The Analysis of Governmental Incentives to Stipulate Competition in Payment Processing Systems: The Case of Ireland

Preliminary evaluation of 2015 Interchange Fee Regulation, its implications on the Irish retail sector and competition environment shift on the Irish processing systems market

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Foreword

This research paper has the goal of analyzing the changes that the establishment of quantitative cap on multilateral interchange fees brought to the Irish businesses and the Irish economy.

The paper is the case study of a very recent policy experiment from various points of view. The qualitative analysis and the descriptive statistics are complemented by simple econometric methods but the latter results should not be taken conclusive as only a very scarce dataset was possible to compile. There are quite a few comments on how the econometric research could have been done, were there enough data and long enough time has passed for an ex-post evaluation (to the best knowledge of the author, the first full scope analysis of the EU (and, naturally, Ireland) 2015 multilateral interchange fee regulation is anticipated to be published by the European Commission in 2019). Therefore, the quantitative results of this paper should be taken as possible short-term effects from which long-term trends.

In the classical use of the policy jargon, this research can be considered as a "white paper", which can give one factor in the ex-post evaluation of this reform and possible further decision-making. The reader will get acquainted with a variety of parameters representing the uniqueness of the Irish case on the European level. Moreover, one would probably get more knowledge of what happens when a card payment is made – a process, which is so captivatingly infinitesimal that it rarely draws much research attention to it. Alas, the very same thing applies to the attention of the public in general.

Finally, this paper grew out as an outcome of author's long-term interest in Irish affairs, culture and history. Those were sown in between the lines in a hope that this paper would bring as much joy and curiosity to the one who reads it, as it brought to the one who wrote it.

② Acknowledgements

To me it is natural that very little good work comes from a one-man effort. I was very lucky to meet people who did want to offer a helping hand and support me on the way of writing this thesis.

I would like to express my sincerest gratitude to:

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Finally, I would like to express my sincerest appreciation and gratitude to the Irish small and medium businesses, which, in my humble point of view, have been keeping the country running for centuries and will do so for centuries to come. Their strive for the better life and active engagement into decision-making process in Ireland inspired me to write this paper.

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List of Abbreviations

2015 EU MIF Regulation	Regulation 2015/751 on interchange fees for card-based payment transactions (“Interchange Fee Regulation”)
2015 Ireland MIF Regulation	S.I. No. 550/2015 - European Union (Interchange Fees for Card-based Payment Transactions) Regulations 2015.
BPFI	Banking & Payments Federation Ireland
CBI	Central Bank of Ireland
CSO	Central Statistical Office (Republic of Ireland)
EC	European Commission
EU	European Union
MIF	Multilateral Interchange Fees
POS	Point-of-sale
SFA	Small Firms Association
TFEU	Treaty on the Functioning of the European Union
YOY	Year-Over-Year

List of Exhibits, Figures and Tables

Introduction

This paper is an analysis of the Multilateral Interchange Fee (MIF)[1] cap introduced in Ireland in 2015 – its roots, its nature and its consequences that started appearing from the time of the reform up until now. It provides an insight on the importance of interchange fees regulation imposed by the government of the Republic of Ireland[2] in December 2015, which is an auxiliary package to the European Commission's Interchange Fee Regulation[3]. Importantly, the context of this analysis is centered on a country-specific information, differences of the financial system in specific to Ireland and a certain attitude of the Irish Government towards the financial sector and the way the country's economy develops amongst them.

The opening chapter is dedicated to economic aspects of MIF *per se*. It contains analysis of the theoretical literature on the matter as well as review of policy documents that are relevant to the issue. This chapter also contains information on bankcards, the role of interchange fee in the functioning of card payments as well as some more technicalities on the matter.

The second chapter describes the genesis of the multilateral interchange fee alongside with the life cycle of the legal framework in which it exists. It does this from the very basic banking regulation remotely related to it up until the moment MIF became regulated. It includes review of the EU regulations and goes in line with the EU financial market developments in general. The reader will also find some technical information on the Irish market, key stakeholders as well as some regulatory overview on the Irish case.

[1] Multilateral Interchange Fee, in brief, are a commission that banks take for accepting card-based transaction between the banks. And to give some idea of scale, MIF used to be about 1-1.5% of how much one spends with card. In fact, MIF is the thing that makes payment with card expensive for the payment-receiving side, which is not heavily affected by competition. And in fact, the reform targeting MIF was supposed to make bank card payments more attractive to businesses. See more details in subchapter I.I.
[2] From here and onwards: the world "Ireland" refers to the Republic of Ireland.
[3] Regulation 2015/751 on interchange fees for card-based payment transactions, published in the EU's Official Journal on 19 May 2015.

The third chapter is dedicated to several analyses. The analysis of shift in legal framework comes first, allowing to understand the legal constraints that changed the market conditions. This is explained through the prism of competition, market performance and industry analysis. It could be viewed as explaining which things to consider policy-wise. The reader can then find a limited quantitative analysis, which is rather an illustration to paradigmatic and legal changes overview, rather than robust econometrics analysis in itself. Finally, this chapter contains some policy notes with regards to a qualitative analysis performed alongside the quantitative part of this research.

The fourth chapter contains speculations on consequences of the policy enacted. Answers given are rather indicative than certain and in a way, they are more of a guide to where to look for the next step rather than to the next step itself.

The way this research was conducted was partially motivated from the three researches performed in different EU countries a few years before the Irish reform was conceded. Importantly, those three papers had different methodologies used, each of them had access to different types of data, so only parts of those methodologies were feasible to utilize here. The first was done by the Europe Economics during assessment of potential implementation of MIF caps in the UK in 2014; the second was dedicated to the Spanish experience introducing MIF caps[5]; the third came from the European Credit Research Institute and was rather an overview, though very useful to

[4] Europe Economics. 2013. The Economic Impact of Interchange Fee Regulation in the UK. London: Europe Economics.
[5] Iranzo, Juan, Fernández, Pascual, Matías, Gustavo, and Manuel Delgado. 2012. "The Effects of the Mandatory Decrease of Interchange Fees in Spain."

analyze[6,7]. Another part came from stakeholder analysis and mapping of targeted areas of economy as proposed by the Irish Government considering forthcoming reforms[8].

[6] Malaguti, Maria Chiara, and Alessandra Guerrieri. 2014. "Multilateral Interchange Fees: Competition and Regulation in Light of Recent Legislative Developments".

[7] Interestingly enough, all the three research papers had somewhat different approach to the how to tackle the issue and which data and methods should have been used. You can find more details in chapter I.II.

[8] Here I refer to numerous discussions, press releases and public consultations held by the Irish Government, key payment systems players as well as lobbying bodies from the SME and Retail segment. All these sources of information used are listed in References.

Chapter I. Overview

I.I. Interchange Fees: Why Do They Matter?

Multilateral interchange fees have been an inevitable part of bank services for quite a long time. The interchange fee is a transaction fee, which is very well defined by Prager et al (2009) as following: “Interchange fees typically involve a payment from a merchant’s bank to a card user’s bank for each debit card or credit card transaction. They are determined at the network level, and are the same for all banks participating in a network.” In other words, it is simply a cost that your bank pays to the bank or company, which charged you for a simple transaction to happen[9].

To answer the question “Why is MIF cap important?”, one might be willing to look at the MIF phenomenon from different angles. The multilateral interchange fees are analysed from four different points of view:

- MIF within the theoretical framework;
- MIF as a financial and financial technology[10] phenomenon;
- MIF as a regulatory phenomenon (and its positioning within legal framework;
- MIF within policy context.

First, the multilateral interchange fee is a financial phenomenon that affects every single person that uses a bankcard. And in fact, it does not matter whether we speak of the Republic of Ireland, which is the geographical limitation of this research, or of Hungary, Australia or Honduras. If you use bankcards, you (as a customer) are paying the MIF. In addition, in this regard[11],

[9] See subchapter I.III Of Cards and Payments for technical details.
[10] Financial technology is universal and is used as an illustrative explanation to the financial gist of the MIF.
[11] Well, irrespective of the total volume of how much you pay. Say, if we take Ireland, and assume MIF about 0.5% at some point of time, the person spending 40000 EUR per year with a bank card would have paid roughly 200 EUR per year in multilateral interchange fees, most probably not realizing it.

understanding of MIF is sort of an attribute of having financial literacy skills. But not only that is important. Since MIF is one of the defining forces that affect bank card acceptance (whether you will be able to pay with card or cash only) in the retail, it is also important from retail prospective and, in fact, does affect both the "user experience" in terms of making payment[12] and, to a certain extent, prices, which might incorporate interchange fee component that must be paid by someone[13]. At this point, the consumer benefit concept can be utilized, and that is what brings the second prism of analysis – economic theory.

From theoretical point of view, multilateral interchange fees belong to theories of economics of payment cards, competition theory and has to do a lot with concept of two-sided markets. These are typically utilized as a theoretical framework for bank card regulations and policy analysis. Moreover, theoretical framework itself contains several links that are deemed to be of a certain explanatory value for the events that are associated with MIF regulations. However, while the role of theory is important for competition and regulatory sake, it might be useful to note that the reform in this paper had more lobbying and policy component than theoretical analysis behind the decision-making process. Thus, theoretical part is limited to general understanding and applicable economic models are not discussed in detail.

Theoretical and financial grounds are important to understand the place of the MIF legal framework. Regulation of multilateral interchange fees is a conceptually new thing itself, so it is useful to see the level at which this concept is integrated into the legal system, as well as the scope of this regulation in terms of regulatory activities in general.

[12] It means, one can pay both in cash and by card, not just cash.
[13] The common sense suggests that this "someone" is the customer. However, it might be also regulated, see subchapter I.II.

Finally, the role of MIF and its regulations in policy environment has a lot to do with mapping banking regulations within the regulatory concept of EU common market. The concept that MIF should be regulated belongs to the general idea of SEPA[14], which is a part of the euro-integration strategy. Therefore, it might be reasonable to say that on a high-level overview, MIF regulation could be a EU integrity issue. And if so, it becomes clear why the EU could not turn blind eye on it (and proceeded with the reform in line with the general implementation of SEPA).

So, to sum it up, MIF can be characterized as "small[15] but important" concept in various environments, from consumer well-being and retail to the national and the EU regulatory framework. Next chapters will discuss the above points of view in more detail and then apply the conceptual matrix to Ireland-specific case.

I.II. Literature review

In this paper, literature review was split into two parts. On one hand, general theoretical framework analysis allows the reader to have a high-level overview on the theory that is underlining for multilateral interchange fees as an economic phenomenon. On another hand, this research is deemed to be of practical use, and the largest part of the literature review is dedicated to analysis of the applied researches on the matter and legal cases, which underpin the policy experiment discussed.

The basics of theoretical framework on the world of bank cards and processing systems associated with them were laid by William F. Baxter in 1983, with a notorious article[16] dedicated

[14] Here I refer mostly to work of Börestam and Schmiedel (2011), who provide a very detailed overview and reasoning for the placement of MIF within SEPA reform.
[15] Given the absolute and relative scale of MIF if compared to other issues in relevant research / business / policy environment.
[16] Baxter, William F. 1983. "Bank Interchange of Transactional Paper: Legal and Economic Perspectives", Journal of Law and Economics, Vol. 26, III, p. 541-588.

to conceptualizing of accounting information exchange between financial institutions and formalizing of four-party cashless payment systems. Baxter was the one who conceptually crystallized multilateral interchange fee as a per-transaction fee which is covering the fact of transaction being made between the customer and the vendor (the merchant).

Further theoretical research was concentrated on the role if MIF as an integral part of a phenomenon called *two-sided markets* as well as definition of what MIF belonged to. Rochet and Tirole[17] specify that these markets are characterized by the charge that is associated with the fact of interaction, which is made possible by one or several platforms. Moreover, they described interaction through intermediary that reflects the process of transaction happening in four-party payment systems.

Freigang and Grün[18] argued about theoretical concepts of estimating the price of MIF. They utilized cost-based approach (and separated three kinds of costs that their pricing model contained) to establish whether MIF should be somehow priced, and if so, which factors to consider.

Important part of the two-sided market theory is that for an interaction to happen, there should be at least two parties involved. The practical application of this consideration is basically the fact that there is always a vendor and a customer located on two opposite sides of a bank card transaction. Evans[19] pointed out, that since the fact of transaction is based on compatibility of the payment tool (bank card) and payment system (Visa, American Express, MasterCard), if no matchmaking (read: matching of the payment tool to the payment system) happens, no payment takes place. It makes interaction nil within the concept of two-sided markets.

[17] See a 2004 working paper by Rochet and Tirole, "Two-Sided Markets: An Overview", available here: http://web.mit.edu/14.271/www/rochet_tirole.pdf

[18] Freigang, Jan, and Anselm Grün. 2005. "Assessment of Domestic Credit Card Interchange Fees under EC Competition Law, The." Eur. Bus. L. Rev. 16: 151.

[19] Evans, David S. 2003. "The Antitrust Economics of Multi-Sided Platform Markets." Yale J. on Reg. 20: 325.

It is worth noting that much of theoretical work, including that of Tirole and Rochet was done on behalf of the competition authorities. This is for the two-sided markets theory is utilized in resolving competition and antitrust cases, such as that of MasterCard[20].

Materials on MIF regulation implications in practice are rather reports and briefings than typical academic works. Three of those, that had an impact on this research, are reviewed below.

