent variable, capable of measuring the expected performance of the buy-side.

Furthermore, as expressed by Fama (1970), considering an efficient stock market, share prices incorporate all available information and thus a positive stock market reaction to an M&A announcement is synonymous with potential value creation for the acquirer, which translates into a good signal for the bank's future profits (Cappa, 2020).

From a methodological point of view, the authors propose the expected returns, as mentioned above, with the market model approach, considering the Morgan Stanley Capital International (MSCI) World Index. The latter a benchmark that measures the performance of equity markets across developed countries.

The empirical results demonstrate an expected performance of the bank acquiring heterogeneous, showing an average CAR value of -1%, with a maximum value of 5% and a minimum value of -13%. The time window used by the authors is the 5-day event window, also used in the literature by Masulis et al. (2007); Yang et al. (2019). This is mainly explained by the fact that it is such a short time window that it is able to avoid the confounding effect and thus isolate the event in question, i.e. the announcement of the transaction.

Finally, we can conclude by stating that from the 60 observations proposed in the empirical work, the effect of the CAR of acquiring banks determined by M&A transactions with a fintech produces positive and negative results, which are consequently heterogeneous.

2.5.1.2 Collevocchio et al.'s regression model: contingency factors analysis

Furthermore, in order to analyse the contingency factors determining abnormal returns, the model explains several independent variables, divided into control and explanatory, based on empirical evidence in line with previous studies. The authors run an OLS regression with the intention of testing the hypotheses through the following model:

$$CAR (-2; +2) = \alpha_0 + \alpha_1 ESG + \alpha_2 partial + \alpha_3 ID + \alpha_4 beta + \alpha_5 lnAsset + \alpha_6 experience + \alpha_7 age + \alpha_8 status + \alpha_9 region + \alpha_{10} year + u_{it}$$

The three main hypotheses, which are none other than the explanatory variables of the model are identified, as mentioned above, in a firm, deal and context factor, respectively acquirer's sustainability, minority acquisition and institutional distance. Specifically, the authors develop the following:

H1: Acquirer sustainability has a U-shaped effect on a bank's expected performance;

H2: A minority acquisition positively affects an acquirer's expected performance;

H3: ID between the acquirer and the target positively affects an acquirer's expected performance

The rationale of the hypotheses will be presented in the discussion of the results in the following section 2.5.1.3

Going into the specifics of the model used by the authors, *ESG* and *ESG*² represent H1, *partial* defines H2 and finally *ID* H3. The independent variable *ESG*, would be none other than the ESG score assigned by the Refinitiv Eikon platform built on 186 metrics covering issues related to several themes: resource use, emissions, innovation, workforce, human rights, community, product, management, shareholders and corporate social responsibility strategy (Colavecchio et al., 2023). *ESG*² allows us to confirm the empirical evidence that there is no linear relationship between *ESG* and bank's performance, which will be addressed later in this sub-section in the discussion of the empirical results from the study. *Partial* is measured with a dummy variable, whereby if the bank acquires a stake of less than 25% in the fintech's equity it is attributed 1, otherwise it is given 0. *ID* stands for Institutional distance and is calculated as the absolute value of the difference between the institutional quality level of the acquirer and target country. To define the institutional quality level, the authors use the Worldwide Governance Indicators (WGI) provided by the World Bank, which consists of indicators on six main dimensions: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law and control of corruption. From the *beta* variable begin the so-called control variables, specifically the Beta coefficient defines the bank's risk; *lnAsset* is the natural logarithm of acquiring company's total assets, i.e. the bank's size; *experience* represents the number of M&A transactions made by the buy-side in the 5 years preceding the announcement date; *target_age* are the number of

years between the announcement date and the fintech's incorporation date; target region and year define where and when the transactions were consummated, respectively.

2.5.1.3 Collevocchio et al.'s regression model: main results and discussion of the relevant hypothesis

From the study presented by Collevocchio et al. (2023), we have already mentioned the three main hypotheses on which this study is built, in particular the first hypothesis is based on the U-shaped effect that acquirer sustainability has on a bank's expected performance, making explicit that there are positive and negative aspects of sustainability as a driver of performance after a transaction. Specifically, the particular emphasis of the effect that acquirer sustainability has in an M&A deal, shows a positive relationship for the buy-side, as seen in the work of Deng et al. (2013), but also of Fatemi et al. (2017), leading in this case to a decrease in business risk, crucial in the fintech field, which lack very high sustainability standards. The positive effect, seen from this point of view, is counteracted by the high costs the bank can incur when it has to implement low levels of sustainable investments, leading the authors to hypothesise the U-shaped relationship between sustainability and performance of the buy-side. This hypothesis is confirmed by Collevocchio's empirical study for which, for levels of ESG scores below 61.25 the effect on the acquirer's CAR is -0.3%, while in the opposite case for higher levels of ESG scores the effect on CAR increases by about 0.2%. The hypothesis of the U-shaped effect and consequently the non-linear relationship between ESG and bank's performance supports the H1 prepared in the model.

In addition, the reaction of shareholders turns out to be very positive when the acquirer invests less than 25% on the target fintech, resulting from the fact that the integration process of target companies, which operate in knowledge-intensive industries and high growth, is problematic and insecure. Consequently, the acquisition of minority stakes in the company is less risky and, above all, requires less financial commitment, leaving the control to the target fintech itself and favouring a gradual and sustainable integration of technical innovation. The value creation brought about by this opportunity is confirmed by the results of the model, for which a minority acquisition of a fintech achieves a higher CAR of 2.9% than banks acquiring a majority stake, explaining H2. Further, in line with previous studies (Clausen,

2014; Gaur and Lu, 2007), the basis of H3, hence institutional distance is explained by the benefit that can be achieved through institutional arbitrage (IA), whereby the acquiror might benefit from acquiring a target company with a different institutional environment from its own, so as to exploit the trade-off between regulatory rigidity and the flexibility needed to innovate. In this specific case, banks in most cases constitute the rigid environment and fintechs the flexible one. Institutional arbitrage is confirmed to be “an innovation-seeking strategy” (Clausen, 2014), given the results of the empirical analysis that show the benefit of banks acquiring fintech companies with an institutional environment that is distant from their own, with an effect on CAR of 4.6%.

In conclusion, from the empirical analysis produced by Collevocchio et al. 2023, we can state that given the acquirer and the target, the most positive conditions for the CAR of the buy-side are achieved with a minority acquisition and with a high institutional distance. In such a scenario, the overall effect on performance could be even more positive considering the U-shaped effect generated by the ESG score of the acquiror.

3. PAYMENTS INDUSTRY OVERVIEW

3.1 What is a Payment Service Provider (PSP)

A Payment Service Provider (PSP) is a company or financial institution that offers services and technology to enable businesses and individuals to accept and process various forms of payments, both online and offline. PSPs act as intermediaries between merchants and customers during the payment process, facilitating secure and efficient transactions.

Basically, a PSP is a business that performs the duties of a payment processor and a payment gateway that can link up with various acquiring and payment networks. It can also be an acquirer, offer risk analyses, and other financial services⁵.

PSPs are part of the larger PayTech industry, which is the intersection of payments and technology, a sub-industry within fintech that focuses exclusively on payments and transactions. Before the emergence of Paytech, payments were just an exchange of money. Today, transactions have taken on a much larger role in our lives, thanks to wearables, new payment methods, and embedded finance. New regulations and initiatives, such as the Payment Service Directive 2 (PSD2) and Open Banking, are fueling its expansion, and the Covid pandemic has only accelerated the shift towards cashless transactions.

As just mentioned, directives, such as the PSD2 framework, are subjecting the entire payments industry and the individual PSPs to momentous changes, brought about mainly by the relentless development of technological innovation. Specifically, the PSD2 defines several categories to which a PSP can belong, including a credit institution or electronic money institution, a post office giro institution or a payment institution. The main objective of this framework, as we will see in Section 3.3, is to give a face to the main Open Banking services offered to customers by PSPs (De Vendictis et al., 2021)

To be more specific, the Payments Service Provider world provides the infrastructure and services that facilitate and enable electronic payments, combining credit card processing for tens of thousands of businesses under one super-sized merchant account. By aggregating

⁵ <https://docs.adyen.com/get-started-with-adyen/payment-glossary/>

payment processing volumes, PSPs can negotiate extremely low processing rates with supporting banks. Then, they pass those savings on to their clients, usually in the form of simple flat-rate fees and low or no monthly costs. PSPs also take on the credit risks for fraud activities and chargebacks for their thousands of clients⁶

Said this, the merchant's use of the services of a payment service provider is much cheaper than having different contracts with various payment gateways, processors and acquiring banks.

A PSP is a major player in the wider world of payments. Key industry participants in the payments value chain will be explained in detail in the next section 3.1.1.

3.1.1 Value chain of the Payments Industry

The Value chain of the payments industry is very complex and requires several players in order to complete a transaction.

Typically, the transaction takes place between the consumer and the merchant, but there are several actors in the middle of the value chain that make the transaction reliable and fast.

The chain of payments, from an analysis conducted by JP Morgan, is typically comprised of eight actors: customers, merchants, merchant acquirers and processors, payment networks, card issuer processors, card issuers, point-of-sale (POS) terminal providers and gateway providers (Huang et al., 2022).

