



PAYSYS REPORT

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1. Impact analysis of IF-Regulation: The loser is.....

The study on the application of the Interchange Fee Regulation (IFR) commissioned by the European Commission and carried out by EY/CE puts the IFR reduction at € 2.7 b. The main winner of this multi-billion euro cost redistribution is the acquirer. The only and big loser is the card issuer. The consumer can benefit from the IFR through general retail price reductions. The results of the study raise several questions, also in view of the results of the similar EDC study.

Appendix: Some critical comments on the methodology of the Study on the application of the Interchange Fee Regulation by Ernst & Young and Copenhagen Economics (EY/CE)

2. Has the IFR boosted the European card business?

Both Interchange Fee Regulation (IFR) assessment studies (EDC and EY/CE) refrain from analyzing the impact of the regulation on card payment volumes. The statistics for the euro area show that the growth in card payments was significantly higher in the post-IFR period than in the pre-IFR period. This growth could be caused by the increase of consumer payments, the medium-term structural change of payment habits away from cash and the wider card acceptance as impact of the IF-reductions. As result of this first rough estimate of the impact of these three factors, the IFR effect accounted for about 25% of the additional card volume in 2018 (compared to 2015).

Impact analysis of IF-Regulation: The loser is.....

(hg) In the last issue of the PaySys Report we compared the partially contradictory results of the two recently published assessment reports on the Interchange Fee Regulation 2015 (IFR). In addition, we critically reviewed the methodology and the results of the study by Edgar, Dunn & Co (EDC)¹, commissioned by Mastercard, which were contradictory to the market data and development. In this issue we want to take a closer look at the IFR analysis by Ernst & Young and Copenhagen Economics (EY/CE)², which was commissioned by the European Commission. A "leaked"

draft version of this analysis has already been in circulation since December 2019 and discussed in a German blog³. However, the official final version, published on 11 March 2020, differs considerably from the draft version. The results of the EY/CE study will be included in the still pending report of the European Commission on the application of the IFR to the European Parliament and to the Council. For this reason alone, it is worth taking a closer look at this analysis.

Our Comment:

The eco-system of a payment scheme is intrinsically a 2-sided market of payers and payees. Each market side of the system can pass on its costs to the respective users. However, in some payment systems, a monetary balance between the two sides is useful and appropriate for system optimization. One such balancing payment is the interchange fee for card payments in 4-party card schemes, like Mastercard, Visa and domestic schemes. This means that the payee side (card acquiring) bears part of the costs of the payer side (card issuing). So much for the theory.

The caps prescribed in the IFR (0.2% for consumer debit cards, 0.3% for consumer credit cards respectively) inevitably led to a reduction in IF payments from acquirers to issuers. Assuming that ultimately the users bear the costs of a system, the IFR led to a reduction in the burden on merchants and an additional burden on cardholders (the scenario assumes that competition functions on both sides of the market). A change in the IF is thus a direct redistribution of costs between the system providers (issuers and acquirers) and leads to corresponding direct price effects for users.

However, the Commission's intention in reducing the

IF was to achieve price advantages for both user groups (payers and payees). In the long run, the consumer was supposed to be the winner of the price regulation. The Commission's reasoning is as follows: The acquirer passes on his cost reduction to the merchant by means of lower service charges (MSC). The merchant then lowers his prices and all consumers benefit. In the ideal case, the entire cost reduction of the acquirer is passed on to the consumer (100% pass-through).

Cost redistribution: no zero-sum game

Theoretically, this balancing act can only succeed if the issuer does not compensate for its reduced revenues by raising prices for the cardholder (directly or indirectly by reducing the quality of the card features). Otherwise, the IF reduction acts like a zero-sum game. What the consumer gains through lower consumer prices, he loses again through higher card fees (since most consumers are also cardholders, we will refrain from differentiating between the two groups here for the sake of simplicity). So if we take the indirect pricing effect (general price level of goods and services of card-accepting merchants) into account, the redis-

tribution of IF costs could be theoretically a zero-sum game for all players.⁴ Potential winners are acquirers and merchants who manage not to pass on 100% of the cost reduction to their respective customers. Potential losers are the issuers, who are unable to pass on their additional costs in full to cardholders through price increases. However, the cards are not equally distributed in the game. The player who can lower his prices has an easier game compared to the one who has to raise his prices.