The first report, prepared by Europe Economics[21] for the UK Government, on the evaluation of possible scenarios of implementation of the MIF cap, revealed a few observations that are important from policy point of view. First, they summarized experience of the Spanish and the Australian government introducing MIF caps[22]. Australian example was important for a disruptive fact about the goal-setting and the outcome of the MIF capping in Australia. Whereas the Australian government was targeting merchants and customers as beneficiaries of the reform, it turned out that the latter ones were not really affected. In fact, the Australian merchants were saving about 1.1BN AUD (729M EUR) over 5 years between the reform and its evaluation. Customers, though, did not receive any benefits as of the time of evaluation (2008).

As for the estimation made for the UK, Europe Economics suggested a strong reduction in interchange revenues collected by the banks, while rates charged by the banks towards consumers were to increase by approximately the same amount. They based their estimation on the Spanish case, which is the one discussed right below.

[20] One can find selection of materials on the MasterCard Competition case, prepared by the European Commission, here: http://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=1_34579.

[21] Europe Economics. 2013. The Economic Impact of Interchange Fee Regulation in the UK. London: Europe Economics.

[22] Spanish case is also discussed in literature review, therefore it is not broadly covered in the analysis of the Europe Economics report.

The second report[23] was prepared by a group of Spanish researchers in order to evaluate implementation of MIF cap in Spain. The paper covered a 5-year ex-post evaluation horizon and was concentrated on evaluating effects of the reform on both business (including banking sector and merchants) and consumers. They found that though the MIF cap led to decrease in revenues of banks from interchange fees, rates the banks charged against their clients for card accounts (for four-party payment scheme-based cards) surged by 50% within 5 years. As in Australian case, in Spain merchants were the main beneficiaries of the reform, as they acquired ca 2.8BN EUR in fees reduction from the banks. Again, no evidence was if there was any transfer of those benefits to consumers.

Importantly, in Spain introduction of MIF cap made cash more attractive; the speed of payments digitalization therefore lowered.

The third report[24] was prepared by Maria C. Malaguti and Alessandra Guerreri in light of anticipated regulatory changes on the EU-level. Those changes were targeting MIF, as the theoretical concept that MID should have a cost-based price (see Freigang and Grün) was repealed by the policymaking body (EC). In fact, the report underlined that the EC did not have a consistent thinking on the matter. On one hand, it deemed to consider MIF anti-competitive as a concept (this was explicitly stated in the decision on the MasterCard case[25]), which implied that whatever pricing model is to be used, it will be anticompetitive. On another hand, the EC allowed some exemptions under Article 101 of TFEU[26]. Speaking of introduction of MIF caps on the EU level, the repot

[23] Iranzo, Juan, Fernández, Pascual, Matías, Gustavo, and Manuel Delgado. 2012. "The Effects of the Mandatory Decrease of Interchange Fees in Spain."

[24] Malaguti, Maria Chiara, and Alessandra Guerrieri. 2014. "Multilateral Interchange Fees: Competition and Regulation in Light of Recent Legislative Developments".

[25] Details on MasterCard Competition case, prepared by the European Commission, are available here: http://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=1_34579.

[26] See chapter II.III for more details.

specified that the EC acknowledged potential effects of the proposed regulation to be unpredictable[27].

I.III. Of Cards and Payments

An overview of card transaction schemes allows reader to both see the genesis of the multilateral interchange fee as a concept in a business world and to understand why in the Irish case, one would consider only one kind of payment schemes; this implies certain restrictions on flexibility of the market and competition in payment processing services in Ireland *per se*.

There are two generally accepted card transaction schemes, currently existing on the market: three-party scheme and four-party scheme. The first one is the predecessor (and currently a rival) of the latter, so the author decided to start with it.

The three-party scheme is characterized as ‘closed’ network of transactions, as there is only one company engaged in transaction from the bank side (so-called ‘Card company’), both towards customer and merchant. The card company is also in charge of infrastructural side of the game: it must ensure that the payment will be processed, that the hardware and software which are necessary to make the payment are installed in the merchant’s premises and that the card issued is compatible with it. Moreover, it also should ensure that the system-compatible cards are issued and available for customers, who initiate the payment process by making a purchase.

The three-party scheme appeared on the market over 70 years ago. It was introduced in the US, and since then, most of 3-party system users and players are located there. For instance, Diners Club International and American Express are both important representatives of the three-party scheme, as well as main operators of it worldwide. One key feature of both system mentioned

[27] This goes in line with the fact that the evaluation studies are supposed to come up in 2019.

above as well as of other companies sustaining a three-party payment scheme is that they were the initiators of the system per se, locking outgoing and incoming operations on their own technology and infrastructure. That means, no American Express or Diners Club International payment options could have been used at a place that would not have an equipment to process this card. This is a condition, which could be enhanced by the fact that even if the place would have had an equipment to process some cards, but that would not have been the one produced by one of the aforementioned systems, no transaction could have been made.

Importantly, a three-party system concentrates all transactions and associated fees on itself, therefore, providing these fees can be unified and that there might be generally one fee for transaction, which is to be paid by merchant and cardholder only once, at the time of transaction.

Four-party scheme, on the contrary, allows for a certain sort of "diversity" within payment process in a following way: the card issuer - representative of the cardholder and the card acquirer – representative of the merchant can be two separate entities, which means, two payment processing systems can be engaged within once transaction process. Key difference of the four-party scheme from the three-party scheme is that it consists of four players instead of three (customer (cardholder), merchant, card issuing bank (issuer) and merchant acquiring bank (acquirer); in four-party scheme merchant and cardholder do not interact in payment processing terms, as the payment goes through an additional iteration between issuer and acquirer, therefore keeping the chain of transactions open. Representatives of four-party payment scheme are Visa and MasterCard, which allow different financial institutions to use their technology instead of concentrating all the processing on themselves.

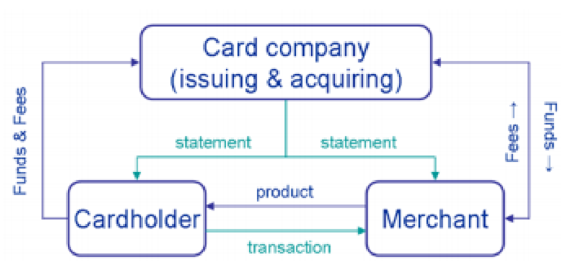

Exhibit 1. Three-party payment scheme.
Source: European Payment Institutions Federation

In a nutshell, the four-party system follows this algorithm[28]:

1. Issuer provides consumer with an account, which can be debit, credit or prepaid. This account can operate through a bank card (the only option considered in this paper) as well as through mobile payments or online card;
2. The consumer selects goods to buy and indicates that they will be paid by a card belonging to a particular payment system;

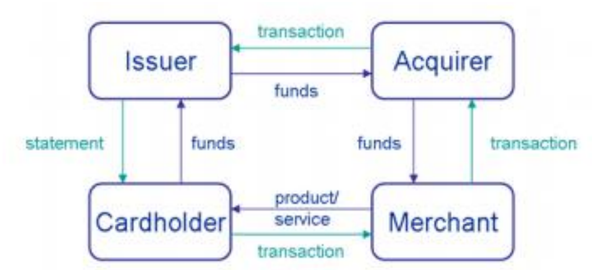

Exhibit 2. Four-party payment scheme.
Source: European Payment Institutions Federation.

3. The retailer submits the transaction to the acquirer;
4. The acquirer submits the transaction to the issuer;
5. The issuer approves the transaction - and remits the retail price to the acquirer, less an interchange fee;
6. The acquirer pays the retailer, less a merchant service charge (which is negotiated directly between the acquirer and the retailer);
7. The consumer's account is debited with the retail price, which appears on the statement.

[28] This algorithm was retrieved from Visa, however, applicable to both Visa and MasterCard.

The process should not seem quite complicated[29], given that a vast number of Europeans in general and the Irish in particular[30] do use bank cards every day and naturally, it would be hard to assume that many of bank card users would think of the underlying process, associated with the transaction processing. However, customer can feel any change in processing fees easily, given that the customer is the one, who finally pays it all out of his own pocket.

One more thing that is crucial to understand about these payment systems is that when the three-party scheme appeared and started working, the issuing and acquiring organization (represented by the very same organization) did have banking functionality, which was necessary to effectively operate payment systems. Nowadays the acquirer and the issuer might very well be not a bank, but a financial institution with a license to process payments[31].

All the factors listed above (and many others, which are discussed in another chapter) increased the range of possible usage of payment schemes dramatically and in a certain way

[29] To give a simple example of the difference between the two models, let me use a common life thing – shopping. Three party system works in a following way. Imagine, you come to a grocery store to buy something for dinner. Once you selected what you would like to buy, you go and confirm your payment with your card, using PIN or signature to approve the transaction. At that very moment the bank receives an order generated by the payment machine that it owes the shop value of your purchase minus the fees that the store is liable towards the bank for the equipment and services of the card-reading machine. Then this bank reserves a certain sum on your bank account and charges it once it matches transaction request from the store where you made a purchase and information that your card is to be charged. All these manipulations happen within the very same bank and it matches its own records within one system. Now, in a four-party system the bank representing the store knows it has to get money. It inquiries from your bank to pay this bill, and it does so, matching your account and its records, cutting a small piece of the volume as an interchange fee. Now the store is getting its money minus the service fees it owes to the bank. Meantime your bank releases a statement to you and money are withdrawn from your account to pay the amount that your bank paid to bank serving this shop.

[30] Here I refer to payment statistics as discussed previously as well as the 2015 EU IF Regulation itself, as it contains a paragraph dedicated to how wide spread the bank cards (and therefore interchange fees associated with them) are.

[31] For example, there are world-operating companies which typically serve as acquirers, such as Global Payments, WorldPay, First Data. These companies are naturally not banks, but financial infrastructure companies that process incoming transaction from the card issuer. Issuers are almost all the time banks and card companies, which manufactured the card and delivered it to the client. However, issuers nowadays often outsource the technical part servicing the card to national and international financial services companies, such as Total System Services or abovementioned Global Payments etc. This outsourcing led to a very interesting tendency of issuing and acquiring services being supplied by the same company, but since the clients ordering those services are different, the system cannot auto-transform into a three-party model, though it might sometimes remind one in a bird's eye view.

instigated competition between payment processing systems, which did not necessarily take forms that would have been working for the good of the customer.

Chapter II. The Road to Interchange Fee Cap

II.I. From SEPA to MIF: the European Way

Interchange fees were not deemed as an utterly anti-competitive element of the banking system until quite recently. The reason for it might be lying deep into the global role of transaction payments applicable to bank cards and particularly, to those operations that are performed by individual customers. Since active usage of bank cards falls into the beginning of 1980s, there was no certain reason to study transaction costs before that.

Considering a big picture might be of more sense. In countries with higher level of technological advance as per the beginning of the personal card usage wave, situation was monitored from earlier time. A review of legislative initiatives and parliamentary documents showed that countries like UK, France, Netherlands and Belgium had quite a concern regarding the effect that interchange fees (and, particularly, the multilateral interchange fees) have over both businesses and consumers. For instance, the UK Parliament addressed[32] this issue in 2012, pointing out that these fees were hurling SMEs out with a financial burden imposed as large as 2% per each transaction.

All in all, the need in regulating MIF crystallized over a certain time. And the way it did so is a good illustration of how the holistic EU picture transforms into certain regulations.

The single European banking and bank services space has been a matter of concern for the European Commission for quite a long time (which can be traced since 2008, when the first step

[32] More information is available here: https://www.parliament.uk/documents/commons-committees/european-scrutiny/Multilateral-interchange-Fees-and-Payment-Services-Directive.pdf

to creation of Single Euro Payments Area has been made: credit euro transfers became available on 28st of January 2008), it is naturally that the legal framework has been constantly evolving.

SEPA covered bank transfers firsthand. Once those were settled, the next step was to ensure that the money transfer process was arranged and priced in a way not to allow payment processing companies to establish pricing discrimination across the EU. And that is how the idea of MIF capping appeared.

The MIF regulation is a new thing, which can be deemed to be a product of constant improvement of the EU regulations in terms of creation of a single banking space within the European Union, so as the single market for goods and services is the goal of the entire process. As the very recent step of this evolution, the European Union introduced new regulation of interchange fees in April 2015.

Regulation (EU) 2015/751 – the 2015 EU MIF Regulation came up because of ongoing struggles to overcome discriminative pricing[33] exercised by both MasterCard and Visa, as well as other payment processing systems, though less utilized across the EU. The newly imposed regulation delivered a few rules of the game to the market. However, before discussing those, I would underline a few things that are important to keep in mind while analyzing the systematic changes themselves.

First, the 2015 EU MIF Regulation is applicable to only four-party payment schemes and excludes three-party schemes, unless those schemes license other PSPs as issuers or acquirers - then they are considered four-party payment schemes. This feature allows to state that the new regulation was designed to affect MasterCard and Visa specifically[34]. The nature of this law therefore does ignore rivals of the two, since those are hardly able to conquer any share of the

[33] See the discussion on MasterCard case and its effect on the MIF cap regulation composition.
[34] See subchapter I.III Of Cards and Payments.

market within conditions changed. There are many researches carried out, results of which rather support this statement. For instance, in accordance to Retail Banking Research report[35] released for financial year 2014, in that year Visa and MasterCard processed 92.4% of value of all the payments in 19 European countries combined (53.7% and 38.7% respectively). This makes it hardly possible to any other payment system to manipulate with the interchange fees without an immediate effect from customers' side. Only Visa and MasterCard had shares big enough to act in a way, which in accordance to Neelie Kroes[36] (European Commissioner in for Competition Policy 2004-2009) was rather attributable to a duopoly. Another important consideration is that all those rules were applicable for EU-based payment systems. In other words, MasterCard Europe would have to comply, whereas MasterCard USA would not.