First, all players that can be part of the payment value chain will be described in detail, and then we will move on to how a transaction actually takes place through section 3.1.3.

3.1.2 Main actors

Customers

⁶ <https://www.forbes.com/advisor/business/payment-service-provider/>

Customers are the end-users who initiate the payment with the merchant. They are commonly referred to as cardholders if they're paying with credit or debit cards. Generally, the cardholder is a client of the issuing financial institution and has an account directly linked to the payment card.

Customers of this network benefit from the ease of using an electronic method to pay for goods and services both online and off, as well as the opportunity to participate in numerous rewards and cashback programmes.

Merchant acquirers and processors

Following the definition given by the JP Morgan analysis, a merchant acquirer is defined as the “distribution and sales” arm of the payments industry, which enables the acceptance of electronic payments, offer merchant sponsorship, POS terminals, credit/debit card acceptance and check services.

Basically, the merchant acquirer, also called “acquiring bank”, is a bank or a financial institution that receives funds for its merchant from a customer.

Acquirers conclude card acceptance contracts with merchants and are generally the first, and main, point of contact with the merchant, with whom they directly conclude contracts. In order to operate, they must obtain a license, be authorised by the corresponding card networks and collaborate with a payment processor or be a payment processor itself.

Among the major listed merchant acquirers globally are Adyen, Cielo (Brazil), Fiserv (First Data), Global Payments, Block (Square) and FIS (WorldPay). Many acquirers are owned by banks, such as Chase Payments Solutions, Elavon (U.S. Bank) and Bank of America.

In fact, in many cases, merchant acquirers may also operate as actual payment processors, which are defined, by a study of the full-stack PSP Adyen, as “a system that connects to a shopper’s bank and a merchant’s bank to make a payment transaction on behalf of a merchant”⁷. Typically, a payment processor obtains payment information from a payment gateway.

⁷ <https://docs.adyen.com/get-started-with-adyen/payment-glossary/>

To be more precise, merchant processors work in the background and as gateways to the payment network, and their main responsibilities include setting up merchant accounts; accepting and processing credit, debit and prepaid card payments; managing credit and debit card processing; and implementing certain anti-fraud measures.

Among the examples of acquirers who also work as payment processors, it is important to mention Bank of America, a bank in this case, and especially Fiserv, a non-bank organisation.

Payment networks

Payments networks, also known as card networks or payment schemes, are defined as the backbone of the electronic payments system, connecting and switching transactions between acquiring banks and issuing banks, enabling electronic payment authorization, clearing and settlement.

Put simply, payment networks make transactions possible by providing a point of contact between card issuers and merchant acquirers, defining the standards with which the latter must communicate, and regulating interchange rates for the respective issuers.

Specifically, most payment networks consist of various players, such as credit card companies, banks, credit unions and other financial institutions, which are connected by an electronic network through which funds are transferred under the guidance of a set of regulations and guidelines.

There are four main categories of payment networks, highlighted by an analysis conducted by Stripe⁸:

- Credit card networks: there are two main types: open and closed loop networks, differing by the entities involved in the process. In open-loop networks, the card network acts as a mediator between the financial institutions involved, so the merchant, the issuing bank and the network are all independent entities. The only prerogative of such a network is that

⁸ <https://stripe.com/en-gb-us/resources/more/payment-networks-101>

the banks present the right criteria to obtain the membership, in order to be part of it. Famous credit card networks that use this kind of network are Visa and Mastercard.

In the opposite case, in a closed loop network the three players abovementioned are the same entity, and as a consequence is a less complex method, used by the original American Express and Discover models (Togut et al., 2023).

Banks operating closed loop networks typically capture a significantly greater portion of the payments value chain than open loop networks.

Credit card networks include American giants, such as Visa, Mastercard and American Express;

- Electronics-funds-transfer system (EFTs): transactions involving the electronic transfer of funds between financial institutions, bank accounts, or individuals. The best-known EFT networks are Wire transfers, Clearing House Interbank Payments System (CHIPS), Single Euro Payments Area (SEPA);
- Peer-to-peer (P2P) payments network: a type of network that allows individuals to send or receive money without the involvement of financial institutions. This payment network, which reached its zenith with the American PayPal app, allows users to use different payment methods to send funds and a disarmingly easy transfer to their bank accounts;
- Automated teller machines (ATMs) are electronic devices that facilitate consumers in accessing their bank accounts for the purpose of withdrawing cash, making deposits, and initiating transfers. An ATM network facilitates the execution of ATM transactions for cardholders whose cards have been issued by a financial institution that is a participant in said network.

Card issuer processors

Card issuer processors come into play immediately after the involvement of the payment network, moving from the merchant to the consumer sphere. In fact, it is a player that relays the information provided to the merchant acquirers addressed to the issuing bank, for the completion of the transaction.

Specifically, the card issuer processor provides outsourced authorisation, settlement, customer service/call centre, loyalty programme administration and payment process clearing on behalf of the issuing bank. Above, these are the main and vital functions of this player, which may also be involved in the management of debt collections, including the sale of bad debts to third parties and the management of the cost of funds.

It should be noted, that in many cases the figure of the card issuer processor is configured with that of the issuer bank, where the processing phase is done in-house, this is the case for giants such as Bank of America or JP Morgan Chase.

The presence of issuer processors is remarkably limited in comparison to merchant processors, in fact they are estimated to be less than 30% compared to the last mentioned players, and we find as notable scale players: TSYS (Global Payments), First Data (Fiserv) and Fidelity National Information Services (FIS).

Card issuers

A card issuer, issuing bank, or issuer, is the financial institution that issues cards to customers, provides them with credit or debit accounts, and makes payments on their behalf.

Card issuer players in the lifecycle ecosystem of a payment transaction is considered the bank of the shopper or consumer.

Specifically, issuers give cards to account holders on behalf of credit card companies, such as Visa, Mastercard, American Express and Discover. While certain credit card networks may directly provide cards, it is more prevalent for issuers to serve as intermediaries, providing cards to cardholders and overseeing the related accounts⁹.

Issuing banks, in a consumer transaction, have the main function of authorising the payment, for which they confirm that the cardholder has the necessary funds or credit to cover the payment, they are also responsible for the settlement process and the handling of chargeback requests.

⁹ <https://stripe.com/en-gb-it/resources/more/issuing-banks#what-is-a-credit-card-issuer>

Considering the four credit card companies listed above, it is useful for the purposes of our analysis of the issuing banks to propose the following breakdown:

- Visa and Mastercard are, as already defined in the section on Payment Networks, the main credit card networks on the market, but they are not issuers: the aforementioned companies through their credit cards reach end consumers via third-party providers, i.e. banks or credit unions;
- Discover and American Express are networks and issuers: they extend credit accounts directly to cardholders and do not need to involve a bank or credit union.

Point-of-sale (POS) terminal providers

Providers of POS (Point of Sale) terminals, or payment terminals, design and manufacture payment card readers and associated systems to process an electronic payment in-store. Basically, a card is touched, dipped or swiped in a payment terminal. The terminal then asks the purchaser to enter a PIN or a sign. This is sometimes referred to as a Pin entry device. (PED).

Specifically, POS terminals are developed by terminal manufacturers and distributed by terminal vendors, which may differ from the former.

The POS provider market has grown considerably over 15 years, with several players entering the market. In fact, the aim for terminal providers is not only to earn ‘one time’ revenues from the sale of systems to acquirers, merchants and distributors, but to focus on earning recurring revenue, generated in providing Software-as-a-Service (SaaS) and maintenance services, such as gateway management and data encryption, leading to the emergence of Integrated Payment solutions.¹⁰

That said, historically the global POS terminal space was dominated by two global providers: Verifone and Ingenico. In 2009, the two had a combined market share of 58%, while in JP Morgan’s analysis of 2022, they account for only 17% of shipments.

¹⁰ <https://www.investopedia.com/terms/p/point-of-sale-terminal.asp>

Gateway Providers

Gateways are the digital equivalent of physical terminals, whose main purpose is to enable businesses to accept electronic payments in a secure and reliable manner.

In general, payment gateways are used to capture transactions at the point of sale, translate them into the appropriate message format and forward them to the front-end merchant acquirer for processing online and at the physical point of sale.

Payment gateways accept various forms of digital payments, including debit and credit cards, electronic checks, and digital wallets. The major function of payment gateways is to ensure the secure transmission of sensitive data, such as credit card details, between customers and businesses, as well as between businesses and payment processors.¹¹

The main examples of gateways are: Cybersource (Visa), Authorize.net, Adyen, 2Checkout, Checkout.com, Braintree/Paypal, Intuit, Global Connect (Ingenico), Nuvei, Stripe and Verifone

Merchant

Merchant is the party selling goods or services to shoppers via an ecommerce website, a mobile app, on a point of sale, or across all three channels. In order to facilitate the acceptance of payments made through card transactions or local payment methods, it is required for a merchant to own an acquiring bank account and duly subscribe to the services provided by the payment service provider.

3.1.3 Card transaction lifecycle

For the purposes of analysing the world of Payments, after having described in detail the main players in the market, we will go on to describe how a transaction takes place and how the various parties are involved in the process.