The cost redistribution by the IFR can be a zero-sum game, it is definitely not a win-win game. If the IFR reduction - in accordance with the Commission's objective - is to lead to financial benefits for the consumer, there must also be one or more losers. These were not, of course, explicitly mentioned in the recitals to the regulation in 2015. In contrast to the Commission, the international card schemes expected that in any case the cardholders would lose out.

In our previous issue of this report, we presented and discussed the outcome of the EDC assessment analysis. According to EDC, the winners are

- acquirers (higher margin)
- merchants (lower MSC)

The losers are:

- issuers (IF revenues losses only partly compensated by higher card and account fees)
- cardholders (higher fees; no pass-through of merchants to consumers by lower prices)

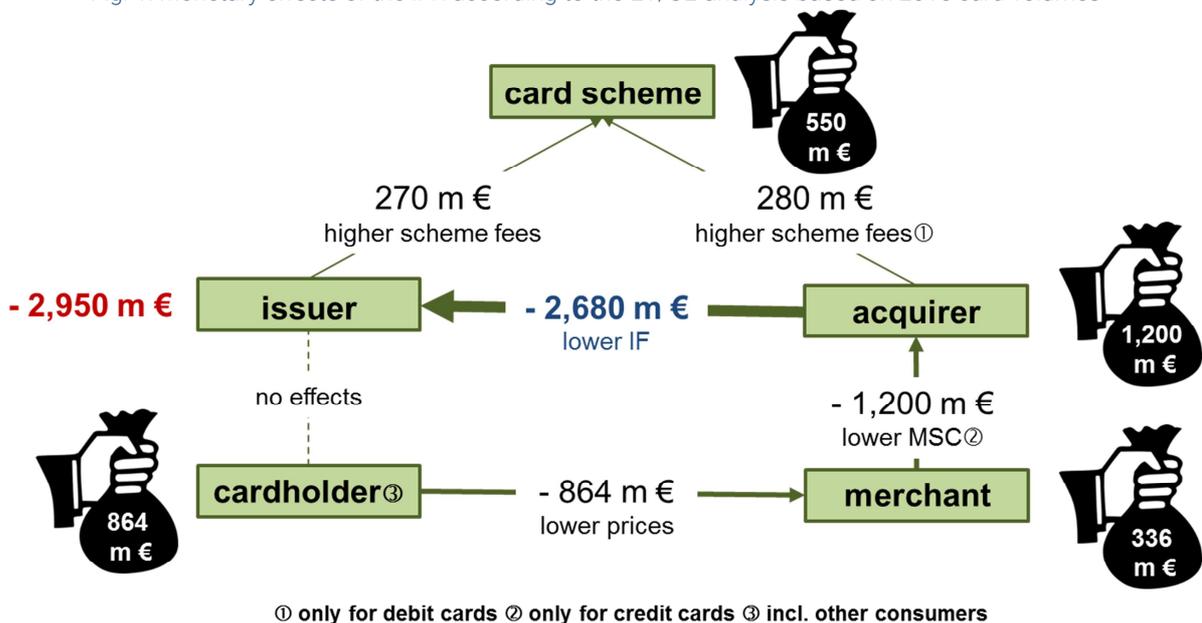
The IFR seems to be neutral regarding the revenues of the schemes by scheme fees (excluding volume effects).

Monetary effects according to EY/CE

The analysis of EY/CE comes to different conclusions. The only loser here is the issuer. The card issuers not only have to cope with the IF shortfall of €2.680 million, but also with rising scheme fees of €270m for card schemes. See figure 1. They have apparently not succeeded in generating additional income through higher prices (or fewer card features) on the cardholder side.

According to the EY/CE analysis, the acquirers are the biggest beneficiaries of the IFR with a net result of € 1.200 m. Less than 50% of the IF savings were passed through to the merchant via lower MSC (nota bene: only for credit card transactions). It looks like merchants are well advised to opt for an IF++ contract. The IFR has acted like a huge stimulus package for acquirers. This result will certainly not please the European Commission as initiator of the regulation and

Fig. 1: Monetary effects of the IFR according to the EY/CE-analysis based on 2015 card volumes



The consumer in general should be the winner of the price regulation.