The newly introduced regulations brought a range of considerations into account of financial payments industry. Key action points suggested by the reform are as follows:

- Total volume restrictions on Interchange Fees. These restrictions are applicable towards interchange fees for both consumer debit and consumer credit card transactions, however, they are not applicable to transactions with commercial cards or cash withdrawals at ATMs or at a PSP's counter.
- Three-party schemes considered as four-party schemes under specific provisions can be exempt from the regulation until 9th of December 2018;
- The Interchange Fee Regulation caps interchange fees at 0.2% of the value of the transaction of any consumer debit card transaction. Regarding domestic debit card

[35] Global Payment Cards Data and Forecasts to 2020 (RBR). Report is restricted, some data is available in summary at: https://www.rbrlondon.com/newsletters/b351_GC21.pdf
[36] Details are available at: www.europa.eu/rapid/press-release_SPEECH-08-9_en.pdf

transactions, Member States have the option of specifying lower percentage caps and/or imposing maximum fee amounts.

- Member States may also allow PSPs to apply the cap on a weighted average basis for a five-year period, until 9 December 2020.
- In the case of consumer credit card transactions, the interchange fee is capped at 0.3% of the value of the transaction. Still, Member States have the option of defining a lower cap for domestic credit card transactions.

II.II Visa and MasterCard

The understanding of transaction fees through the prism of payment scheme is rather useless without realizing the scope of how those pricing models are incorporated into payment and what they mean for both sides of the business: for the merchant and the customer[37].

Since the three-party scheme has been eliminated from the scope of analysis of this paper, only Visa and MasterCard are considered. Importantly, both companies do have different plans for national and international transactions, which are both covered by the 2015 EU IF Regulation as well as 2015 Ireland IF Regulation. Now, the main difference can be observed between two different classifications that are considered by the payment systems.

The first difference appears when Visa or MasterCard provide tariffs for Consumer and Commercial cards. The latter tend to have enormously exaggerated interchange fees (which before

[37] Companies that represent transactions and are servants of acquiring and issuing entities do have stake in the pie of financial transactions. There are two reasons why they are not discussed in details. First, financial data representing the actual fees that go within the price of each operation of issuer and acquirer is often commercially protected, and even in case it is not, still hard-to find. On top of it, it is often customized per contract and per entity, which creates a rather hard-to-process dataset, which would be out of scope of this research. Second, this fee is anyhow incorporated into the fee that processing companies charge against their clients (against customers and merchants), going into further details is deemed unnecessary in this research.

the regulatory change of 2015 could have achieved as much as 500% of the interchange fees applicable towards Consumer cards). This was to a certain extent mitigated by the new regulations and can be very well tracked in the pricelists of Visa and MasterCard for financial year 2017[38]. However, out of EU/EEA payments are still subjects to those rates. In other words, should one decide to buy something in Turkey with a Commercial card, MIF will be about 1.2-1.3% if one pays with Visa and about 1.0-1.1% if one pays with MasterCard, for the very fact that Turkey is not the subject to those new regulations.

The second difference is applicable for Credit & Deferred Debit accounts vs Immediate Debit & Prepaid accounts. Here the key part that makes the difference is that whether your own account is charged immediately upon the bank-issuer matches its records to provide payment to bank-acquirer, or if it pays out of its own money and you are charged later. This logic is the same as if you were getting a mortgage or a study loan: you are supposed to pay for what you get, but not now and not in full. Some companies even practice this good exercise to show the customers how valuable a debit card is if compared to a credit card. For example, if you try to buy something online, the price when you pay with a debit card differs from what you must pay with a credit card[39]. With regards to nuances within the systematization (credit vs deferred debit accounts) and immediate debit vs. prepaid account, the only thing worth mentioning would be that those differences within the two groups of account are rather insignificant[40]. Moreover, they have very

[38] Those can be find in the List of References.

[39] Here I refer to a rather logical way of showing the cost implied by usage of one or another type of card that is practiced by some companies, Ryanair and EasyJet among them. Try some booking options, and it will appear that paying with a debit card is a bit cheaper than if you have a credit card. Well, how precise those companies classify the card at the time of transaction is another great topic for research and discussion, which is unfortunately out of reach in this paper.

[40] For the sake of clarity and to provide some insight into bank car classification, here is a brief description of the differences. Deferred Debit card is like an ordinary debt card, except for all transactions are charged at one time, once a month (typically, at the end of each month). Deferred in this sense means that your accounts are charged against debit which is certainly to come, but is not here yet. An ordinary credit card is self-explanatory. Now, immediate debit and prepaid accounts have even less difference, which is applicable not in every country (in France, for example, those two types of cards are perfectly matching in functionality and differ only in names). The only difference is that pre-

little effect the outcome of this research, since it assumes that consumption per se as an indicator. It also omits the fact of purchases for personal consumption, which are done rather with a personal card, as it was addressed above.

This pricing discrimination contributes to several factors. Part of them is rather economically reasoned, such as that individual cares more of his money than a corporation, and that corporations typically spend more money per year, than an individual.

However, it would be unfair to judge the effect that the Irish 2015 IF Regulation had on businesses and consumers from the standpoint corporate consumers, since they contribute to a very limited share of the transactions

Importantly, there were precedents of rulings that proved interchange fees[41] being above the market (above the European Union average, per payment system respectively) as being legal and justifiable. Here Ireland has much in common with the UK, which is often deemed to also be a subject to asymmetric pricing compared to other EU countries. Often, there are the same cases applicable to UK and Ireland due to close integration of banking systems of these countries. For example, MasterCard won[42] a case against a group of British and Irish retailers, who accused the payment system of setting above-the-average multilateral interchange fees, that were potentially damaging the competition. The argument used was "exempt or exemptible", which is used within the framework defined by the Article 101(3) of the Treaty on the Functioning of the European Union. A noticeable difference is that the decision made by the court was not in line with a few

paid accounts sometimes have a fix pre-paid threshold (an amount of money that should be put into this account), whereas immediate debit cards are fully flexible in how much one decides to store there.

[41] Again, here we speak of multilateral interchange fees, which are raised by banks representing both sides of the transaction.

[42] A brief summary of the case was prepared by K&L Gates and available at: http://www.klgates.com/files/Publication/843e93a6-820c-418d-9b90-243c4c821f7e/Presentation/PublicationAttachment/e462ff2d-d1af-4155-bd9f-2a975837f23e/Alert_Mastercard_Win_Over_Retailers_for_Interchange_Fees.pdf

other recent cases, including notorious case Sainsbury's v MasterCard[43] in Competition Appeal Tribunal. In Sainsbury's v MasterCard case the country-wise discrimination in multilateral interchange fees was found unlawful and MasterCard was fined. Applicable to the aforementioned case, the Article 101 of TFEU was used as one of the key grounds to judge against MasterCard. For Ireland-specific analysis, author considers several key parts of the Article 101:

1. Article 101 (1b) – "limit or control production, markets, technical development or investment". This is due to the outcomes of researches carried out by the Irish Central Bank and several industry boards and associations.
2. Article 101 (1d) – "apply dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage". This part is following from the mispricing strategies of the POS-operators (MasterCard, Visa) in Ireland (and the UK) versus the other EU countries and European Economic Area.

Perhaps, unintentionally, but it seems that the Irish Government did consider the decision of the EC on the MasterCard case, which stated that MIF are anticompetitive per se, and the decision did influence the way the Irish Government acted. The outcome of this judgement could be tracked both in the way the Irish Government introduced the 2015 Irish MIF Regulation and in how much Visa and MasterCard could affect the decision-making process (they were unable to do so at all). It might also look like the Irish Government was punishing payment processing companies for their "misbehavior" in pricing before the MIF cap was introduced.

[43] The case can be found here: http://www.catribunal.org.uk/files/1241_Sainsburys_Judgment_CAT_11_140716.pdf

II.III Stakeholders

Any change happening in the business world does have players behind it. In other words, there is always someone interested in having one outcome or another. In Ireland, there was an ongoing lobbying process for a few years right before the new regulations (first, the EU directive and then, the Irish regulation) were introduced. Analysis of the course of negotiations on the Irish 2015 MIF Regulation and the aforementioned lobbying, associated with those negotiations, allowed to define four stakeholders in the reform implementation process, their goals and targets which were rather clearly defined and could be therefore analyzed in this paper.

Importance of the stakeholder analysis in this sense is hard to neglect, since, many other policy experiments alike, the 2015 Irish MIF Regulation was a matter of a conflict of interests. And, given the scarcity of data, mapping the goals with the outcomes is deemed to be useful for policy evaluation sake.

It might be useful to notice that the European Commission was omitted from the stakeholder analysis on purpose. First, it has very little to do with the affairs between Irish banks and industry. Second, the EC is out of scope of this evaluation due to data limitation described separately[44].

The first stakeholder in the process is naturally the Irish Government, represented in this case by the Department of Finance led by Michael Noonan, TD[45]. The goal of the Government could be split into two parts:

1. Implementation of the EU regulations on the national level (which is also an obligation of the Irish Government, as Ireland is an EU member state);

[44] See chapter I and subchapters III.II and III.III for more details.

[45] Michael Noonan, TD, assumed his role after the death of previous Minister for Finance, Brian Lenihan Jnr, TD, and has been serving as Minister for Finance until now. His resignation was announced only for June 2017, which makes Noonan accountable for "end-to-end" implementation of the 2015 Irish MIF Regulation from the Government side.

2. Advancement of the national regulations within the newly introduced EU regulations to improve payment processing environment for the Irish businesses.

The latter was reflected in several aspects of the policy-making process. First, the Department of Finance organized a large public consultation, with a questionnaire that had been sent beforehand with the goal of collecting opinions of the key business stakeholders from both sides of the table (meaning, the Retail / SME's and their associations on one side and Visa/MasterCard and BPFI on another side). Second, the Irish Government introduced the National Payments Plan[46] in 2013, with a target to increase volume of electronic payments in the economy, primarily, for transparency and digitalization sake[47].

Whereas it might be challenging to fully assess the Irish Market in its entirety, there are particular indicators that some segments of Irish Economy would be affected by any changes in bank card processing regulations more than others. There is a wide array of both empirical and theoretical studies showing the extent to which banks affect such kinds of economic activities as retail, manufacturing and how enterprises of different scale are affected by banks' strategies.

A very comprehensive and detailed research carried by the Irish Central Bank in a few years ago[48], suggests that banks generally do have a strong influence over the European SME's and particularly, those which conduct operations in the Republic of Ireland. The latter is due to quite a few factors, including "bank-reliant" businesses and insufficient competition (idem).

While traditional banking services such as access to credit market and availability of loans under preferential schemes are not the focus of this thesis, therefore these things are omitted, it is

[46] Interestingly, Michael Noonan, TD, was one of the initiators and key designers of the NPP as well.
[47] The plan is available here: http://static.rasset.ie/documents/business/nationalpaymentsplan.pdf
[48] One can find results of the aforementioned research here: Ryan, Robert M. & O'Toole, Conor M. & McCann, Fergal, 2014. Does bank market power affect SME financing constraints? Journal of Banking & Finance, Elsevier, vol. 49(C), pages 495-505.

still important to note that lack of competition and strong dependence on banks in doing business can possibly be considered a “stone in the Irish business’ shoe”.

In general, SMEs are less able to obtain proper representation of their interest in front of regulation authorities, which is a reason why the obtained regulation on interchange fees might not be to the very benefit of first. This issue was raised numerous times across the EU bodies, governments and business associations. The European Association of Craft, Small and Medium-Sized Enterprises (UAEPME) released a statement[49] underlining the negative effect that the interchange fees create, for example, prevention of cross-border trade for SMEs (due to necessity of paying double commission for banks in the country where the payment was done and in the country where it was received). In Ireland, however, lobbying power of SME organizations is rather strong.

One of the most active players in lobbying its interests with regards to the interchange fees is the Retail Ireland, part of Ibec[50]. The response to the public consultation[51] submitted by the them outlined the necessity of introducing 0.0% MIF cap for debit cards and 0.15% MIF cap for credit cards.

Another strong representative of the Irish businesses is the Small Firms Association (SFA), which represents about 8,5 thousand Irish enterprises with headcount of less than 50 (small) and less than 10 (micro) employees. SFA also advocated[52] for 0.0% MIF cap for debit cards, though leaving the discussion on credit cards MIF cap without any attendance.

[49] Addressed to the European Commission, available at: http://www.ueapme.com/IMG/pdf/121003_pr_SMA_II.pdf
[50] The major Irish business association, which is currently about 7500 companies strong. It represents companies of all sizes and businesses, unlike SFA, which represents only small and micro enterprises.
[51] Response to Public Consultation on the Regulation of Interchange Fees for Card-Based Payment Transactions. Available at: http://www.finance.gov.ie/sites/default/files/8.%20Retail%20Ireland.pdf
[52] Submission On Interchange Fees For Card-Based Payment Transactions. Small Firms Association: 2015. Available at: http://www.finance.gov.ie/sites/default/files/17.%20SFA.pdf

It is crucial to understand the importance of small and medium enterprises in Ireland. In its statement[53], SFA suggested that about 97% out of 200.000 businesses in Ireland were classified as small or micro. And whereas the larger businesses could have afforded not be that concerned about any sort of costs implied by different interchange fees, the smaller once were likely to be affected.