¹¹ <https://stripe.com/it/resources/more/how-to-choose-a-payment-gateway#what-is-a-payment-gateway>

In detail, a hypothetical successful payment scenario is illustrated where a customer uses a credit card to purchase goods or services from a merchant and the interactions between the various players along the payments' value chain, including at the end a mention of the fees earned by the various parties.

For ease of processing and understanding, here is a diagram illustrating the scenario just outlined:

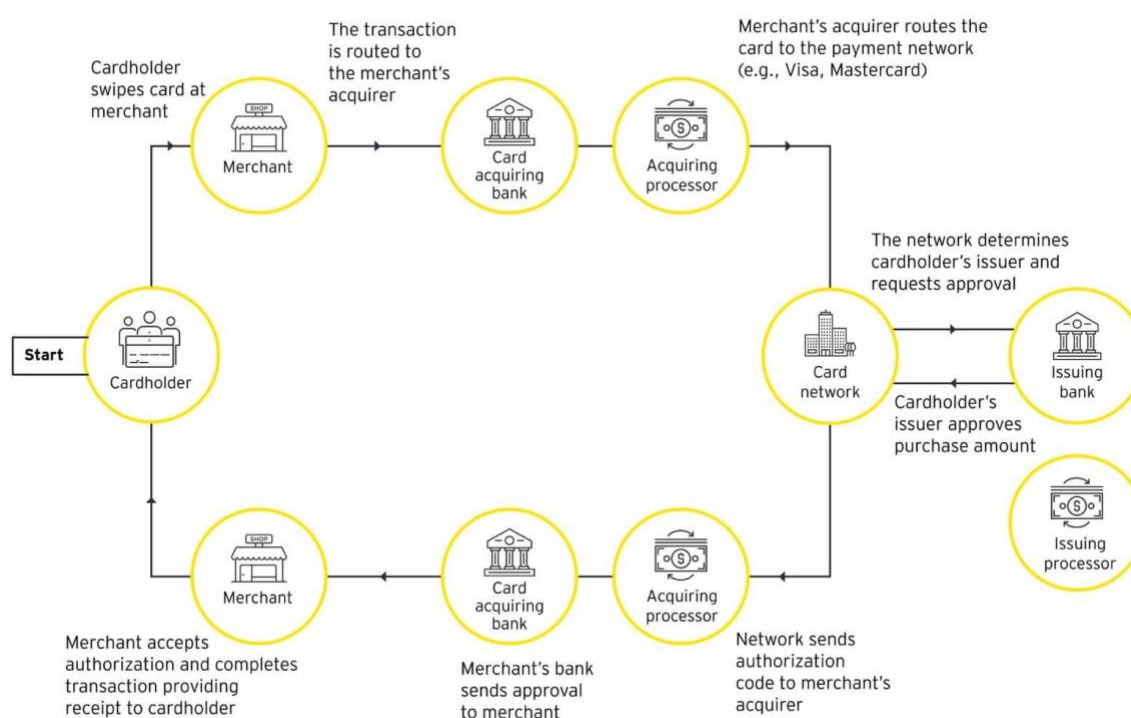


Figure 1 - Payments value creation. Source: EY's analysis

Specifically, the main steps for a transaction to be carried out reliably and quickly are as follows:

1. The cardholder, also referred to as the customer, purchases a card from an issuing bank. As already seen in section 3.1.2, issuing banks issue cards on behalf of credit card companies. The largest issuers of Visa and MasterCard in the US are Chase, Citi, Capital One and Bank of America. In addition, banks gain access to large new customer bases at low cost

through partnerships with airlines or retailers, or by leveraging the continuing development of financial technologies;

2. The customer uses his or her card or any other payment method, such as physical cheques, cash, bank transfers, electronic fund transfers or digital wallets, to make purchases for goods and services, this stage is also referred to as initiation. In this phase, the payer provides the main information, such as the amount of the payment, the details of the payee and any additional information required for the transaction;

3. The merchant runs the card through its point-of-sale terminal or a device that acquires the customer's card details, usually provided by the merchant acquirer;

4. The Merchant acquirer acquires, through the Merchant processor, and routes the card data through the payment network to the Card Issuing Bank, or the Card Issuing Bank Processor. The Merchant Processor or Merchant Acquirer will then perform the initial level of anti-fraud checks before transmitting the data to the network;

5. The card network then routes, via a physical or digital infrastructure, the transaction to the cardholder's bank and requests approval. The approval or declination of the transaction is contingent upon the availability of funds and the current status of the cardholder's account. The process of obtaining approval is commonly referred to as authorization. In addition, as described in Section 3.1.2, the networks perform an additional layer of security using fraud prevention services to determine if the transaction is legitimate;

6. The issuer processor receives on behalf of the card issuing bank the information provided by the merchant acquirer through the network. The authorisation request involves a check of available funds or credit limits and, if the transaction is approved, a 16-digit authorisation code is sent through the network to the merchant acquirer;

7. The card network transmits the 16-digit authorisation code to the merchant's payment processor, which in turn sends the approval to the merchant acquirer;

8. The merchant acquirer receives the 16-digit authorisation code and approves the transaction via the merchant's physical or digital POS. At this point, customers receive the

purchased goods and services and the merchant receives the purchase amount, minus the merchant discount rate, after settlement and clearing.

Two other very important phases in the payment lifecycle are, as just stated, the clearing and settlement processes.

The clearing process is a step that precedes the settlement process and involves the validation, verification and confirmation of payment details before the actual transfer of funds takes place, collecting and rechecking transaction data from all actors, such as the merchant acquirer, the network and the issuing bank. It ensures that payment instructions are accurate and complete, helping to prevent errors and discrepancies during the settlement process.

Specifically, the clearing process is a no-money movement, which takes place on the same day as the transaction, with the main purpose of sharing information with the merchant's bank.

The settlement process is the final stage in the payment lifecycle, where the actual transfer of funds between the payer's and payee's financial institutions takes place and generally occurs within two days or less.

In detail, the customer's bank, through the information provided by the Network, makes payments to that acquirer on behalf of the customer. The issuer invoices the cardholder for the purchase of goods or services. Finally, the acquirer pays the merchant, net of the discount rate for the purchase.

3.2 Payments global trends

Today's Payments phenomenon is at the centre of a significant transformation, accelerated by the Covid-19 pandemic, and driven by unprecedented technological advancements. All this culminates in the industry's new keyword "digitisation", which is playing a major role in the financial lives of more and more of the world's population.

In Europe, in the area of payment services, the trend of replacing cash with innovative instruments has accelerated significantly in recent years, thanks to the strengthening of network infrastructures and the advent of new digital technologies applied in the financial field (the so-called fintech); this has favoured the evolution of consolidated processes and the offering of new services also by non-financial operators (Fabio Porta, 2019).

To understand the role of digitization in the world of payments, it is useful to analyse a graph from a study by Bryan Garnier, which identifies three main blocks that make up the Total Addressable Market (TAM) divided into:

- Consumer to Business (C2B) transactions (35% of TAM);
- Business to Business (B2B) transactions (65% of TAM);
- Peer to Peer (P2P) transactions (0% of TAM), considering as assumptions both cash-based.

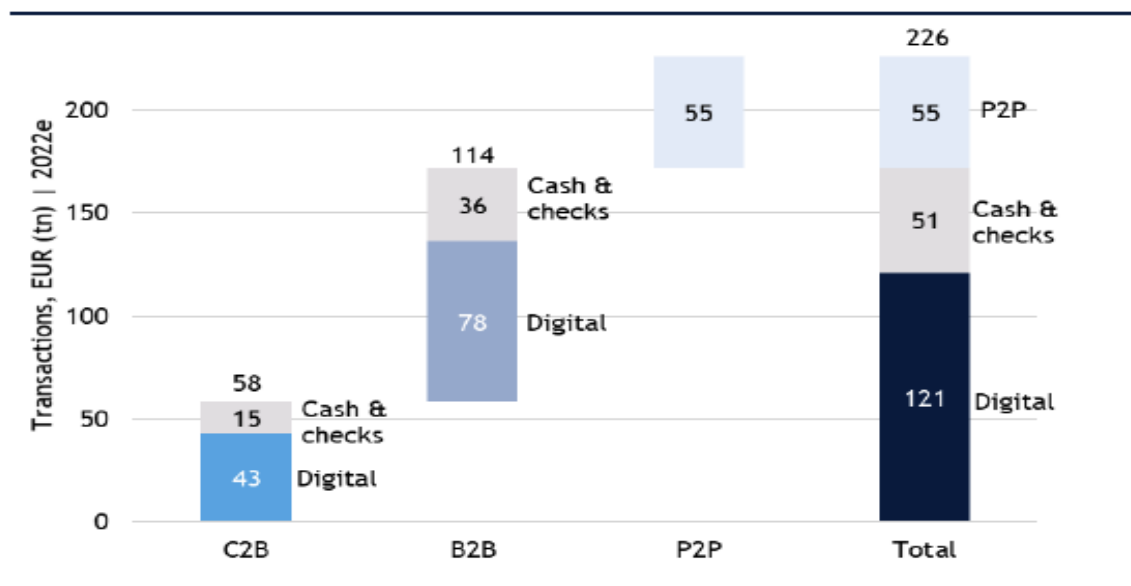


Figure 2 - TAM building blocks. Source: Future-Shaping trends in Payments, Bryan Garnier

In particular, it shows that the TAM for the PSP is EUR121 tn, accounting for roughly 55% of the TAM, highlighting an important share of cash in transactions and especially the potential growth that the digital sphere can have in the near future.