The rejoicing over the savings of about € 1.70 per inhabitant will be limited.

client of the study.

Only €336 m remain with the merchant, as he passes on 72% of his IF-related cost reductions to the consumer via general price reductions. The estimation of the pass-through rates "merchant-to-consumer" is tricky since a direct measurement is not possible. For the estimation and prediction of the pass-through rates, EY/CE used an extended model of available empirical data of the food retail sector in 5 representative Member States (Germany, Denmark, Greece, Italy and Poland), extrapolating the results to the full EU-28. According to the model's prediction, the consumer can enjoy lower prices of € 864 m p.a. The rejoicing over the savings of about € 1.70 per inhabitant will be limited.

The metric results are based on the change in the respective market conditions in 2017 (post-IFR) compared to 2015 (pre-IFR), extrapolated on the basis of the volume of card payments of all Member States (EU-28) in 2015.⁵

However, the European Commission seems to be satisfied with the impact of the IFR - as being calculated by EY/CE - since the objectives apparently have been achieved. The Commission's press release of 11 March 2020 stated: *"The study,..., finds that the main objectives of the Regulation have been achieved, as the interchange fees for consumer cards have decreased by 35% (around EUR 2,6 bio. per year) between 2015 and 2017. This decrease has resulted in lower charges for retailers as well as benefits to consumers through lower retail prices."*⁶

For me it is debatable whether the objectives have been achieved when only 45% of the IF reduction reaches the payment users.

The winner takes all, the loser standing small.

The study says little about the issuer as the IFR's only major loser, except that it can partially offset its IF losses with income from the growth in card payments since 2015. The issuer is doubly penalised. In addition to the decreed decline in IF, the Card Schemes also charge higher fees. However, there is no sign in the EU of the issuer dying out as a result of IFR. To achieve its objective (generating monetary benefits for merchants and consumers), the Commission has tacitly assumed that issuing in the pre-IFR period is highly profitable. A reduction of these unreasonable issuer profits would be quite tolerable, according to the Commission's calculations. It is also conceivable that the issuers cross-subsidise the card business by other business. In several markets, issuers are also involved in acquiring business. Thus, they are losers and winners at the same time.

Finally, the statement of the EY/CE study, according to which the expected increase in card fees and banking fees didn't happen, must be questioned. EY/CE stated that *"the survey data is limited in this area"* (p. 130). The EDC study mentions additional fee and interest income of €7.3 b for 2018 compared to 2014. Here the results are extremely divergent between the two analyses.

Total IF reduction of €2,680 m

The EY/CE study estimates the reduction in IF for the EU-28 as a whole at "only" €2.680m, generated primarily in three Member states (Germany, Italy and UK). This result is quite surprising at first sight. The European Commission (EC) had calculated the reduction to around €6b in the Impact Analysis (SWD(2013) 288 final; p. 203) presented in 2013. The Commission's

estimate was based on the European card payment volume in 2011. EY/CE calculates the reduction on the basis of the much higher volume in 2015 compared to 2011. The result is nevertheless lower, as the Commission assumes much higher IF rates (starting point 2013) than EY/CE (starting point 2015). The EDC study takes the average IF rates of 2014. If we compare the results of the three estimates, there are significant differences in the level of the IF reduction (in basis points) for consumer debit and credit cards. See figure 2.

If we relate the estimated reductions of the three analyses to the same card payments volume in 2015 (2,851 €b, thereof 2,113 debit cards), we can compare the results:

Table 1: Results comparison between EY/CE, EDC and European Commission (based on EU card payments volume of 2015)

IF-reduction (€b)	debit cards	credit cards	total
EY/CE	0.8	1.9	2.7
EDC	5.9	3.1	9.0
EU COM	4.4	3.5	8.0