Finally come Visa and MasterCard, alongside with BPFI – the banking industry association. Both Visa and MasterCard proposed[54][55] to keep the regulation in line with the EU proposal (0.2% for debit cards and 0.3% for credit cards), but also specified, that the 0.2% and 0.3% were applicable to every transaction and should not be lowered by any extra regulation. Banking & Payments Federation Ireland proposed the same.

Each of the three provided a good reasoning for their statements. Visa focused primarily on the disruption of competition that the MIF regulation was supposed to introduce[56]. For instance, Visa anticipated increased pressure from PayPal and three-party systems. It suggested to include three-party payment schemes into the fees cap regulation, since they assumed that those companies which operate within three-party scheme would have an unfair competitive advantage[57]. MasterCard concentrated on evaluation of card acceptance costs (they used the Australian case as an example, suggesting that a 50% increase in card prices for consumers that happened in Australia, could have place in Ireland with the introduction of a new MIF cap). BPFI was insisting on inconclusiveness of the MIF cap as the method of improving the consumers' well-being:

[53] Idem.
[54] See Visa's response here: http://www.finance.gov.ie/sites/default/files/20.%20VISA.pdf
[55] See MasterCard's response here: http://www.finance.gov.ie/sites/default/files/10.%20MasterCard.pdf
[56] Here the author would like to remind that the EC and the Irish Government had exactly the opposite opinion on the matter.
[57] Authors remark: this seems to be hardly possible considering the utilization statistics for Visa/MasterCard vs three-party schemes

In markets where interchange fees have been lowered (US, Spain, Australia) there is no evidence that retailers have passed on savings to consumers. In all three markets mentioned evidence suggest the opposite i.e. that the reduction interchange fees has resulted in an increase in card fees and reduced rewards.

All in all, 3 major groups of stakeholders were defined. The summary views of the three can be found in the table below. Smaller stakeholders were not analyzed due to data collection issues (since the firm-level data and questionnaire to gather it were not considered for this research).

Table 1. Stakeholder analysis summary. Stakeholders belonging to the SME / Retail in green, stakeholders from banking sector in orange.

Stakeholder	Goals	MIF Cap Proposal
The Irish Government (Department of Finance)	1. Implement EU regulations 2. Create better banking services environment for the business in Ireland. 3. Increase share of bank card transactions in the structure of payments	Undecided
Small Firms Association	1. Nullify MIF on debit cards and lower MIF on credit cards in order to decrease operational costs of the businesses. 2. Increase penetration rate for card utilization in retail.	A weighted average fee cap of 0.0% of the annual average transaction value of all domestic debit card transactions within each payment card scheme. No comment on credit cards.

Stakeholder	Goals	MIF Cap Proposal
Retail Ireland	1. Nullify MIF on debit cards and lower MIF on credit cards in order to decrease operational costs of the businesses. 2. Increase penetration rate for card utilization in retail.	A weighted average fee cap of 0.0% of the annual average transaction value of all domestic debit card transactions within each payment card scheme. Per transaction fee cap of 0.15% on domestic credit cards.
Visa	1. Keep MFI at the maximum level allowed under new regulations in order not to suffer loss in revenue. 2. Generate enough revenue for sustaining innovations and existing infrastructure	A weighted average fee cap of 0.2% of the annual average transaction value of all domestic debit card transactions within each payment card scheme. A weighted average fee cap of not lower than 0.3% of the annual average transaction value of all domestic credit card transactions within each payment card scheme.
MasterCard	1. Keep MFI at the maximum level allowed under new regulations in order not to suffer loss in revenue. 2. Generate enough revenue for sustaining innovations and existing infrastructure	A weighted average fee cap of 0.2% of the annual average transaction value of all domestic debit card transactions within each payment card scheme. A weighted average fee cap of not lower than 0.3% of the annual average transaction value of all domestic credit card transactions within each payment card scheme.
BPFI	1. Protect interests of banking sector	A weighted average fee cap of 0.2% of the annual average transaction value of all domestic debit card transactions within each payment card scheme. A weighted average fee cap of not lower than 0.3% of the annual average transaction value of all domestic credit card transactions within each payment card scheme.

Chapter III. Regulation in Power

Although Ireland is in the EU and must follow the EU regulations, the Irish financial market was comparatively underregulated (if this term can be applicable to rather well tuned EU regulatory environment). Whereas the banks and particularly mortgages went under scrutiny due to financial crisis of 2008, financial services and financial technology industry stayed quite unregulated. In a way, lack of strict regulations allowed to give some preferential deals to many companies in tax terms – the tool that was under constant attack from the EC[58]. In fact, the taxation issue was the one that dominated concerns of the EC with regards to Ireland; another major concern for the European Union was the Irish state budget. Thus, issues of financial technologies that are rather undiscovered do not create so much noise as if it was a large case submitted against an international company.

Importantly, giving preferences to card payments is not only the Irish thing as such. The EC itself made a huge step towards card payments by introducing an interchange cap regulation. Hence, since the further enhancement seems going in line with the EC decision, it might probably go unobserved. Until now, there was no lawsuit against Ireland with accusation of taking more money from payments processing companies than it is regulated on the EU level.

III.I. Compete and Regulate

Over the course of last 30 years, Ireland made a huge progress in developing and advanced financial industry. Importantly, Irish regulations are often deemed lenient towards businesses, so it

[58] For example, Ireland was accused of providing illegal state aid to Apple (13 bn EUR) in between 2003 and 2014. See comments of Margrethe Vestrager here: http://europa.eu/rapid/press-release_IP-16-2923_en.htm

would be hard to suggest that the financial industry itself and the banking sector in particular were overregulated.

However, considering role of Irish and Ireland based companies in technologic advancement of the banking sector, the underlying technical agenda has been actively reviewed and researched by both governmental entities, companies and academicians. A joint report[59] by the Department of Finance and (Irish) Central Bank Working Group, released back in the very beginning of 2000s, describes strategic issues that the banking system in Ireland was facing. And although the technical side of payments processing seems to have obviously improved since then, there was very little regulatory work dedicated to regulating or at least to show an intention to regulate the card processing business.

Before the 2015 Irish MIF Regulation was introduced, the Republic of Ireland had no regulations with regards to multilateral interchange fees whatsoever. Historically, Ireland was bound by the same interchange fees regulations that were introduced and executed by the European Commission.

Prior to implementation of the S.I. No. 550/2015 – the Irish 2015 MIF Regulation extension produced by the Irish Government, there was a public consultation on the matter. Proceedings of this consultation pose a significant interest for this research, they were discussed in more detail in subchapter II.III.

The Irish 2015 MIF Regulation was introduced in December 2015; almost half a year after the EU 2015 MIF Regulation was signed. It came into power on the very same day when the EU MIF 2015 Regulation enforced introduction of mandatory caps for interchange operations, due to

[59] This report was generally dedicated to analysis of the challenges that the Irish Banking System is facing, industry-wise, strategy-wise and operation-wise. Available at:
http://www.finance.gov.ie/sites/default/files/BankingSectorSomeStrategicIssues.pdf

a half a year lag between two initial steps in it - first, ban on steering rules was introduced on 8th of June 2015, next, in December 2015, all the caps were imposed over payment systems across the EU territory[60].

The Irish 2015 MIF Regulation was designed to pursue following goals:

> The Multilateral Interchange Fee Regulation intends to modify the payments framework to better serve the needs of an effective European payments market, contributing to a payments environment which nurtures competition, innovation and security to the benefit of all stakeholders and consumers in particular. It aims to reduce regulatory arbitrage, promote a level playing field, promote card usage and reduce costs for consumers by, amongst other things, regulating interchange fees.

This goes in line with article 22 of Regulation (EU) 2015/751 – the EU 2015 MIF Regulation, which specifies several options to support implementation of interchange fee caps, including combination of flat rates and percentage rates as well as usage of simply percentage rates, and, particularly decreasing the fee cap on the national level and imposing a fixed maximum on how much the transaction fee can be per year. However, the European regulation does not make any difference between different kinds of enterprises; the aforementioned rates are applicable for all the businesses in any member state.

Ireland, however, introduced a law that had a very important difference from what the EU provisions were. The Irish 2015 MIF Regulation has a definition of a microbusiness as a consumer of transaction services, which is established through a ‘consumer” definition by Irish Central Bank

[60] To see the full timeline of the implementation stages of the 2015/751 check Addendum 1.

Act of 1942 (No.22 of 1942)[61]. To satisfy conditions of being a consumer of financial services, it is enough to satisfy one of the four conditions:

- To be a customer of the financial service provider;
- To be the one whom the financial service provider has offered to provide a financial service;
- To be the one who has sought the provision of a financial service from the financial service provider;
- To be, in relation to a credit agreement, a customer of the financial service provider in a case where a credit-servicing firm undertakes credit servicing in respect of the credit agreement concerned.

In other words, this implies that any possible subject to cooperation with any of payment systems available through Irish banks might be considered a microenterprise and will therefore be eligible for preferential or "specific" rates as imposed by the 550/2015.

This would have probably become an issue since this regulation set grounds for a wider usage of a certain sort of benefits that were not supposed to be available to all businesses by the initial design, since the declared goal of additional measures taken by the Irish Government was to stipulate SMEs and so on. However, several considerations should be applied before going into further nuances of the matter.

First, Ireland belongs to the Anglo-Saxon legal system (and it has been doing so for a long time, being the first territory to have this sort of system imposed outside England[62]). This enforces

[61] Available at: http://www.irishstatutebook.ie/eli/1942/act/22/enacted/en/html

[62] It might be tricky to catch the entire timeline of these events, since the common law itself did appear even before the Normans set their feet onto the English soil. Though Ireland was finally conquered by the English at 1691 (during the event also known as Williamite war), whereas the formalities were finally settled with Acts of Union being signed in 1800. Despite the tragedy of the cause, the legislative system has been stable for more than 200 years since then. So, there are no grounds to suspect Irish regulatory soil being too much different from that of the UK. This is one of the reasons why the UK has been occasionally used for comparison within this paper. Another important reason is a

certain legal procedures and creates different environment for policy-makers compared to the continental EU. For instance, regulations are based on causes considered by courts previously, and this played an important role in the Government's decision-making process with regards to the interests that Visa and MasterCard expressed about the 2015 Irish MIF Regulation. Second, being a country of small businesses, which can be considered a certain sort of heritage left by the British[63], the Great Depression[64] and other unpleasant atrocities[65], Ireland ended up with few international companies in manufacturing and services and many tiny companies that were engaged in both production and sales of what they produced. Current regulatory climate and easiness of doing business[66] did attract many multinational company to the country. However, the employment balance is still shifted towards SMEs. And therefore, introducing regulations that will hurt small businesses (or would be deemed to hurt small businesses) is considered rather problematic for the Irish Government. A small country, Ireland could not afford losing voters' support for introducing something extremely unpopular. And comes without saying, the connection between the average Irish voter and his small business is stronger than between the average Irish voter and CEO of Visa or MasterCard.

Now, since the legislative terms and most of the laws that are currently enabled in Ireland were concluded years and years before the Republic joined the EU and signed all the relevant

very bound market strategy that is used by financial companies in both countries, so that the market conditions and corporate behavior in Ireland and the UK have very much in common.

[63] Extensive farming and eventual instigation of huge agricultural / resource corporations to operate country economy. Those were later dissolved and privatized. One of the best examples would be Glencore, which used to be the Irish Sugar Manufacturing Company and was nationalized in 1933. To save this company from bankruptcy the Irish State had do privatize it in 1991. Importantly, those companies did have very little to do with the retail, which has always been in hands of private businesses.

[64] It led to creation of monopolies, that were later dissolved or forced to open the market to other players due to a tremendous economic inefficiency. The book example could be the Bord Gáis Energy (national gas supplier) or the aforementioned Glencore and its predecessor.

[65] Here I refer to the Troubles (IRA-related events), mass migration due to slow economic growth under Éamon de Valera presidency (in 1950s - 1970s)

[66] The World Bank ranks Ireland 18/190 in easiness of doing business. More details are available here: http://www.doingbusiness.org/data/exploreeconomies/ireland/

treaties, those laws were harmonized with and incorporated into the Irish Law system with the European Communities Act of 1972[67] of the Irish Parliament. Being anti-constitutional to enforce per se, the European Communities Act was later supported by the Third Amendment to Constitution of Ireland, which allowed any regulations that were created by the Irish membership in the EU to be implemented in Ireland. Interestingly, Irish accession to EU was not flawless, and there was much more harmonization work that was done to make Ireland compliant with the EU regulations[68]. Finally, even the Irish and the EU regulations are harmonized, there are still tons of criticism concerning how Ireland handles matters that the EU tends to attribute to a common decision-making, including healthcare[69], taxation[70] and some other issues.

All in all, the message of it is that the regulatory environment in Ireland is quite harmonized with the one of the EU, and it is agile enough to introduce changes. However, having changes accepted could be an issue, and unless those changes are exogenous (like with EU 2015 MIF Regulation), it might be problematic to consider all the interests and not to hurt the electorate, which is very sensitive to any regulations affecting SMEs.