Specifically, Covid-19 was only an accelerator in the adoption of digital payments, showing in the Eurozone an increase in the volume of contactless payments of 60% in France in 2020, 40% in Germany and 29% in Italy. Considering the European continent the transition from

cash to digital payments offers appealing growth prospects, powered by the increasing share of wallet of digital payments in the C2B segment. A main lever in the adoption of digital payments is the continuing growth of the online commerce trend, in fact, 90% of European online purchases are settled with digital payment methods, implying that e-commerce sales flow almost entirely into payment volumes for PSPs. Online commerce, fostered by the Covid-19 pandemic and approached by the likes of SMB, is very relevant, especially in terms of its value, it is estimated to be worth EUR640 bn in 2022 and is poised to grow at a CAGR of 14.5% until 2025E (Charpentier et al., 2022).

The transition from cash to digital payments, which is growing at a fairly slow pace, can be stimulated by new consumer-facing technology initiatives that drive the adoption of digital payments both offline and online, which can be seen as disruptors and risks for established players in the market.

We are talking about the technologies of:

- Account to Account (A2A) payments - digital payment mechanism, founded upon the open banking infrastructure, wherein funds are transferred from the payer's bank account to the payee's account through a direct debit process, typically using immediate bank transfer;
- Digital wallets - financial transaction application that operates on any internet-enabled device. The cloud-based system ensures the secure storage of users' financial information and passwords
- Buy Now Pay Later (BNPL) – deferred payment service that offers clients short-term financing options for specific purchases, using immediate credit decision-making, facilitated by data analysis, to facilitate the process.

As the technological advancement of the post-Covid era is highlighting so many risks and disruptors for established players along the payment value chain, the need arises to form new forms of partnerships between banks, technology providers and distributors of financial products, giving rise to an embedded-finance revolution. Embedded finance is defined as “the integration of financial services such as lending, payment processing or insurance into the

infrastructure of non-financial enterprises, without the need to turn to traditional financial institutions”¹²

For the past decade, some common forms of embedded finance have been the offering by non-banks of financial services via private-label credit cards at chain shops, supermarkets and airlines; all of which provide a referral channel for banks to reach end customers. The embedded finance revolution is the integration of financial products into digital interfaces that users interact with on a daily basis, such as customer loyalty apps, digital wallets, accounting software and shopping cart platforms (Botta et al, 2022).

Underlying the major trends in the world of Payments that are revolutionising the life of every financial life, we find the concept of Open Banking and the second Payments Service Directive issued by the European Union, which will be discussed in section 3.3.

3.3 European Payments regulation

In addition to the changes brought about by technological advancement, the Payments sector has undergone a huge regulatory evolution brought about by the publication of the second European Payment Services Directive, i.e. PSD2, which came into force at the end of 2019 and which is the evolution of the 2007 PSD1, outlined in Directive No 2015/2366.

Payment systems and payment service providers (PSPs) are subject to regulation by authorities for various purposes. The objectives encompassed in this context involve the preservation of the soundness and reliability of the monetary system, the assurance of financial stability through the facilitation of conclusive settlement of monetary transfers, and the provision of consumer protection in relation to non-currency forms of money that entail credit-related risks (Khiaonarong et al., 2020)

Through, the definition of the aforementioned directive, the introduction of the Open Banking model, defined in Chapter 2, is fostered. It is understood as an open, digital ecosystem that

¹² <https://builtin.com/fintech/embedded-finance>

allows the exchange of data and information between the operators that are part of it - which in this case, provides third-party financial service providers open access to consumer banking, transactions, and other financial data from banks and non-bank financial institutions through the use of application programming interfaces (De Vendictis et al., 2021)

Outlining the framework, specifically, the PSD2 opens up the EU payments market to third-party payment service providers (TPPs), providing services that rely on accessing information from the payment account and consequently broadening competition in the payment services sector.¹³

In particular, the directive provides three types of TPPs:

- Account Information Service (AIS) - an online service to provide consolidated information on one or more payment accounts held by the payment service user with either another payment service provider or with more than one payment service provider (Directive 2015/2366);
- Payment Initiation Service (PIS) - defined as “the service through which a payment service provider places, at the request of a user, a payment order against a payment account that the user holds with another payment service provider” (De Vendictis et al., 2021);
- Card Initiated Service (CIS) - defined as “the service provided by payment service providers that issue card-based payment instruments. Card payments are debited from a payment account held with another payment service provider, in the absence of contractual arrangements. Such TPPs rely on the service of confirming the availability of funds on the account via API. It should be noted, that in the light of the directive, this type of TPP is not envisaged” (De Vendictis et al., 2021)

In detail, the PSD2 directive states that TPPs must rely on the communication interfaces and authentication procedures provided by Account Servicing Payments Service Providers (ASPSPs). PSD2 turns out to be disadvantageous for banks, as providers who identify themselves as Account Servicing Payment Service Providers (ASPSP) are obliged to provide Payment Service Providers with access to accounts free of charge and to maintain and protect a system that guarantees such access. In addition, when there are unauthorised or defective

¹³ <https://www.ecb.europa.eu/>

payment transactions banks have an obligation to refund, even if the transaction has originated from a Payment Initiation Service Provider.

Taking a general overview, PSD2 broadens the scope of the payment services provisions, modifies the capital requirements imposed on payment and e-money institutions, introduces new payment services, and strengthens safeguards against operational and security risks of transactions (Fabio Porta, 2019).

3.4 M&A Payments trends

The evolution of players in the world of Payments has pivoted on external and non-organic growth through M&A. The aim through these transactions is to achieve a technological advancement of the services put in place by PSPs, a diversification of services, as already seen such as mobile payments, P2P transfers and contactless payments, but also a global expansion, to achieve profitability and scalability in the sector.

M&A was, as mentioned, a major focus, peaking in terms of mega-deals in 2019 and a record deal value and volumes in 2021, as can be seen in the figure 3. Trends are waning due to exogenous factors that are affecting the payments industry in a major way. Indeed, market volatility and rising interest rates are affecting the buy-side, and declining valuations meant that companies that didn't need to sell simply avoided the market. This has led to a slowdown in M&A activity in the payments industry in 2022 and the first two quarters of 2023, as we can see in the analysis conducted by Bain, shown in figure 3.

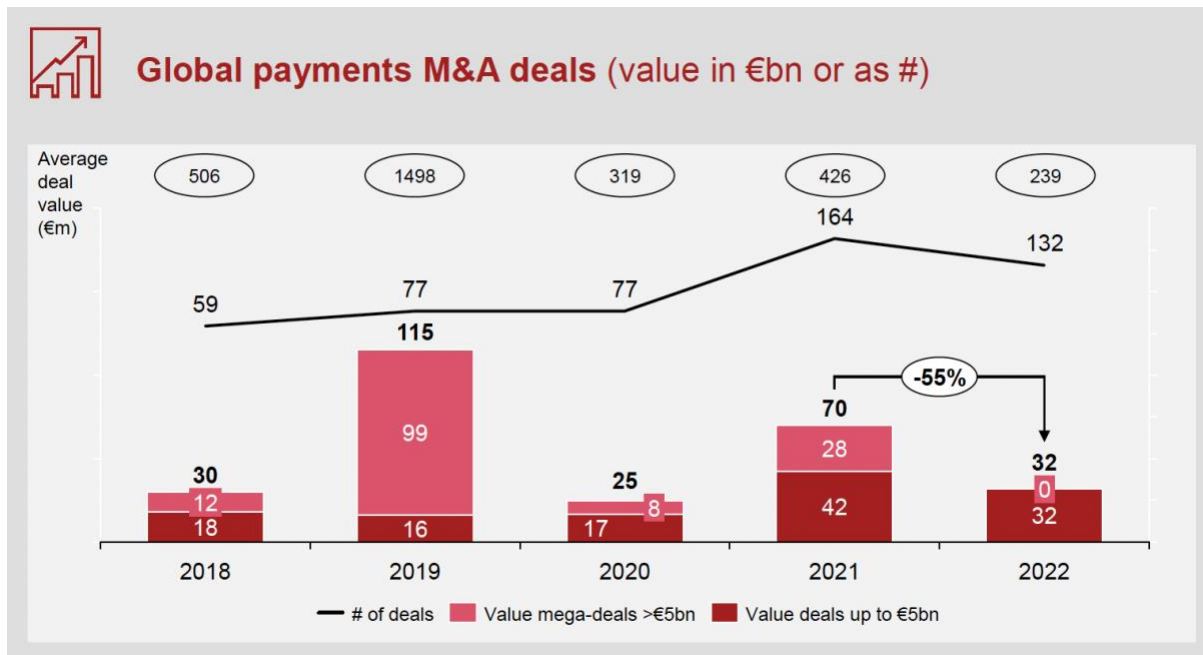


Figure 3 – Global Payments M&A deals. Source: Bain’s analysis

In 1995, we can say that M&A transactions in the PSPs sphere were initiated, more precisely through the merger between First Data and First Financial Management, respectively the largest merchant processor and the first merchant acquirer, in a USD6.7 bn deal. This consolidation process is still one of the major trends driving M&A activity today, especially in the US, dominated by the pursuit of domestic scale, culminating in three landmark, multibillion-dollar deals in 2019: the acquisition by Global Payments of TSYS; Fiserv buying First Data and FIS acquiring Worldpay. In the European landscape, those who are benefiting from consolidation through merchant services M&As are Worldline and Nexi, who have built their leading position in the merchant acquiring space by acquiring Ingenico and Nets respectively, forming a pan-European merchant service player. As can be seen from table 1, these are the largest deals from 2018 to 2023.

	Date Announced	Target Full Name	Target Nation	Acquiror Full Name	Acquiror Nation	Deal Value (USD, Millions)
1	18-Mar-19	Worldpay Inc	United States	Fidelity National Information Services Inc	United States	35.031,87
2	28-May-19	Total System Services Inc	United States	Global Payments Inc	United States	21.997,33
3	16-Jan-19	First Data Corp	United States	Fiserv Inc	United States	21.656,46
4	03-Feb-20	Ingenico Group SA	France	Worldline SA	France	8.521,22
5	02-Nov-20	Nets A/S	Denmark	Nexi SpA	Italy	7.373,11
6	05-Oct-20	SIA SpA	Italy	Nexi SpA	Italy	5.340,98
7	20-Nov-19	Honey Science Corp	United States	PayPal Holdings Inc	United States	4.000,00
8	03-Feb-21	Payoneer Inc	United States	FTAC Olympus Acquisition Corp	United States	3.540,20
9	01-Aug-22	EVO Payments Inc	United States	Global Payments Inc	United States	3.318,35
10	15-May-18	SIX Payment Services AG	Switzerland	Worldline SA	France	3.045,55

Table 1 – Ten largest Payments M&A deals over 2018-2023 period. Source of data: Refinitiv Eikon

The payments business, driven preemptively by two-thirds fixed costs, is all about scale, with PSPs trying to avoid the potential pressure on revenues and margins resulting from the emergence of competitors, through consolidation and the consequent minimisation of marginal costs to process a transaction (Charpentier et al., 2022).

On this point, it is useful to point out that the payments industry is characterised by a fragmented market, with seven largest acquirers controlling only 43% of the European market.

After an incredible rise in 2021 the trend of Buy Now Pay Later (BNPL), an ideal tool for retailers to encourage conversion and increase average ticket size, is waning as the years go by, determined in the form of rising credit losses and increased regulation. This has led to a drastic reduction of deals in this offering along 2022 and 2023. Nevertheless, BNPL deals accounted for 50 per cent of the value in 2021, when there was a boom in the number of deals in the Payments sphere. As a pivotal transaction, Square's all-stock acquisition of BNPL company Afterpay for USD29 bn should be specified.

The sentiment of large-scale growth is increasing interest in the cross-border payments sector, also given the rise of the requirement to provide a standard set of global corridors and pay-in/pay-out rails, for example local automated clearinghouse connections and wallets, leading to the emergence of numerous transactions, such as Fleetcor's acquisition of Global Reach Group and iBanFirst's purchase of Cornhill. In this respect, multinational gateways and B2B providers expand their global coverage to include an ever-increasing range of local payment methods.

4. METHODOLOGY

This section provides a description of the methodology used to analyse the short-term performance of the bidder company and the impact of its dependent factors, which is the empirical study underlying this dissertation. The empirical analysis follows the indications provided by the previous studies of Collevocchio et al. (2023), in particular, the dependent and independent variables that form the basis of the empirical study developed by the aforementioned thesis will be taken into consideration. Accordingly, the study will be composed of an event-study methodology, with the calculation of CARs, and a multivariate regression analysis, considering the aforementioned CAR as the dependent variable and the assumptions provided by Collevocchio et al. (2023) as the independent variables.

The main purpose of the proposed work is to repropose the study carried out by Collevocchio et al. (2023), constructing a different panel of transactions, in which the bidder company is configured in a PSP (Payment Service Provider), and the target company in the world of Payments. Consequently, in light of the sector being analysed in this dissertation, given the similarities and similar characteristics to that analysed by Collevocchio et al. (2023), it is expected to reach similar conclusions to those described in the aforementioned paper.

4.1 Event study methodology

In order to assess the market reaction to an extraordinary transaction, such as mergers and acquisitions, the literature is usual to use an event-study methodology. In academic literature, this methodology is commonly employed to evaluate the impact of corporate choices and events. This approach involves analysing stock market reactions within relatively brief timeframes, focusing on abnormal stock returns or the difference between expected and realised stock values (Harrison et al., 2016)

In addition, part of the literature focused on evaluating the impact of an M&A transaction in a short-term timeframe, using accounting-based measures such as return on assets (ROA) and return on equity (ROE) as proxies. In contrast to this methodology, Collevocchio et al. (2023) developed their analysis using a long-term approach, relying on the expected performance.

The authors' studies are based on the fundamental concept of stock market efficiency, raised by Fama (1970), the main proponent of the Efficient Market Hypothesis, whereby in a market in which: (i) there are no transaction costs in trading securities; (ii) all available information is accessible to all market participants at no cost; (iii) consensus exists regarding the impact of present data on both the current and future price distributions of individual securities; in such a market “the current price of a security obviously fully reflects all available information” (Fama, 1970).

Founding on this fundamental concept, Collevocchio et al.(2023) consider stock prices as a good proxy for the current value of the company and the resulting cumulative abnormal returns (CARs), occurring over a time horizon close to the announcement of the transaction, prove to be an efficient proxy for the expected value recognised by shareholders after the decision to engage in M&A activities.

The assessment of the impact of mergers and acquisitions on stock prices involves the calculation of abnormal returns for shareholders in close proximity to the day on which the announcement is made. In particular, most of the literature uses, as described extensively in subsection 2.5.1.1 the 5-day event window, which in summary is sufficiently long to capture the significant effect of the event, and is short enough to avoid the "confounding effect" (Das et al., 2020)

In contrast, other empirical studies that rely on event-study methodology use different time windows to calculate CAR, such as the work of Dranev et al. (2019), which uses a 41-day time window, which is long enough to offset other economic forces and capture inefficient market reactions.

That said, Abnormal Returns ($AR_{i,t}$) are defined as the difference between the value of the actual returns on the stock and the expected returns ($ER_{i,t}$), calculated through the market model approach, considering the Morgan Stanley Capital International (MSCI) World Index. As outlined in Chapter 2, the expected returns are calculated through the relationship between the MSCI World Index and the systematic risk of the stock, β , this calculated according to the Capital Asset Pricing Model (CAPM). Abnormal returns are calculated on a daily basis as follows:

$$ER_i = R_i - \beta_i R_m$$

In accordance with the study of Collevocchio et al.(2023), the systematic risk of the stock, β , was calculated by means of the slope of the linear regression between the actual returns of the bidder company's stock and the returns of the aforementioned MSCI World Index, considering the time window from -250 days to -30 days, used by most of the present and analysed literature.

Once the abnormal returns had been calculated for all bidder companies in the panel, the Cumulative Abnormal Returns (CARs), which is the sum of the Abnormal Returns ($AR_{i,t}$), in the time window considered, were performed. Specifically, the CAR formula is as follows:

$$CAR_i = \sum AR_{i,t}$$

4.2 Regression model

To further understand the factors affecting returns after a M&A announcement, in which at least the bidder company is a PSP company, a multivariate regression study is conducted. All studies in the Literature review, in Chapter 2, use estimated CARs as the dependent variable, with firm, deal and context factors of the bidders and the targets used as independent variables, also defined as explanatory variables.

The multivariate regression model performed takes its basis from the work carried out by Collevocchio et al. (2023), in particular CAR (-2;+2) is used as the dependent variable and a total of 9 independent variables. The model, which describes the empirical part of this dissertation, is as follows:

$$CAR(-2; +2) = \alpha_0 + \alpha_1 ESG + \alpha_2 partial + \alpha_3 ID + \alpha_4 beta + \alpha_5 lnAsset + \alpha_6 age + \alpha_7 status + \alpha_8 region + \alpha_9 year + u_{it}$$

The following empirical part consists of three main models, the results of which will be described in Chapter 6 and differ from the independent variables considered:

Model (1)

$$CAR(-2; +2) = \alpha_0 + \alpha_1 ESG + \alpha_2 partial + \alpha_3 ID + \alpha_4 beta + \alpha_5 lnAsset + \alpha_6 age + \alpha_7 status + u_{it}$$

Model (2)

$$CAR(-2; +2) = \alpha_0 + \alpha_1 ESG + \alpha_2 partial + \alpha_3 ID + \alpha_4 beta + \alpha_5 lnAsset + \alpha_6 age + \alpha_7 status + \alpha_8 region + u_{it}$$

Model (3)

$$CAR(-2; +2) = \alpha_0 + \alpha_1 ESG + \alpha_2 partial + \alpha_3 ID + \alpha_4 beta + \alpha_5 lnAsset + \alpha_6 age + \alpha_7 status + \alpha_8 region + \alpha_9 year + u_{it}$$

The independent variables proposed by this model find the same basis as the hypotheses defined in the empirical study by Colavecchio et al. (2023), which have already been mentioned in section 2.5.1.3 and 2.5.1.3.