III.II. Celtic Tiger and its Cage: Data Limitations

As it has been stated before, the initial set up of this research was to provide a solid quantitative base for an evaluation of whether the Irish 2015 MIF Regulation brought any good to

[67] Number 27 of 1972. Current version is available here: http://www.lawreform.ie/_fileupload/RevisedActs/WithAnnotations/EN_ACT_1972_0027.PDF
[68] A very famous case Crotty v. An Taoiseach, where the Irish Supreme Court declared necessity of a constitutional referendum to make signing of the European Single Act possible for Ireland. This amendment (formally - Tenth Amendment to the Constitution of Ireland) was introduced after a positive referendum decision later in 1987.
[69] The article is available here. http://www.thejournal.ie/healthcare-unemployment-european-commission-1496820-Jun2014/
[70] See business opinion on the Apple case here: http://www.independent.ie/business/world/this-is-a-decision-made-on-facts-ec-chief-rejects-tim-cooks-criticism-of-apple-tax-decision-35013116.html

the Irish economy or not. Unfortunately, there were two groups of limitations related to processing the data; both are discussed below.

The dataset is composed from two main data sources: Central Statistical Office Statbank and Credit and Banking Statistics of the Central Bank of Ireland.

The first group of data limitations is represented by the physical data limits, as the time series were rather short (20 months of observatios available as of May 2017). These were caused by several facts: novelty of the matter (and therefore, very recent initiation of relevant data collection), novelty of the regulation (only 15 months passed since the regulation was imlemented in Ireland, and there is a lag between the monthly data collection and publishing). Another issue is the disharmonisation of different metrics within the dataset.

The latter also has a few things in it. First, data periodicity and aggregation were not fully harmonized for all the spectrum of metrics selected for analysis. For example, GDP data was available on quarterly and yearly basis, whereas the different metrics attributed to card spending were available at monthly level, but had no aggregation on higher levels[71]. Second, data came from different sources and had therefore different timeline of collection. This resulted in the fact that some observations were dismissed for they did not have matching data from another dataset.

The issue with the length of the period throught out which the data was collected is the most important one in terms of providing sufficient resources for regression analysis. The Central Bank if Ireland confirmed that there was a reporting change in early 2015. It led to a data reporting format change, affecting the data granularity and detalisation of different metrics. Until 2015, there was

[71] If one assumed that these metrics were additive (2016 = Q1 2016 + Q2 2016 + Q3 2016 + Q4 2016), aggregation could have been constructed for them. However, even if the aggregation could have been made, the timeline limit would have been even worse issue calculation-wise, as there would have been less time periods to analyze. In other words, normally I would have not been a problem (if other data is aggregate on quarterly level, in case there are enough observations). Unfortunately, it is not the case in this research as of now, therefore quarterly aggregation as a concept was eliminated from quantitative evaluation.

no data that would show volume of spending per each type of card or per each type of economic activity of the merchandiser.

III.III. Celtic Tiger and How to Measure It

As the key player and stakeholder in the MIF discussion, Irish retail sector is the one that should be observed in course of analysis of the regulatory change, caused by implementation of 2015 Irish MIF Regulation.

In order to track whether the newly introduced regulation had any effect on the Irish retail sector, a wide range of indicators was selected. The very first thing to analyze was the Retail Sales Index. This statistical measure has a few advantages when one has to make up his or her opinion on how retail performs. First, the Irish Statistical Office uses exactly this index to analyze how the national retail sector is doing. Second, this sales index has monthly granularity, which allows to use it within comparatively shorter period of time after the regulatory change were it on yearly aggregation only, then that would cause severe data issues)[72]. Finally, this index comes value and volume adjusted, which allows to see the dynamics of the size of purchase. This could mean a lot in retail analysis prospective via understanding the average purchase size and volume[73]. It also gives grounds for some considerations about potential strategies for the business with regards to

[72] Those issues would probably mean that this thesis would have contained even less data-related analytics.
[73] These two are important for the general picture sake: how much people buy, what could be the average bill, how much should they spend if they would like to spend with card, etc. All these things have a very large significance for the merchant in order to decide whether to install a POS terminal or not.

payments as they are received from the customers[74] and processing companies' margins which are affected by the average value of purchase more than it might look like[75].

So, the index that we analyze is available since 2010, a few years before the negotiations about implementation of the 2015 MIF reform in started in both EU and Ireland[76]. Unfortunately for Ireland, the country had to adopt a very heavy austerity package in 2010[77]. The fact that this happened would probably be important to understand that the national economy did rather badly[78], so until 2013 there was very little to observe. Interestingly, in mid-2013 the volume and value of purchases started to diverge, which indicates that people started buying more frequently (compared to complete consumption crash that followed the 2008 crisis). However, the value of purchase did not grow that fast, which might be an indicator for two things. One of them is that the retail restored its activity, but people did not restore their consumption pattern. Thus, they purchase more times but the value of purchase dropped. Alternatively, the entire country went down-market and now

[74] Here I refer to the fact that average size of the purchase has several implications within this research, although it is not in the focus and has not been analyzed in such a detail that one might have wanted to, in order to have a clearer picture of the market. Unfortunately, there were many constraints for this analysis to be carried, including lack of data and inconsistency of the data that was available. It matters for the act of payments itself, since there is such a common thing called "minimal purchase for card payment". One would frequently find this sign in local stores across European Countries and the US (author recalls EUR 5 threshold in tobacco shop in Lisbon and EUR 10 threshold in a grocery store in Paris as an example of this rule – any purchase not reaching the aforementioned number should have been paid in cash).

[75] It works in a following way: if the average size of purchase decreases permanently, the card processing company might reagree on the percentage it charges from the vendor (store), to stipulate more transactions made by card. Whereas if such an arrangement was not made, the vendor would have had no stimulus to make the threshold of cash-only transaction lower, thus, leaving payment processing companies with less revenue that they could have had.

[76] It should be clear: the market became more and more sophisticated, so one could have noticed that the demand to somehow organize the MIF and the market engaged has started being expressed.

[77] Formally, Ireland requested the EU support on 21st of November, 2010. However, this is not reflected in the research due to the fact, that this austerity package did have very little to do with the retail firsthand. Auxiliary consideration is that the period of activity of the austerity package has been observed until the divergence between value and volume of sales started showing up (well, almost until then. Formally, Ireland quitted bailout in December 2013, by when the slight divergence had already started).

[78] And so did the government. Although it is not the topic of this thesis, author would use the opportunity to mention that in 2011 the Irish government changed dramatically (the ruling coalition lost General Elections of 2011). Moreover, there were several student protests as well as some other nice events, for example Occupy Dame Street (which might be considered one of the very few things that the Irish did borrow from their counterparts across the Atlantic, as it was one of the chains of "Occupy" events, triggered by Occupy Wall Street in September 2011).

buys cheaper goods than it used to do before the 2008 crisis[79]. A fraction of the difference could have been generated by the fact that it became cheaper to make card transactions (read – minimum threshold for a card transaction went down, MIF now takes less % of the money that are transferred to the vendor's (store) account).

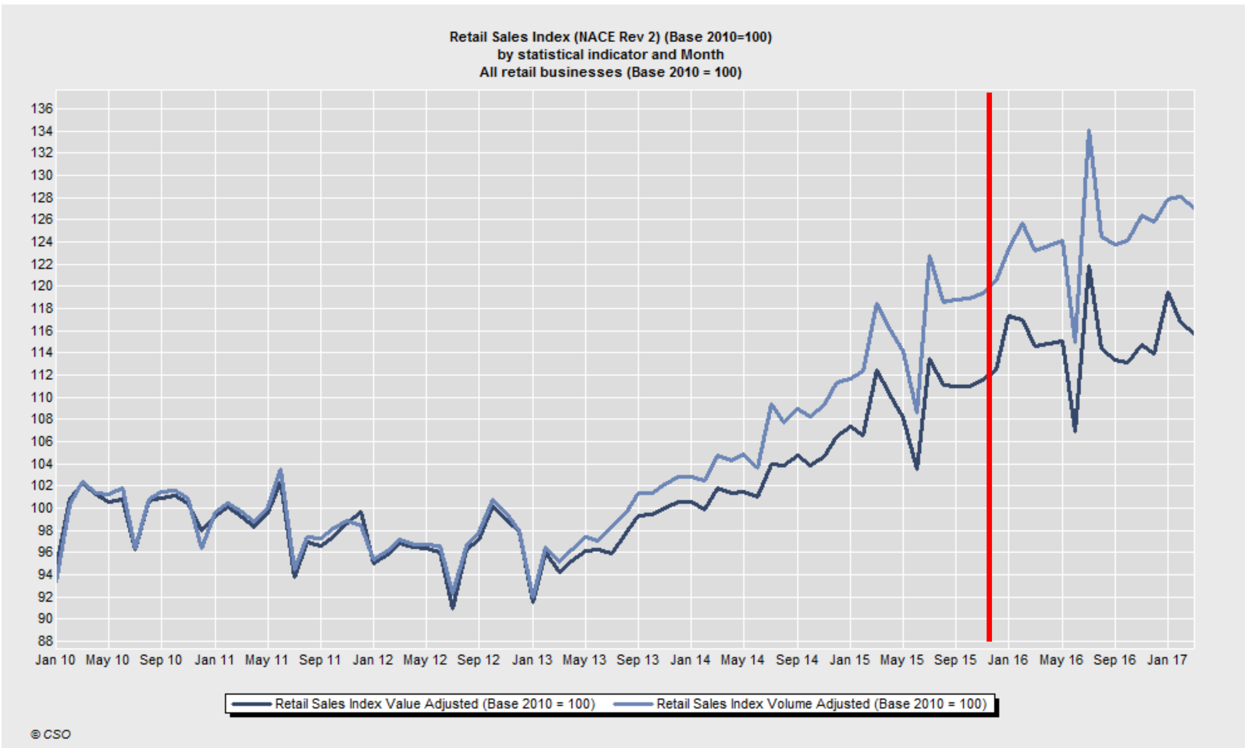

Figure 1. Retail Sales Index in Ireland (Jan 2010 – Mar 2017). The shock (introduction of the Irish 2015 MIF Regulation) is shown by a red line. Source: Central Statistical Office: StatBank Ireland.

The graph above shows a clear growth trend that started in 2013. One reason for that can be that typically, retail is one of the most livable sectors in economy, alongside with food industry and medicaments[80]. Normally, retail would move forward as economy advances. And whereas the

[79] But to further speak on this issue more periods of observations are needed, ideally – from 2006 (to capture the pre-crisis retail growth pattern). Such data was not available (or was not compatible into one database with recent periods data) at the time when this research was conducted.

[80] It very well comes out of a simple fact that two things people do no matter how bad the economy is: they try to stay alive by consuming foods and medicaments.

reform, shown by a vertical red line on the graph[81], could have had some effect on the retail sector itself, a simple look at an RSI graph would probably not lead to a certain conclusion if the 2015 Irish MIF regulation did make any difference or not. The rocket-like jump in RSI could have been attributed to Christmas sales. Moreover, the very same pattern can be observed in December 2016, which stands rather for the Christmas effect. Another local extremum falls in Summer (beginning of June and end of August). Which in Ireland correspond to the beginning and the end of vacation period. In between June and August many Irish spend money overseas[82], and peaks right before and right after represent pre-vacation spending (when people are buying stuff for actually going on vacation) and pre-school-year spending (when people come back and start getting their kids equipped to school).

Interestingly, if we compare indices in year-over-year terms, it becomes obvious that the speed of growth became rather smaller in 2016 if compared to previous periods. The major reason for that seems to be the low base effect (since there was no economic recovery until 2013. Therefore, in first few years (2013 – 2015) the growth rates were large (and if one looks at Figure 1, he would find a period of strong growth, which somehow flattened the seasonal effects).

[81] From now on: vertical red line defines the time of shock (implementation of the regulation).
[82] Flying to Spain or Portugal often comes at a price of a few pints of Guinness.

Table 2. Retail Sales Index in Ireland in December (2010-2016). Source: Central Statistical Office: StatBank Ireland.

	2010M12	2011M12	2012M10	2013M12	2014M12	2015M12	2016M12
Retail Sales Index Value Adjusted (Base 2010 = 100)	**98**	**99,6**	**100,2**	**100,6**	**106,4**	**112,4**	**113,9**
Retail Sales Index Value Adjusted YOY Growth Rate	***n/a***	**1,6%**	**0,6%**	**0,4%**	**5,8%**	**5,6%**	**1,3%**
Retail Sales Index Volume Adjusted (Base 2010 = 100)	**96,4**	**98,4**	**100,8**	**102,8**	**111,3**	**120,5**	**125,8**
Retail Sales Index Volume Adjusted YOY Growth Rate	***n/a***	**2,1%**	**2,4%**	**2,0%**	**8,3%**	**8,3%**	**4,4%**

All in all, it is important to notice that there is a very strong sign of seasonality on this graph as well as on other graphs showing RSI[83]. Seasonality issue is the very thing to care about in evaluation studies. However, in this case time series were short and full treatment of seasonality could not have been conducted[84].

Therefore, another thing worth checking is whether the retail in Ireland follows the growth of economy (in our case, RSI is measured against GDP). If one looks at Figure 2, it becomes clear that GDP is somehow moving in the very same direction as RSI. It would be worth to note that the exponential trends for the three differ a little bit. For instance, one would find that GDP growth is much steeper than one of the retail[85].

[83] The reason for it is the nature of retail, since demand for goods can be often attributed to important events happening on recurrent basis. Saint Patrick's Day and Christmas would be those sorts of events for Ireland.
[84] Dummy variables were introduced to control for major holidays. See more details in subchapter III.III.
[85] Well, the fact that retail and GDP are moving the same direction but with different speed has no surprise. The Irish economy is composed of many sectors, and retail is not the only one that drives it onwards.