The *ESG* variable allows us to check whether there is a positive relationship between short-term performance of the bidder company and ESG score, provided by the data provider Refinitiv Eikon. More specifically, the ESG issue is very common in the literature, as this aspect allows the bidder company to offset the risks of acquiring a highly uncertain and volatile player such as a Payment Service Provider. Consequently, a positive relationship is expected. The dummy variable *partial* is also introduced to test whether the integration process in the Payments sphere is risky and difficult, as in the case of the work of Colavecchio et al. (2023). The expected result of the variable Institutional Distance also turns out to be positive, whereby the PSP would benefit from a different institutional environment than the target company. On the other hand, the variable *lnAsset*, from previous studies, turns out to be negative, whereby a larger bidder company usually experiences lower returns than smaller acquiring firms.

Appendix A defines each variable in the model in detail for a better understanding.

5. DATA

5.1 Panel of M&A transactions

The sample of deals that were used to perform the empirical study was constructed through the use of the Refinitiv Eikon database.

Specifically, a list of listed companies belonging to the Payment Service Providers (PSPs) category was included as bidder companies. Since the main purpose of the dissertation, as extensively mentioned, is the creation of value from a PSP perspective, the filter "The Refinitiv Business Classification (TRBC)" was inserted to the category "Transaction & Payment Services", in order to target deals belonging to the payments sphere, in the time horizon 2018-2023.

The final deals sample includes 48 deals, after refining the search and consequently not considering companies that were listed or delisted in a time horizon close to the announcement date of the transaction, or whose information was found to be missing.

5.2 Variables construction

Given the regression model proposed in this analysis, the variables in question were elaborated through the exploitation mainly of the Refinitiv Eikon database and from personal elaborations, through the use of programming languages, such as Python.

Specifically, the historical series of stock prices for the bidder companies were collected from the Refinitiv Eikon database, considering only the trading days, like the historical prices of the MSCI World Index, used as the benchmark market for the calculation of the expected returns. Importantly, this index includes large mid-caps from 23 Developed Markets (DM). It consists of 1,513 members and covers 85% of the free float-adjusted market capitalisation of each country.

Instead, the independent variables used were constructed by collecting information and data from various data providers, such as Crunchbase, financial statements, companies websites, external databases and the Refinitiv Eikon database.

The ESG variable was imported from the ESG score that Refinitiv Eikon gives to most listed companies worldwide, which is a score ranging from 0 to 100. The same database was used

for the *Beta* variable, which is always calculated for all listed companies, specifically the 5-year Beta was considered, as it is considered more reliable by the literature and previous studies. In contrast to this, the dummy variable *partial* was imported through news and information from post-acquisition public companies, putting in the model 0 for acquisitions in which the bidder company acquired more than 25% of the target company's stake, and 1 in the opposite case. The variable underpinning the third hypothesis of the model of Colavecchio et al. (2023), i.e. the Institutional Distance, was calculated by performing a principal component analysis, considering the first principal analysis of the indicators provided by the World Bank, through the Worldwide Governance Indicators (WGIs), for each country of the bidder company. The indicators include six main dimensions and are considered a proxy for the institutional quality level. Finally, a simple difference between the absolute value of the institutional quality level of the bidder country and the target country was performed. To process the principal component analysis, the programming language Python was used.

With regard to the independent variables *lnAsset*, *age*, *status*, *region* and *year*, information on financial statements, company websites and external data providers was used.

Specifically, the variable *lnAsset* was calculated through the natural logarithm of the value of the bidder company's total assets one year before the announcement date.

On the other hand, *age* was processed through the difference between the year in which the deal occurred and the target company's incorporation date.

Finally, the variables *status*, *region* and *year* are dummy variables, whereby the former indicates respectively whether the company is either private, public or a subsidiary; the latter two indicate the region in which the target company operates and the year in which it was incorporated.

5.3 Descriptive statistics

The deals that were the subject of the empirical analysis in this dissertation, in which the bidder company is a company listed on one of the major lists, reflect the economic period in which we live, demonstrating the high cyclical nature of the sector. This is reflected in the number of deals and the total deal value, which can be seen in Figure 4, which shows the volume and value of the deals included in the sample used from 2018 to 2023.

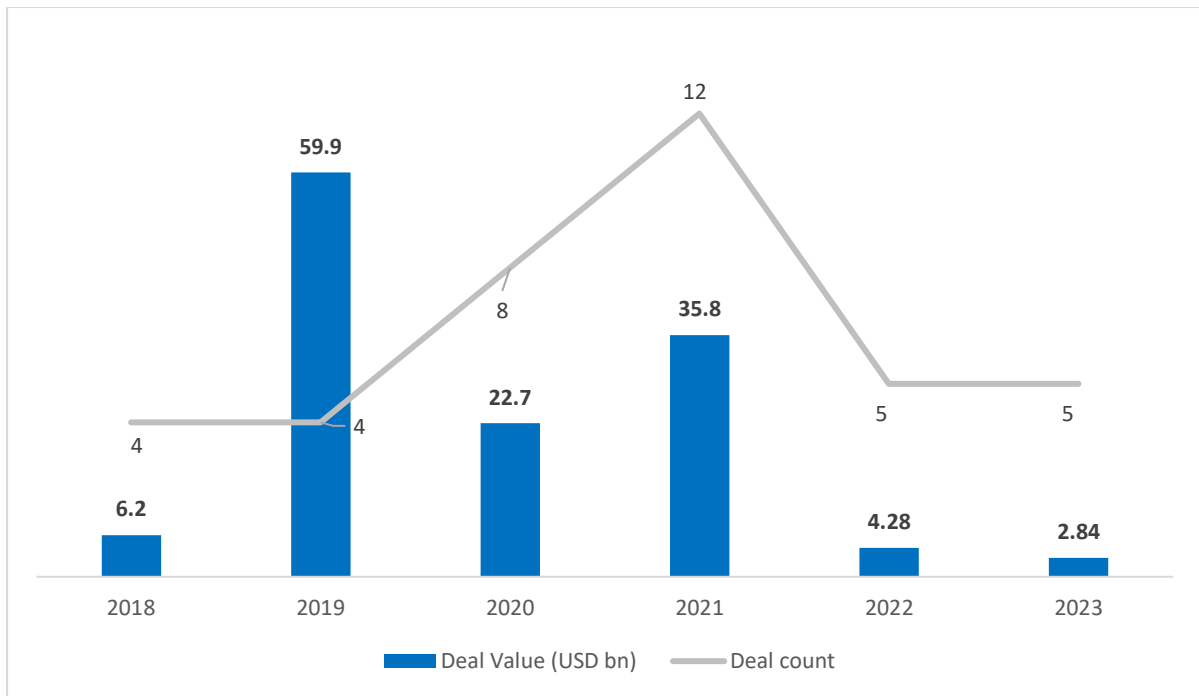


Figure 4 – Sample PSPs M&A activity over 2018-2023 period. Source: personal elaboration

In particular, the sample used includes 48 observations. It should be noted that, for the sake of correct execution and to include a larger number of transactions, those whose value has not been disclosed have also been included. For this reason, the summary statistic that this section proposes is based on an analysis of 38 deals in the sample, in which the deal value is disclosed.

Specifically, the panel has a total deal value of USD132 bn, resulting in an average transaction of USD3.5 bn.

The geographical distribution of the deals is shown by Figure 5, which defines the nation of origin of the bidder company.

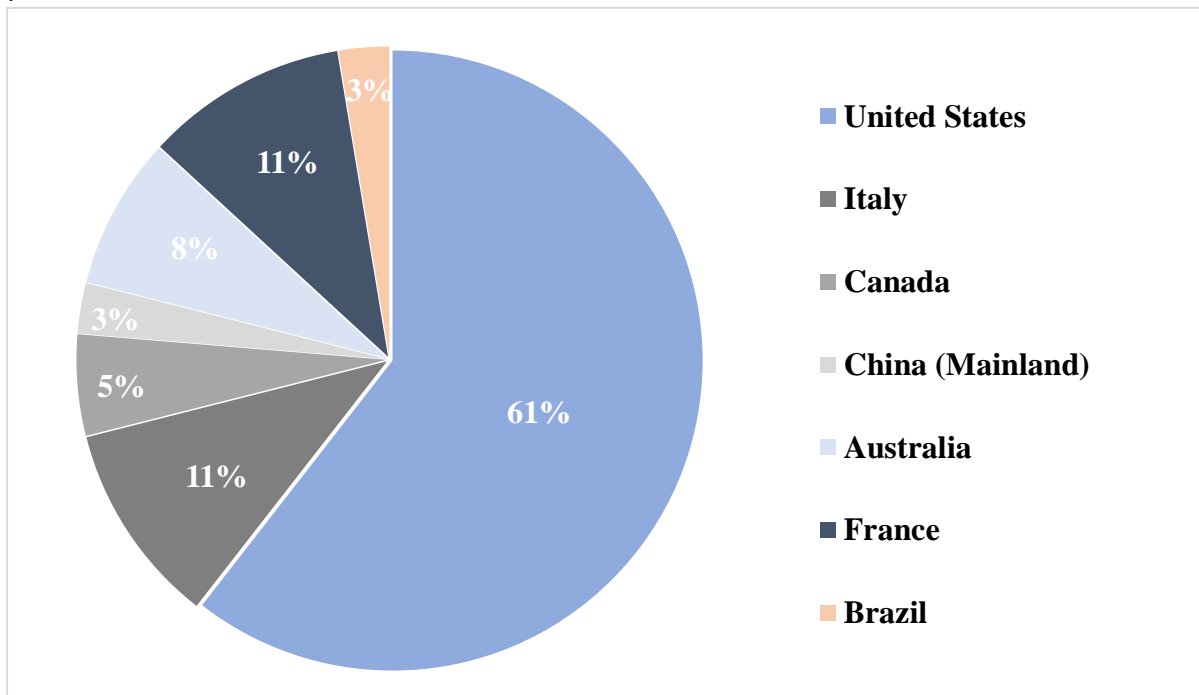


Figure 5 – Countries of the bidder company. Source: Personal elaboration

It is evident that most of the deals considered have a US company as bidder company, with 61% of the deals, confirming the consolidated development of this market, which hosts the major historical players and new players that are disrupting this industry. Also noteworthy is the exposure of the country Italy, with 11% of the total deals, which has Nexi as its reference point, with mega-deals with SIA and Nets.

The target companies share a common geographical origin with the bidders, with a similar composition.

Turning to the descriptive statistics of the prepared empirical analysis, Figure 4 shows us the mean, standard deviation, min and max values for the variables considered in the model.

	count	mean	std	min	max
CAR	48.0	0,01	0,10	-0,20	0,53
ESG Score	48.0	52,86	21,66	19,22	88,58
Minority Acquisition	48.0	0,12	0,33	0,00	1,00
Institutional Distance	48.0	0,89	0,93	0,00	3,40
Beta	48.0	1,29	0,66	0,49	3,56
ln asset	48.0	22,64	2,86	6,82	26,36
Target Age	48.0	29,48	45,19	3,00	237,00
Target Private	48.0	0,83	0,38	0,00	1,00
Target Public	48.0	0,08	0,28	0,00	1,00
Target Subsidiary	48.0	0,77	0,42	0,00	1,00
Africa, Middle East or Central Asia	48.0	0,02	0,14	0,00	1,00
Asia Pacific	48.0	0,19	0,39	0,00	1,00
Europe	48.0	0,40	0,49	0,00	1,00
Japan	48.0	0,00	0,00	0,00	0,00
North America	48.0	0,33	0,48	0,00	1,00
South America	48.0	0,06	0,24	0,00	1,00
2010	48.0	0,12	0,33	0,00	1,00
2011	48.0	0,06	0,24	0,00	1,00
2012	48.0	0,08	0,28	0,00	1,00
2013	48.0	0,00	0,00	0,00	0,00
2014	48.0	0,06	0,24	0,00	1,00
2015	48.0	0,02	0,14	0,00	1,00
2016	48.0	0,06	0,24	0,00	1,00
2017	48.0	0,04	0,20	0,00	1,00
2019	48.0	0,02	0,14	0,00	1,00
2020	48.0	0,02	0,14	0,00	1,00
2021	48.0	0,00	0,00	0,00	0,00
2022	48.0	0,00	0,00	0,00	0,00

Table 2 – Descriptive statistics of model variables. Source: Personal elaboration

As can be seen in Figure 4, the average of the cumulative abnormal returns of the bidder transactions is positive at 1.2%.

It is worth noting that the average ESG score of the bidder companies is above 50 per cent, which allows us to define the world of Payments, more specifically PSPs, as very close to ESG issues, which, as seen in the literature, can positively influence the performance of companies. The average value of the *age* variable is almost 30 years, which is influenced by acquisitions of new or already consolidated business unit players, mainly related to the merchant acquiring part of secular banks, as happened for instance to Worldline with the acquisition of the aforementioned unit of Piraeus Bank.

Finally, one notes an even distribution of the year in which the various target companies were incorporated.

Appendix B shows the panel of transactions used for the multivariate regression analysis.

6. RESULTS

In this section, the results and major implications, whether or not they confirm the hypotheses mentioned in Chapter 2, will be presented along with the related literature.

Especially, the analysis of the bidder's returns and the factors that most influenced them will be provided, by performing a multivariate regression analysis, over the period in which a Payments M&A was disclosed.

This analysis clearly provides the impacts that contingency factors have on the bidder companies' CARs, outlining whether the transaction in question brought value creation for shareholders.

Accordingly, one section will be presented in which the hypotheses and potential drivers of value creation through Payments M&A will be tested, built upon the contribution of the previous study by Collevocchio et al. (2023).

6.1 Multivariate regression analysis

The results obtained from models (1), (2) and (3), presented and defined in section 4.2, are demonstrated in Figure 5 below.

Multivariate regression analysis is mainly used to analyse the relationship between the variables in the model. Specifically, it helps in understanding how multiple factors influence the outcome simultaneously.

As already mentioned, in order to analyse the potential value creation intrinsic to an M&A transaction for the shareholders of the bidder company, three models were performed, which are defined in detail in Section 4.2. The proposed models vary according to the proposed independent variables, with CAR (-2;+2) being the dependent variable for each. Taking most of the literature into account, initially fewer independent variables are considered in model (1), the region and year variables are added in models (2) and (3), respectively.

Variable	Model (1)	Model (2)	Model (3)
Intercept	0.3224*	0.1991	0.1261
ESG Score	0.0013*	0.0016*	0.0019*
Minority Acquisition	0.0647	0.0816*	0.0966
Institutional Distance	0.0092	0.0218	0.0230
Beta	0.0406	0.0462*	0.0942*
ln asset	-0.0206**	-0.0200**	-0.0188**
Target Age	7.312e-05	0.0002	0.0002
Target Private	-0.0085	-0.0060	-0.0555
Target Public	-0.0558	-0.0417	-0.0909
Target Subsidiary	0.0378	0.0353	0.0886
Africa, Middle East or Central Asia		-0.0305	-0.0559
Asia Pacific		0.0345	0.0204
Europe		0.0514	0.0233
Japan		1.286e-17	-1.334e-17
North America		0.1142**	0.0931*
South America		0.0294	0.0452
2010			0.0421
2011			0.0076
2012			0.0156
2014			-0.0403
2015			-0.0354
2016			-0.1328*
2017			-0.0503
2019			0.0772
2020			-0.0989
No. Observations	48	48	48
adj. R ²	34%	39%	36%

Standard errors in parentheses; The superscripts *, ** and *** denote significance at the 10%, 5% and 1% level, respectively

Table 3 – Results of multivariate regression analysis for models (1), (2) e (3)

For each model, it is possible to identify the coefficients of the variables with a positive or negative effect on the dependent variable in question. Furthermore, it is possible to see the number of observations on which the variables were calculated and the adjusted R2 is also reported.

The analysis proposed by this dissertation shows that the market seems to respond positively to the acquisition in the Payments industry, with the average CAR on the 48 observations being more than positive. In particular, in line with previous studies, a positive relationship

between ESG score and M&A performance is confirmed for the acquiring firm. Indeed, models (1), (2) and (3) show that the coefficient of the ESG variable is positive and statistically significant, in all three models at the 10% level. These results are consistent with previous analyses, such as those conducted by Deng et al. (2013) and Fatemi et al. (2017). In contrast, these results appear to be contradictory to the hypothesis prepared by Collevocchio et al. (2023), whose empirical evidence established a non-linear relationship between ESG and the bank's performance. This positive relationship between the bidder's ESG score and positive performance can be demonstrated by the fact that players with relevant ESGs are better able to manage the risks from a high-tech acquisition, which is commonly an asset class related to uncertainty and consequently very volatile. In order to effectively harness the sustainable inventive capabilities of fintech, it is imperative to consider the positive impact of ESG factors on innovation. By acknowledging the influence of ESG, organisations can effectively address the costs and efforts associated with substantial investments (Collevocchio et al., 2023).

Model (2) shows, according to results obtained by Collevocchio et al. (2023), the dummy variable *minority* to be positive and significant at a level of 10%. This suggests, that even in the complex Payments environment, characterised by high growth, dynamism and rapid innovation, the process of integrating such a target can prove to be problematic and risky. In particular, this evidence confirms previous studies showing that one of the main failures of M&A activities is the post-acquisition integration process (Bauer et al., 2013).

The third hypothesis of Collevocchio et al. (2023), based on Institutional Distance, is also particularly well-founded, as the empirical study shows a positive impact in all three models. Consequently, we can state that institutional distance contexts are beneficial for Payment Service Providers.

In Figure 5, we see that in models (1), (2) and (3), the variable *lnAsset* is, as predicted, negative and statistically significant at 5%. This is mainly explained, by the study carried out by Faccio et al. (2006), already mentioned and analysed in section 2.4.1., in which they highlight a lower creation of value, through lower CARs, for larger acquiring firms, compared to higher CARs for smaller companies. This phenomenon can be attributed to the observation that smaller companies tend to possess greater growth potential, leading to stronger expectations regarding the outcomes of acquisitions.

Also finding significant empirical evidence are the variables *Beta* and *region*, the latter mainly through the control variable North America, which positively impact CAR (-2;+2), both in models (2) and (3), with 10% and 5% significance respectively.

We can state, that the most positive overall conditions for Payment Service Provider CARs lie in a high ESG score, a minority acquisition and a high institutional distance, considering a target company operating in the United States.