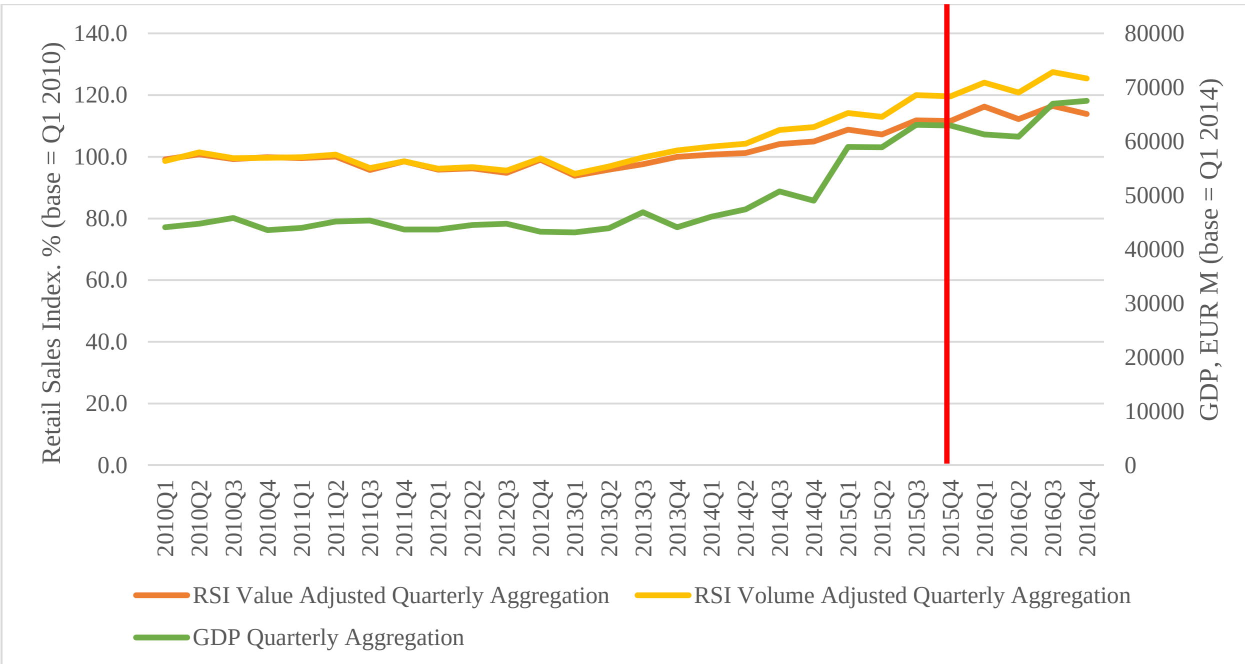

Figure 2. Quarterly aggregated RSI (volume and value adjusted) compared to GDP (in constant prices Q1 2014) (Q1 2010 – Q4 2016). The shock (introduction of the Irish 2015 MIF Regulation) is shown by a red line. Source: Central Statistical Office: StatBank Ireland.

The more important thing in this case is how much people spend with cards. Not only this indicates that economy goes well and people can afford spending more[86], but also, if they can spend more *paying with card*.

Now, for the sake of evaluation of 2015 Irish MIF Regulation the bank card utilization in retail seems to be of higher interest than just the RSI. Importantly, the reform did not target cash spending (or at least, one would find very little interaction between cash and interchange fee, since the latter has to do with bank cards only). In other words, the next step after RSI is retails spending by card. But one step is important before going to retail-card relationships analyst. It seems to be

[86] This might very well have been the case of the explosive growth in retail in 2013 – 2015, as discussed earlier.

worth checking card transactions in general – first, to have an overview on the matter; second, to check if there would be any trend to consider.

Card transaction statistics are in a way easier to collect compared to retail statistics[87]. However, the Central Bank of Ireland started collecting and processing bank card retail spending only in 2015[88]. Because of this, this research has been limited by the first month available in the dataset (May 2015).

On Figure 3, one can find volume of transaction made by credit cards, transactions made by debit cards, and transactions made by debit cards with usage of POS terminal.

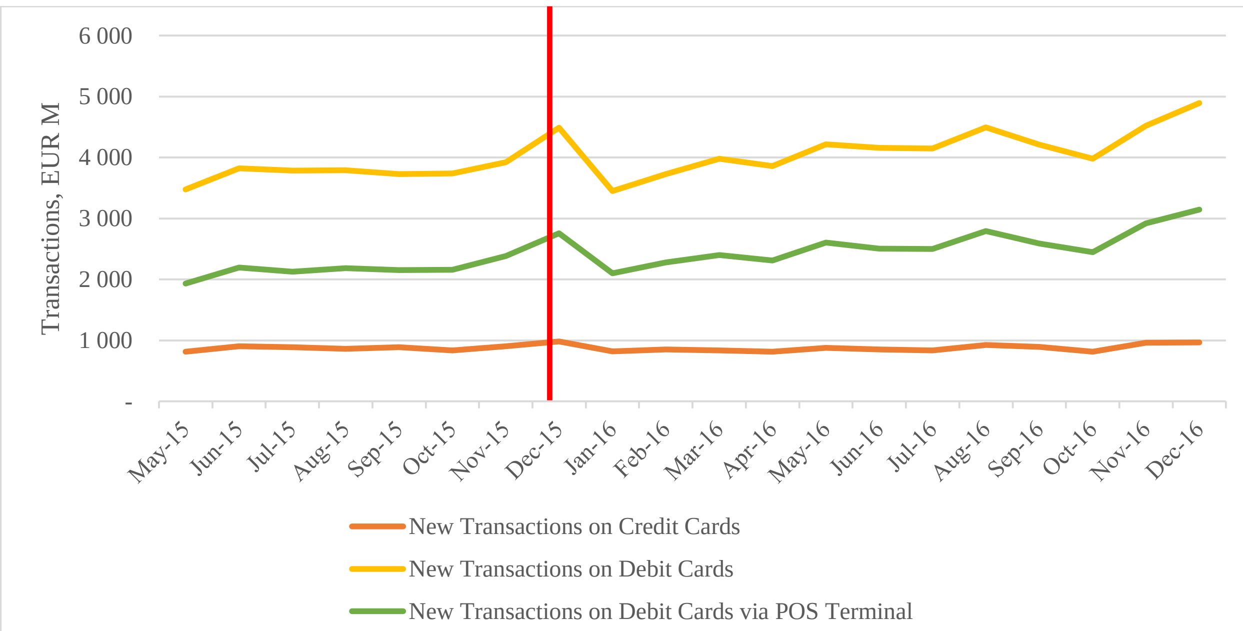

Figure 3. Transactions per bank card (May 2015 - Dec 2016). The shock (introduction of the Irish 2015 MIF Regulation) is shown by a red line. Source: Central Bank of Ireland - Credit and Banking Statistics.

The first two things to analyze are transaction made by debit and by credit card. From Figure 3 it becomes clear that spending made by credit cards is not growing significantly, whereas

87 Well, omitting the fact of generalization issue with regards to RSI and quite good detalisation for bank card statistics.
88 And it means, that "easier to obtain" does not necessarily correspond to "more data with long timespan". In fact, the thing that is better is the content – data obtained from the Central Bank has more details and is more insightful.

the debit card spending component is on the rise[89,90]. Due to data limitations, segregating POS terminal transactions for credit card from the total amount of transactions attributed to credit cards seemed to be impossible. It could have been assumed that all the transactions made with credit cards are those which engage POS terminal, however, there is no relevant data for that. Therefore, the general strategy of this research considers debit cards as a priority for further analysis. Another reason why concentration on debit cards is rational is that they contribute to most transactions in value (on average, credit card transaction contributed to 17.8% of all the transactions within the period of observations, while debit cards represent 82.2% of all the transactions for the same period).

POS terminal transactions made with debit card increased in volume from the beginning of observations. One would notice that from May to October 2015 there was very little change observed in transactions made by debit cards, whereas from January 2016 there is an ongoing increase in spending processed through POS terminal. This increase happened exactly after the new 2015 Irish MIF regulation was introduced, and the assumption which naturally follows is that perhaps the regulation itself triggered an increase in how much money people spend paying with card, since POS terminals became cheaper to serve[91].

As it is clear that transaction-wise the business landscape did change after the reform has been implemented, one would like to analyze how much the retail was engaged. And, in this regard, how much more people started spending on retail using card payments. In other words, the goal

[89] Here it would be important to remind the reader that 2015 Irish MIF reform targeted debit cards primarily, since they are more widely used (see statistics and chapter XXX.XXX, where the regulation is discussed in detail).
[90] Importantly, for credit and debit card transaction statistics there are two kinds of transactions covered in this figure: ATM withdrawals and POS spending. The further drilldown is not available for credit cards. Therefore, only debit cards are reviewed through prism of POS terminal transactions.
[91] Again, did the dataset contain observations for longer periods, the conclusion could have been different. However, given the shortcomings of the dataset utilized, the explanation provided might have grounds to be true.

was to specify how much more money retail got through card payments compared to pre-reform time.

Figure 4 shows evolution of the volume of money spent in retail by type of cards. Again, credit cards are insignificant in both proportion and dynamic change (see above), whereas debit cards contribute to both volume of spending in retail as such and to the increase in total volume of spending observed after the reform.

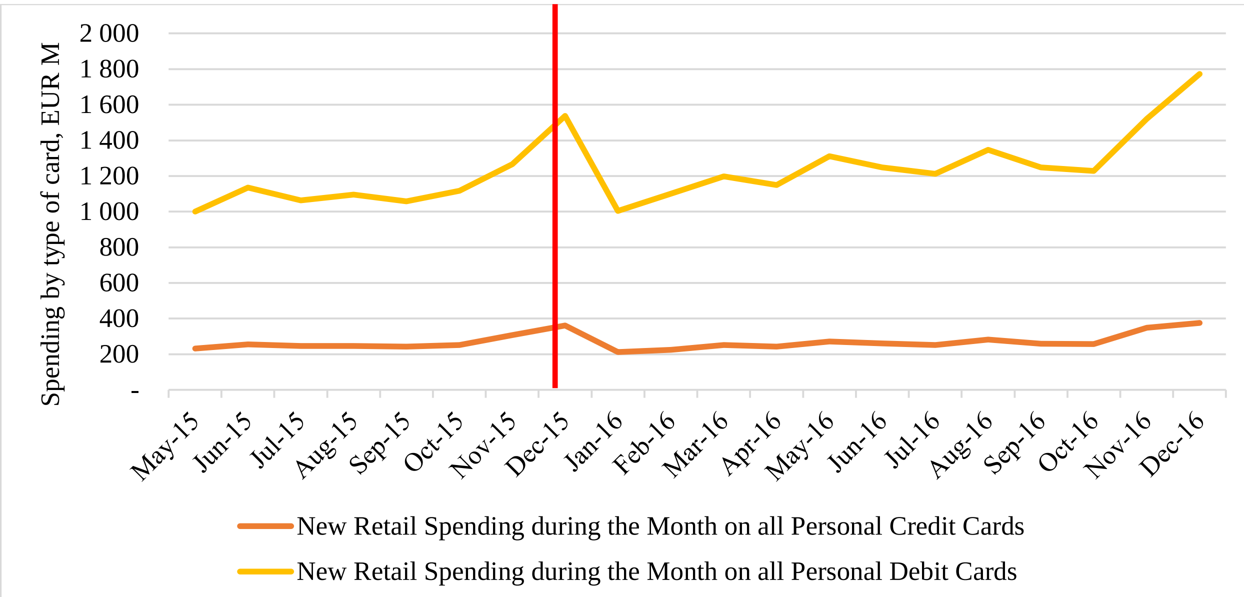

Figure 4. Retail spending by bank card type (May 2015 - Dec 2016). The shock (introduction of the Irish 2015 MIF Regulation) is shown by a red line. Source: Central Bank of Ireland - Credit and Banking Statistics.

From the discussion above it becomes quite clear that the thing where we should probably look in order to see the effect of the reform on payments at is card transactions made through POS terminal. There are a few other reasons for it. First, POS terminals are the physical representatives of the interchange fee institute, if you like. Since the four-party system dominates in Ireland, it is natural that whenever a point-of-sales terminal is installed in Ireland, it will have Visa and (or) MasterCard compatibility. Thus, further analysis must include POS transaction data. Moreover, retails spending per se are important, so including total retail spending and debit card retail spending seems rather useful.

III.IV. Further Notes on the Research Design

This subchapter presents an ideal list of steps that the author would make in order to conduct the quantitative evaluation properly. Unfortunately, data limitations did not allow for that, therefore the econometric analysis the author was able to perform provides only illustrative results.

Now, if one assumes econometric evaluation as the primarily goal of the research (or if one assumes a good econometric evaluation as an integral part of the overall evaluation of the 2015 Irish MIF Regulation), there are quite a few things that are deemed important to build a proper model for this purpose.

The very first item that would have been on the list (and which was, unfortunately, not compiled due to physical data limitations) is a dataset of proper length. The European Commission suggested having about 3-4 years after the reform to have proper data on the market after the reform. Moreover, since the EC announced that they started gathering data on the pre-reform market conditions across the EU member states, it might be adding up 2-3 more years of observations, in case those can be crystallized from the existing statistics (as the Irish Central Bank stated, there was no statistics on debit card utilization to provide a 2-year research horizon before the reform)[92].

The purpose of having long observations is clear. A long time-series dataset would have provided for stable observation period for all the metrics before and after the MIF regulation shock.

[92] Here one might go into speculations about possibilities of finding ways to collect proper data using some analytical methods and working with existing aggregated statistics. However, the author did not deem this to be doable at an MA thesis research level, and he also would appreciate to see if the EC succeeds with having this data collected for the 2019 publication.

Moreover, this will allow for implementation of better controls for trend, seasonality and other issues that are typically attributable to time series research.

Importantly, long time series would have given a chance to also introduce a wider range of country-specific controls[93]. More observations could allow tracking any effect that the crisis[94] could have had on the reform and potential need in regulating the MIF. It could also be helpful to consider election cycle[95] as well as major political events of exogenous effect on the Irish economy. Say, Brexit could have generated growth in number of fintech and payments specialists in Ireland. This could therefore trigger competition in POS service market and low down POS terminals installation costs.

Overall, the message is that the omitted variables bias might be quite strong in the analysis shown in the next subchapter. Were there more data, these omitted variables could have been of lesser concern. Moreover, more data might imply possibility of introduction of additional variables, that can also affect changes in the variables included into this study. For example, monthly aggregation of wages, borrowing rates, population, poverty ratio and online spending by type of card could have been of a great usage for further analysis. Dynamics of POS fees on major Irish banks would also be fine to have, so to assess the affordability of POS terminals for SMEs in retail.

Not many things can be properly assessed if there is no comparison with alternative paths provided. Policy evaluations are in fact needed to be conducted with a control group, so to have a Difference-in-Difference methodology research-wise and utilize more advanced econometric tools.

[93] A chance, but not a necessity. In fact, excessive use of various controls might hinder the clarity of the outcome and create a lot of unnecessary "noise" around the regression results.

[94] Here I refer to the austerity package and the economic downturn that was around Ireland at that time.

[95] For instance, Michael Noonan, TD, Minister for Finance, the "Father" of the 2015 Irish MIF Regulation is supposed to step down, which can theoretically affect further steps in implementation of the reform. In the end, Ireland is a small country, subject to small-country issues, including personality effect in decision-making. Luckily, institutional environment in Ireland is rather sustainable and developed, therefore leaving less possibility for any personality-related issues, which could appear as bias in the research.

Also, it could have been possible to capture the reform effect using benchmarking with one of the EU countries.

Here the author would like to underline that this option was initially considered for this research, so to use Northern Ireland as a control unit. Unfortunately, data limitations (only UK-level data generalization) and lack of proper mapping for data (definitions and dimensions in banking statistics do not necessarily always match between the UK and Ireland) made this option unviable for this research. Moreover, keeping Brexit in mind, the UK might get out of the EU by 2019. This could have already affected markets and created a shock that would have made comparison with currently available data hardly possible.

Another thing that could have been done is testing for different assumptions with regards to how the business responded to the shock. Leaving the technical side of the matter aside (as getting a new POS terminal takes about a week or so); there could have been a few scenarios of how the market reacted. One assumption could have been that many companies installed POS terminals in anticipation of the reform. The active lobbyism from different retail associations can stand for this point. Another assumption could have been that in case the market did not anticipate the reform, it could happen that mass POS purchases were made after the Christmas time, so a couple of months later. Moreover, it could be possible to model potential output in case the reform happened earlier or later within one year span (plus-minus 6 months from the actual date) and use some advanced modelling to predict the effect of the reform in this case. Again, data limitations were too severe and any predictive modelling or lagged effects are deemed hardly doable on a 20 months long dataset.

Finally, it would have been great to test the sensitivity of the outcome to various assumptions[96]. With current data limited to the given period and given country, it seems impossible to make any advanced steps, which, certainly, would have contributed to better understanding of how the reform affected the market.

So, in fact, the limitations were such, that it would be problematic to call the dataset used for this research utterly sufficient. Even though, the author tried to make usage of what was available and got some (well, of very contentious trustworthiness) results. They are discussed below.

III.V. Did the Interchange Fee Cap Change Anything: Quantitative Evaluation

To conduct the quantitative analysis of the 2015 Irish MIF regulation, database merged out of Central Statistical Office and Central Bank of Ireland data was created. It contained more variables that it turned out to be feasible to use.

Since the quantitative research serves as an auxiliary measure, and in light of no long-term data available, and the official (read – the EU) motion is that an ex-post evaluation might not be available to do earlier than in 2019, the regression analysis here was not exaggerated into the level of sophistication that could have been applicable, were there a few more years of observations after the reform and at least 2 full years before it.

As it was established in previous chapters, a lot of emphasis in the 2015 Irish MIF Regulation was made to the positive effect the regulation was supposed to deliver upon the Irish retail. Moreover, since the retail was one of the most active lobbying powers during the

[96] For example, Rosenbaum-Rubin type of sensitivity analysis.

negotiations preceding the implementation of 2015 Irish MIF regulation, it is natural that one would suggest looking at this sector.

Due to data limitation and as the consequence of it, the fact, that the econometric analysis as the part of this research is supposed to be rather taken *as is*, with further guidance on enhancement opportunities, a simple OLS model was selected to evaluate the reform. The question that is needed to be answered is, whether there is any effect of reform on debit card transactions made through POS terminal. Naturally, there are other factors that might have place, so the author chose to control for how much people spend on retail using their bankcards and how many cards were in hands of the people of Ireland in every given month.

The base model that was assumed to estimate the effect off the 2015 Irish MIF Regulation on the retail sector of Ireland is as following:

$$tran\_deb\_POS = \beta_0 + \beta_1 Reform + \beta_2 retail\_spend + \beta_3 card\_num + \varepsilon$$

- *Tran_deb_POS* is the variable spending with debit card made through POS terminals). This is a monetary variable, measured in EUR (000) per given month. This variable is the key focus in this research, as it is the one which is utilized to track for differences that the reform brought.
- *Retail_spend* is the total spending on retail made by bankcards (both debit and credit cards). This metric explains how much people were spending on the retail with cards and allows controlling for the increase in it, since it is naturally that increase in amount of money spend by card implies that a share of it is going to be made by debit cards through POS. This metric also comes in EUR (000), per given month.

- *Card_num* is the total number of bankcards (both debit and credit) that the people of Ireland hold in given month. This is measured in units (bankcards).
- *Reform* is a dummy variable that denotes whether the month belongs to a period when the reform was enabled or not. 1 = reform is active, 0 = otherwise. Since the assumption is, the reform changed the level of the trend on increase of transactions made with debit cards through POS terminals. Importantly, the reform was encoded as a continuous shock, not as a one-time shock.[97]

Table 3. Summary Statistics for Data Used in the Core Model.

Variable	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
Tran_deb_POS	20	2423495	308843.3	1931556	3143298
Retail_spend	20	1500035	237982.3	1215344	2148996
Card_num	20	1897830	13589.3	1881668	1917419
Reform	20	.65	.4893605	0	1

To reduce skewedness of data as well as to make sure that this approach will be scale-neutral (meaning, that this method can be utilized no matter the volume of transactions, number of cards etc., as logarithmized data provides percentage output instead of output in absolute terms). On top of avoidance of absolute numbers (which can be misleading), logarithmization gives a bit clearer picture of the role of reform. It might also make more sense policy-wise, though this consideration should have the note of data limitations, which were discussed previously.

After applying ln to the model, it changes to:

[97] So, in other words, reform happened and it holds, Christmas happened and its gone. That’s the difference.

$$ln\_tran\_deb\_POS = \beta_0 + \beta_1 Reform + \beta_2 ln\_retail\_spend + \beta_3 \text{ln\_card\_num} + \varepsilon$$

Here the results are as follows. 10% increase in retail spending made by bank card could be associated with an average 7% raise in volume of money which is paid with debit card utilizing POS terminal. Most importantly, the 2015 Irish MIF Regulation here seems to add 6.9% to the volume of transactions. The results might seem quite modest, and it might be a very rationale assumption, for the regression was biased with high R-squared (in other words, the model could have been overfitted). With current dataset, further advancement with elimination of the overfitting is impossible[98].

Table 4. Regression Results for the Core Model

New transaction made by debit cards with utilization of POS	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
Reform	.0692854	.0157322	4.40	0.000	.0359347	.1026361
Retail spending made with bank cards	.6965891	.052584	13.25	0.000	.5851159	.8080622
Total number of bank card in the country	.8218026	.9768014	0.84	0.413	-1.248924	2.892529
_cons	-7.130553	14.36315	-0.50	0.626	-37.57907	23.31797
Number of obs	20					
F (3,16)	113.93					
Prob > F	0.0000					
R-squared	0.9553					

[98] Here the author would like to underline that he did his best to address the issue. However, after a series of attempts of doing so, he concluded that at that point, data limitations did not allow for any other manipulation, that could have potentially led to decrease of R-squared.

New transaction made by debit cards with utilization of POS	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]
Adj R-squared	0.9469				
Root MSE	.02866				

Suggesting to temporarily turn blind eye at technical matters[99], the author would like to draw an attention to the physical meaning of the output. Well, the results could be interpreted that the reform did matter. And even if the output of the regression shows very little share of the increase of spending made through POS terminals, to which the Reform contributed, the absolute value of savings proposed by the estimation of the Department of Finance[100] (36M EUR per year) was based fully on the existing volume of retail sales, and did not include any projection on increase of retail sales that could have been generated by the availability of POS terminals.

Since the options for model enhancement were extremely limited, only two more possible steps could have been done to check, if there were any other factors engaged into increase or decrease of debit card spending through POS terminals.

The first thing which is feasible to control for is Christmas time, as it showed a repetitive peak in volume of transactions made by card. Therefore, a new variable is added to the regression:

- *Celebrations* is a dummy variable controlling for Christmas, as Christmas pushes spending every year and it is a seasonal even, which has nothing to do with the reform. 1 = November, December, 0 = any other month.

[99]Those do affect the policy suggestions at the end of this paper nonetheless, as they were properly considered by the author.

[100] Estimation was made in 2015, at the time when the Irish 2015 MIF Regulation was adopted. See details here: http://www.cmspaymentsintelligence.com/eu/blog/article/ireland-interchange/

Table 5. Regression Results for the Core Model + Celebrations.

New transaction made by debit cards with utilization of POS	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
Reform	.0557652	.0153391	3.64	0.002	.0230706	.0884597
Retail spending made with bank cards	.8517897	.0841134	10.13	0.000	.6725062	1.031073
Total number of bank card in the country	-.1472141	.9768905	-0.15	0.882	-2.229407	1.934979
Celebrations	-.065701	.0295068	-2.23	0.042	-.1285933	-.0028087
_cons	4.694247	13.91369	0.34	0.741	-24.96207	34.35057
Number of obs	20					
F (3,16)	107.83					
Prob > F	0.0000					
R-squared	0.9664					
Adj R-squared	0.9574					
Root MSE	.02566					

It seems, that if one controls for Celebrations, the effect of Reform on spending on debit cards via POS terminals deteriorates (now, Reform added only 5.6% to the spending). What's important is that Celebrations dummy seem to have strangely negative effect: in Christmas time, debit card spending through POS terminals goes 6.5% down. There could be at least two explanations for this phenomenon. First, this variable is just not good. Second, Christmas markets and many gift stores operating on Christmas might be prone to accept cash-only payments[101].

[101] The logic is, many stores are working seasonally only, so there's no need on POS terminals. To check this assumption at work, one might try to go to any Christmas fair in Europe and try paying with a bank card. The author failed badly trying to pay with a bank card on Christmas fairs in Budapest, Paris and Amsterdam.

Now, that is if we consider that there is no lag embedded into the process. Naturally, test for lags was also conducted, though the output was not put into the paper. The reason for it is that lagged results are obtained from the even more reduced dataset (due to lags). Conclusiveness of these results is even more questionable that the one of the Core Model.

Lagged coefficients, though, are not different and it seems that there is no lagged effect at all, or if it is, perhaps, it can be observed only with a longer period of research that is not available now. And considering the limitations, further drill-down of the data is deemed unnecessary at this point.

III.VI. Did the Interchange Fee Cap Change Anything: Qualitative Evaluation

Establishing qualitative effects of the Irish 2015 MIF Regulation could have been more successful with a better database. As for the qualitative effects, there one similar limitation to that of quantitative evaluation – time. Many qualitative effects can be observed only on a high level and only a few years later. Spanish and Australian cases can serve a great example for that.

For short-run, our qualitative evaluation is built on matching the achieved goals with the initial goal-setting of key stakeholders of the process, as summarized in Table 6.

The Irish retail and SMEs seem to have won the battle over MIF capping, as their objectives on stemming spending going from merchant to banks are met to the largest extent, compared to other stakeholders.

Visa and MasterCard might seem to have lost a battle, but not the war. In fact, processing companies can seek revenge by instigating banks to raise account fees, as it happened in Spain and Australia. And most probably, should they decide to do so, the gains could possibly exceed the losses.

Finally, the Irish Government seems to have partially fulfilled its targets. The Irish 2015 MIF Regulation enhanced the EU package. Unfortunately, not enough time passed to fully track the objective of improving banking sector and making card payments a better option for businesses.

Table 6. Stakeholder analysis ex-post summary.