7. CONCLUSIONS

The dynamic landscape of the Payments industry has witnessed a significant surge in mergers and acquisitions activities over recent years. In this dissertation, a holistic approach was proposed to analyse the impact of an M&A transaction on the expected performance of a PSP company, one of the largest players within the Payments value chain. The dissertation focused on M&A transactions and the Payments industry, describing the rationale and implications of carrying out such extraordinary transactions, and analysing in detail an industry characterised by impressive growth rates; it culminated with the elaboration of an empirical study to examine the relationship between Payments M&A activity and the financial performance of the bidder company.

Over the years, the payments industry has faced a period of radical transformation, characterised by the rapid development of new payment technologies, which has caused various challenges for banks and incumbent players. The rise of new players in the market, as highlighted in Chapter 3, is mainly due to new needs and challenges that individuals and businesses are experiencing, and is supported by new regulatory interventions, PSD 2, an unprecedented technological advancement.

The influence of Payments M&A announcements on the stock market returns of acquiring firms remains a subject of ongoing discussion among practitioners and academics. However, there is still a lack of empirical research on this matter. This study makes a valuable contribution to the current body of knowledge by seeking to clarify the impact of Payments M&A activity on acquiring firms, as well as identifying the underlying causes that give rise to these outcomes.

The empirical study consists precisely of a sample of 48 deals, in which the bidder company belongs to the Payment Service Provider category, in a time horizon between 2018 and 2023. With the aim of analysing and testing hypothesis from previous studies, mainly on M&A deals that have a fintech company as target company, due to a lack of literature, the multivariate regression analysis methodology was used. Recalling, also in this last section, that the Payments industry is a sub-category of the broad Fintech world.

The findings defined by the proposed regression model define what impact the contingency factors under analysis have. More specifically, this study provides empirical evidence of a positive relationship between the bidder's ESG score and the bidder's shareholder performance, confirming and contrasting previous studies, which targeted a fintech company. A positive effect was also proven for minority acquisitions, where the bidder company acquired less than 25% of the respective target, but also for transactions of companies operating in a distant institutional context.

Consequently, we can state through the proposed empirical analysis that a highly sustainable PSP acquiring a minority stake in a target company, also belonging to the Payments world, operating in a distant institutional context, has as an effect an expected positive performance for the shareholders of the bidder company. Empirical evidence has also been proposed for other types of variables, also called control variables, whereby negative effects are found for large bidders and positive effects for target companies operating in the United States.

This study is not without limitations that open the way for improvements in future studies. First, the sample size of transactions between 2018 and 2023, of listed PSP companies is limited. In fact, the proposed study has only 48 observations which limits the significance of the coefficients used in the regression. Secondly, literature on the value creation of companies that are part of the Payments industry, with its unique characteristics, is completely non-existent. Consequently, the only way to come up with a correct analysis of the subject of the dissertation is to rely on studies and analyses that have similar players as their subjects. Thirdly, the assumptions underlying most of the studies, which focus on the performance of bidder companies, are based on a theory with little credibility in real life such as the efficient stock market theory. For this reason, it would be more useful to focus on analyses involving the generation of value through long-term practices, such as the creation of synergies between the bidder and target company.

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APPENDIX

Appendix A – Variables description

This appendix presents a comprehensive elucidation of the variables encompassed within the regression model

ESG – ESG score of the bidder company provided by Refinitiv Eikon

Partial – Dummy variable which is equal to 1 when the acquisition stake is less than 25%, and 0 otherwise

ID – Absolute value of the difference between the institutional quality level of the acquirer and that of the target country

beta – 5 years Beta of the bidder company provided by Refinitiv Eikon

lnAsset – Natural logarithm of the bidder company's total assets one financial year prior to the announcement date

age - Difference between the year in which the deal occurred and the target company's incorporation date

status – Dummy variable which is equal to 1 if the target company is private, public or controlled, and 0 otherwise

region – Dummy variable which is equal to 1 according to the geographical area where the target company operates, and 0 otherwise

year – Dummy variable which is equal to 1 according to the incorporation date of the target company, and 0 otherwise

Appendix B – Sample

	Date Announced	Target Full Name	Target Nation	Acquiror Full Name	Acquiror Nation	Deal Value (USD, Millions)
1	01-Aug-23	Plastiq Inc	United States	Priority Technology Holdings Inc	United States	27,50
2	28-Jun-23	Pismo Solucoes Tecnologicas Ltda	Brazil	Visa Inc	United States	1,000,00
3	17-Mar-23	PhonePe Pvt Ltd	India	Walmart Inc	United States	200,00
4	27-Feb-23	Paycomet SLU	Spain	Nexi SpA	Italy	295,29
5	09-Jan-23	Paya Holdings Inc	United States	Nuvei Corp	Canada	1,317,48
6	24-Nov-22	China Payment & Clearing Network Co Ltd	China (Mainland)	GRG Banking Equipment Co Ltd	China (Mainland)	37,09
7	04-Oct-22	Bank Of The Philippine Islands-Non Branch ATM(500)	Philippines	Euronet Worldwide Inc	United States	-
8	29-Sept-22	Online Payment Platform BV	Netherlands	Worldline SA	France	-
9	01-Aug-22	EVO Payments Inc	United States	Global Payments Inc	United States	3,318,35
10	13-Jul-22	Cohort Solutions Pty Ltd	Australia	Flywire Corp	United States	-
11	03-May-22	Scalapay Srl	Italy	Poste Italiane SpA	Italy	28,36
12	01-Mar-22	Credorax Inc	Israel	Shift4 Payments Inc	United States	575,00
13	28-Feb-22	Sezzle Inc	United States	Zip Co Ltd	Australia	320,11
14	07-Dec-21	Eurobank SA-Merchant Acquiring Business	Greece	Worldline SA	France	-
15	08-Sept-21	MineralTree Inc	United States	Global Payments Inc	United States	500,00
16	07-Sept-21	Paidy Inc	Japan	PayPal Holdings Inc	United States	2,731,49
17	02-Aug-21	Afterpay Ltd	Australia	Square Inc	United States	27,670,46
18	01-Jul-21	Aseptia SpA	Italy	Worldline SA	France	213,39
19	24-Jun-21	Tink AB	Sweden	Visa Inc	United States	2,146,50
20	22-Jun-21	Kontrol Payables	United States	Repay Holdings Corp	United States	11,00
21	14-Jun-21	Stripe Inc	United States	Shopify Inc	Canada	350,00
22	28-May-21	Cardlink SA	Greece	Worldline SA	France	-
23	24-May-21	Banco Inter SA	Brazil	StoneCo Ltd	Brazil	466,27
24	10-May-21	MediPass Solutions Pty Ltd	Australia	Tyro Payments Ltd	Australia	16,78
25	04-May-21	PayLease LLC	United States	Global Payments Inc	United States	925,00
26	16-Mar-21	Piraeus Bank SA-Merchant Acquiring Business	Greece	Euronet Worldwide Inc	United States	357,84
27	08-Mar-21	Finxera Holdings Inc	United States	Priority Technology Holdings Inc	United States	426,68
28	20-Jan-21	Modulr Finance Ltd	United Kingdom	Fidelity National Information Services Inc	United States	-
29	23-Dec-20	Bank Of Ireland PLC-Non Branch ATM(700)	Ireland	Euronet Worldwide Inc	United States	-
30	14-Dec-20	Australia & New Zealand Banking Group Ltd-Commercial Acquiring Business	Australia	Worldline SA	France	365,35
31	02-Nov-20	Nets A/S	Denmark	Nexi SpA	Italy	7,373,11
32	27-Oct-20	CPS Payment Services LLC	United States	Repay Holdings Corp	United States	93,00
33	05-Oct-20	SIA SpA	Italy	Nexi SpA	Italy	5,340,98
34	31-Jul-20	Comercia Global Payments Entidad de Pago SL	Spain	Global Payments Inc	United States	584,01
35	23-Jul-20	cPayPlus LLC	United States	Repay Holdings Corp	United States	16,00
36	02-Jun-20	Quadpay Inc	United States	Zip Co Ltd	Australia	357,50
37	28-Apr-20	Dolphin Debit Access LLC	United States	Euronet Worldwide Inc	United States	-
38	03-Feb-20	Ingenico Group SA	France	Worldline SA	France	8,521,22
39	02-Dec-19	EGM Ingenieria Sin Fronteras SAS	Colombia	Evertec Inc	Puerto Rico	-
40	06-Aug-19	Nets A/S-Account-To-Account Payment Business	Denmark	Mastercard Inc	United States	3,192,58
41	15-May-19	Tink AB	Sweden	PayPal Holdings Inc	United States	11,19
42	18-Mar-19	Worldpay Inc	United States	Fidelity National Information Services Inc	United States	35,031,87
43	16-Jan-19	First Data Corp	United States	Fiserv Inc	United States	21,656,46
44	25-Sept-18	Elan Inc-Third Party Debit Processing Solutions Business	United States	Fiserv Inc	United States	690,00
45	19-Jun-18	Hyperwallet Systems Inc	Canada	PayPal Holdings Inc	United States	303,08
46	17-May-18	iZettle AB	Sweden	PayPal Holdings Inc	United States	2,199,99
47	15-May-18	SIX Payment Services AG	Switzerland	Worldline SA	France	3,045,55
48	27-Feb-18	Cataps sro	Czech Republic	Worldline SA	France	-