Stakeholder	**Goals**	**Status**	Rationale
The Irish Government (Department of Finance)	1. Implement EU regulations	Achieved	EU 2015 MIF Regulation was successfully implemented.
	2. Create better banking services environment for the business in Ireland.	Unknown	Further research needed.
	3. Increase share of bank card transactions in the structure of payments	Unknown	Further research needed
Small Firms Association	1. Nullify MIF on debit cards and lower MIF on credit cards in order to decrease operational costs of the businesses.	Semi - Achieved	MIF caps are 50% lower than ascribed in the EU regulation
	2. Increase penetration rate for card utilization in retail.	Achieved	More debit card spending with POS terminals
Retail Ireland	1. Nullify MIF on debit cards and lower MIF on credit cards in order to decrease operational costs of the businesses.	Semi - Achieved	MIF caps are 50% lower than ascribed in the EU regulation
	2. Increase penetration rate for card utilization in retail.	Achieved	More debit card spending with POS terminals
Visa	1. Keep MFI at the maximum level allowed under new regulations in order not to suffer loss in revenue.	Failed	EU 2015 MIF Regulation was successfully implemented.

	2. Generate enough revenue for sustaining innovations and existing infrastructure	Unknown	Further research needed.
MasterCard	1. Keep MFI at the maximum level allowed under new regulations in order not to suffer loss in revenue.	Failed	EU 2015 MIF Regulation was successfully implemented.
	2. Generate enough revenue for sustaining innovations and existing infrastructure	Unknown	Further research needed.
BPFI	1. Protect interests of banking sector	Failed	MIF caps are 50% lower than ascribed in the EU regulation

If one compares the tactical outcome of the reform for stakeholders, one could find a noticeable similarity in who received benefits[102]. But if once could possibly assume that the way things were going to develop was similar to the one of Australia and Spain, there is one bad thing to anticipate – there is, and it might be so in future, that no evidence of benefits being passed to customers is provided. This is the concern one finds hard to address, and this is the very thing to consider, once there is enough data.

Another important thing to mention is matching of the goals that were set by the Irish Government, namely, increasing share of the card payments vs. cash payments and improving the banking system so to make merchants more prone to use it.

Increase of share of card payments is rather a matter of concern. The reason is, the evidence from other countries suggests that there will be an increase of cash payments from customers. As the banks might be willing to put costs of MIF capping to the customers, raising account fees (and

[102] (well, in the Irish case, the author would insist on calling this a "right to benefit", since there is no data to evaluate actual gains that merchants received from this reform)

the author concedes this to be a very rational step from banks' side), the customers might have to opt out using cash. As for the improvement of the banking system with focus on merchants, the outcome seems to be getting positive hues. Though further research is needed, the evidence states that the key beneficiary of the MIF capping, no matter the county, is the merchant.

To sum it up, mapping goals and fulfilment of them for the 2015 Irish MIF Regulation shows that although the final result is still unclear, it is likely to be similar to those of Australia and Spain. This implies certain policy steps that are suggested in chapter IV.

Chapter IV. Policy Implications

IV.I. To Regulate or Not to Regulate?

Regulatory decisions in general, and particularly those affecting financial markets tend to be complicated and are supposed to come with a reasonable quantitative and qualitative assessment before implementing anything new. We have seen in details that in the Irish case less than two years after the reform, the data part was quite troublesome.

First, it is not clear whether the underlying data was good enough to perform ex-ante or ex-post analysis. And not only the data used by the author, but any data, that could have been utilized in assessment of the aforementioned reform[103]. Importantly, since the 2015 Irish MIF Regulation was enacted simultaneously with introduction of the MIF cap as per 2015 EU MIF regulation, it is deemed impossible to separate the effect of the two at this point of time. And as there was no data the author could have utilized to crystallize the pure effect of the Irish reform, it seems, the Irish Government or the authority in charge would be unlikely to do so either, at least, in short-run.

Second, the decision-making process was not necessarily hasty, but it was presumably not well thought-through. It seems that there was no unified research dedicated to the matter, an obstacle, which might underpin a serious flaw in the expectation setting from the reform. It means, targets set up by the Irish Government might not be met either at a scope anticipated, or within the projected timeline.

Moreover, evidence raised by process stakeholders suggested that the interchange fee cap could not serve an example of improvement of consumer benefits. This is mostly / among others

[103] Possibly, data issues could have also affected the decision-making process from the Government's side, but the author would avoid going into further speculations on this matter.

partly because the generated economic benefits were not extended to consumers, but withheld by retailers[104]. Although the concerns expressed were quite serious, there was still no quantitative response as to whether the policy experiment is supposed to bring any good or not.

From the prospects of policy building and the general tendency of unification in the EU financial market, the multilateral interchange fee cap as such might be a good idea. The Irish decision to introduce an extra measure, though, could have been based on the outcome research for the EU MIF cap and be introduced later. This would have allowed creating a better strategy for the MIF capping. And did the MIF cap in EU prove its efficiency, Ireland could have introduced a 0 cap (the one the Irish retail was actively advocating for). And so, the first policy message is: *there should be more research before the introduction of any reform (and particularly, the one, where the outcome is deemed by the very initiators of the reform as "uncertain")*.

From the prospects of allocating benefits generated by the reform to customers, Ireland seems to have arrived into the same field as Australia and Spain did. Namely, the merchants did receive the savings benefit worth millions of euro, but there is no evidence if consumers have any share in it. And this allows for the second policy message that the author finds important to specify: *in case there are benefits of the reform, which is deemed to serve for the common good of population, the population must have a fair share in it*. It seems to be the responsibility of the Irish Government to provide accordingly – to undertake further steps in re-allocation of cost savings from the merchants to the customers.

From the prospects of competition regulation and engagement of the State into the economy, it is likely the Irish case might serve an example of a hasty decision-making process without proper evaluation of potential positive and negative externalities. Since there were cases

[104] See reviews of Australian, Spanish experience in introducing interchange fee caps (see I.II Literature review).

of Australia and Spain, which the author believes the Irish Government was aware of, it could have been beneficial to somehow anticipate negative effects of the reform and mediate them within the project of the regulation, not leaving the fixes to an ex-post evaluation (read – to another Government, which will have very little responsibility for the reform itself). Thus, the last policy message to the Irish Government is: *the worst-case scenario is the one which should be properly addressed in the regulation; a certain roadmap of how to eliminate negative effects of the reform should also be in place.*

All in all, the overall evaluation of this reform, based on analysis of documentation, industry comments and quantitative analysis, is following. The effects shown in short-run might look positive. However, the main set of changes that is important (and that seems likely to happen, , based on cases of other countries introducing MIF caps) is unobserved due to data limitations. The full aftermath of the reform is likely to be seen within similar timeline as in Spain and Australia – 5 years after the reform.

IV.II. The EU Speaks

Evaluating the effect of the regulation, even if almost 18 months passed since then, seems to be rather tricky. First, there is simply a data collection issue. Even if the Irish Central Bank and CSO provide certain data with monthly granularity, one-year (one and one quarter at best) observations are rather insufficient. In this paper, there is a subchapter dedicated to data limitations and a wide array of assumptions, which are sufficient to consider the work done valid. Moreover, it is important to understand that even if there was full data coverage as of today, ex post evaluation could still have been complicated by the parallel occurrence of at least another important shock, Brexit[105].

A good proof for existence of this issue would be the reform assessment estimation performed by the European Commission itself. In June 2016, the EC made a press release[106], where they clearly stated that as of 9th of June 2016, the EC had not finalized data collection to establish the market conditions before the reform[107]. The report that would tell the public if the reform was successful or not is anticipated in 2019.

Country-wise, this issue might differ. On one hand, there has not been any significant evidence that the Irish Government had conducted proper research beforehand (to be honest, there has been no evidence which would have proven otherwise either). However, recent developments in some EU countries, including the UK, suggest that there has been a very strong miscalculation of the corporate behavior and potential response to this issue. For example, many UK companies incorporated interchange fees change into the price that the customers pay at the time of purchase[108], whereas banks simply cancelled many benefits that the customers used to have. In fact, those benefits were cut to substitute interchange fee costs that were formally cut from the MIF.

[105] Which did stipulate many companies to consider Ireland as a new place of their HQ. Importantly, this applies to many banks and fintech companies, which are related to banking services. Did at least a fraction of this companies move and start operations in Ireland, domestic market would have experienced higher competition and therefore the price pressure on bank services would have been made even bigger (and therefore hide the effect of the regulatory changes as discussed in this paper).

[106] European Commission, 9th of June 2016. Press Release - Antitrust: Regulation on Interchange Fees. Link is provided in the References.

[107] I would probably wave my right to suggest how badly thought-through the reform was therefore. It appears that the EC had not have even started the data collection at the time when the reform was enforced and had therefore very little information on the actual state of the market.

[108] You can find a table with various companies and examples of how the MIF has been incorporated into the processing fee charged against customer in this article in the Telegraph: http://www.telegraph.co.uk/personal-banking/credit-cards/eu-ban-on-creditcard-fees-backfires--youll-still-pay25pc-to-spen/

The above considerations might not happen in Ireland at all, however, it would be reasonable to keep an eye out for them. Unfortunately, the banking sector does not implement changes so quickly that it could have adjusted within one year of observations. The "bank response" question would be still valid for another year or two, until the proper amount of data is available for evaluation.

All in all, the EU is now silent of the MIF reform, and it seems to the author that there are issues of higher importance for Europe, which can possibly drive the attention away from financial reforms[109]. And if this does not hold true, there will still be no EC evaluation until 2019. Currently yet, there are no publicly available[110] plans of the Irish Government to conduct evaluation studies either.

[109] Brexit, ongoing financial crisis in Greece, weak financial state of Italy to name a few.
[110] As of 5th of June, 2017.

Conclusion

Even though the initial goal of the thesis was to conduct a more data-driven ex-post evaluation, the implementation of a multilateral interchange fees cap in Ireland turned out to be insightful to analyze. Interestingly, the necessity of regulation of MIF and to what degree, at which those should be regulated drew argument between key stakeholders of the reform process in Ireland.

The analysis showed that in Ireland it is retail and SMEs who won the regulatory war and pushed a lower MIF cap compared to the general EU regulation. Also, the quantitative effect estimation of the MIF cap on retail was performed in line with answering the research question. Unfortunately, those results are preliminary, which was due to data scarcity and methodological restrictions, created by it. Future research steps were advised accordingly.

It seems to be intuitive, and the preliminary research outcome allows for the assumption, that the MIF cap could be bearing a positive change for the businesses and for the consumers. However, this needs to be proven through a wider range of observations and longer research horizon, exceeding the one at the disposal of the author as of now.

Importantly, there is evidence that Ireland was and is replicating the path of Spain and Australia in how the benefits of the reform are allocated. In fact, the author could track that key beneficiaries in Ireland seem to be the same group, as it was in Spain and Australia.

The author suggested a few general policy steps. In his opinion, were they introduced by the Irish Government, it could have improved the output of the reform even in short-run. Unfortunately, there might be no "ideal" reform that one would be able to put on the table as the "best practice". Therefore, the steps mentioned are rather suggestions than the guarantee of the success for the policy-making process in the country.

Finally, the author will take courage to express his own opinion on the matter. Leaving theoretical and policy-targeted approach aside (though, it might be useful to note that the author adheres to Austrian Economic School in economic thinking, which imposes a certain attitude to evaluation of the role of the government in regulating the economy), the message the author can deliver now is “Let’s wait, so to make no harm”. The preliminary results, depending on which side of the argument one is on, might be encouraging or discouraging, what matters is whether it can be for sure that they are correct. To ensure so, and to be able to separate the EU 0.2%/0.3% cap effect from the Irish 0.1% cap effect, one will probably need to be patient, until more data is available and better quantitative methods are available to be utilized.

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Addendum

Addendum 1. Regulation (EU) 2015/751 Implementation Timeline

Source: EC, summary by Eversheds International

Timeline	Changes
08 / 06 / 2015	Ban on "steering rules" comes into force (Article 11)

09 / 12 / 2015	• The new interchange fee caps come into force (Article 3 & 4)
	  ○ Debit card transactions – Domestic: 0.2% of the value of the transaction or a per transaction fee of no more than €0.05 with a 0.2% cap and International 0.2% of the value of the transaction
	  ○ Credit card transactions – Domestic: 0.3% of the value of the transaction but Member States may define a lower cap and International: 0.3% of the value of the transaction
	  ○ "Universal" card transactions – 0.2% of the value of the transaction or a per transaction fee of no more than €0.05 with a 0.2% cap and 0.3% of the value of the transaction for those transactions treated as credit card transactions
	• Territorial restrictions within the EU are prohibited (Article 6)
	• Payee's payment service provider (PSP) must provide the payee with a breakdown of the charges for a card transaction including the interchange fee and the merchant services charge (MSC) (Article 12)

09 / 06 / 2016	• Payment card schemes and processors must be independent, and cannot present bundled prices for both services (Article 7) • Any rules hindering the co-badging of two or more payment brands or applications are prohibited (Article 8) • The acquiring PSPs must offer and charge MSCs to the payees on an “unblended” basis (Article 9) • “Honour all cards” rule is abolished (Article 10)
09 / 12 / 2016	• Member States may no longer define a share of no more than 30% of the domestic payment transactions for “universal” cards to be treated as credit card transactions (Article 16)
09 / 12 / 2018	• Three party payment card schemes are no longer exempted from the Regulation (Article 1)
09 / 12 / 2020	• Member States are no longer allowed to permit PSPs to apply a weighted average interchange fee (Article 3)