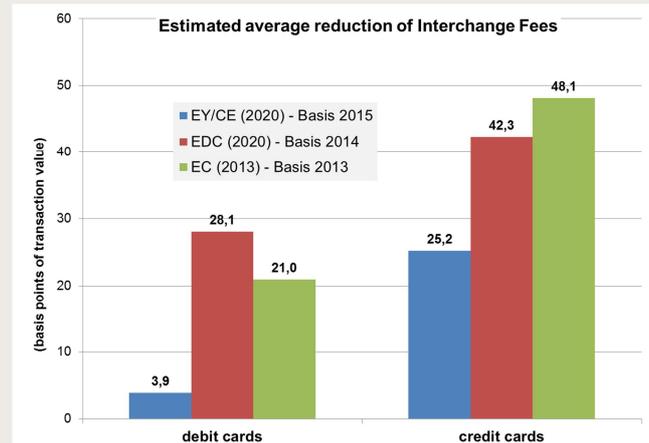
With the result of € 2.7 b, the EY/CE study deviates considerably from the results of the other analyses, which are about three times higher. The key question is therefore the correct level of average IF rates for consumer debit and credit cards in each Member State in the pre-IFR period compared to the rates in the post-IFR period.

The Commission's calculation at that time was rather rough. As a rule, only the domestic IF rates of the Visa and Mastercard schemes were used, without taking into account the lower IF rates of the domestic debit card schemes and the rates already reduced to post-IF level for cross-border card transactions within the EU (intra-regional IF).

If we leave aside the Commission's estimate at that time, however, the huge differences between the results of EDC and EY/CE remain. EDC compares IF rates in 2014 vs. 2018, EY/CE in 2015 vs. 2017. If both results are correct, there must have been significant IF reductions in several Member States in the pre-IFR period 2015 compared to 2014 (we can rule out an increase in the post-IFR period). EY/CE suspects that

in some Member States national IF regulations became effective before the cut-off date for IF reduction (9 December 2015) and that some schemes anticipated IFRs in advance. In the analysis, however, concrete indications of such events during 2015 are omitted.

Fig. 2: Results comparison between EY/CE, EDC and European Commission



Fact-checking: Average IF for Germany in the pre-IFR period

In contrast to the EDC study, EY/CE at least publishes data on national average IF rates for debit and credit cards. We have reviewed the results of the EY/CE study for Germany, because we have good IF data from schemes, issuers and acquirers here. The following average IF rates are given for 2015 (domestic & intraregional)

- Debit cards: 0.22%
- Credit cards: 0.65%

The debit card IF rate is not unrealistic regarding the dominance of the domestic scheme "girocard" with an average IF slightly below 0.2% in 2015. The average of 0.65% for credit card payments seems to be too low regarding the general domestic IF (chip) rate of still 1.4% of the leading scheme Mastercard (dated June 2015). All sector specific IF rates were between 0.8 and 1.0% except petrol stations (0.68%). However, due to the considerable volume of intraregional payments by German credit card holders (about 35%), remunerated by an already capped IF of 0.3%, the average IF might actually have been around 0.7% according to data for 2015 from several German card issuers. At least Mastercard lowered its average domestic IFR rates for Germany by about 20 basis points in the run-up to the IFR in 2015. This confirms the assumption of

By the way, regarding the metric results for Germany there is a remarkable curiosity. Did you know that in Germany, merchants pay the lowest fees in Europe for accepting debit cards? So far, we would have thought that the Netherlands would be the frontrunner. Far from it. According to EY/CE (p. 144), the MSC in Germany was only about 0.05% in 2015, anyway, it has doubled to about 0.1% in 2017 (the European average for both dates is 0.32%). In the same period the German IF for debit cards decreased from 0.22% to 0.19% (p. 172). Have German acquirers really been operating the debit card business with a negative acquirer margin (MSC minus IF minus Scheme Fees) for years? After all, according to these curious figures, German debit card acquirers were able to halve their arithmetically huge losses in this period. At this point, we have serious doubts about the accuracy and the interpretation of the survey data.

the EY/CE study. For this reason, the reference year for calculating the IFR-reduction (2014 or 2015) is decisive.

If both calculations for the IF reduction "pre vs. post IFR" are correct (EDC: € 9 b compared to 2014 and EY/CE: € 2.7 b compared to 2015), the actual IF-reduction (minus € 6.3 b) apparently took place much earlier in 2015 and not only from 9 December 2015. A questionable result.

Huge differences between the results of EDC and EY/CE remain.

The second question that arises is the correct reference year. If the IF reductions in the pre-IFR period were already anticipated by the schemes, these reductions should be taken into account as an effect of IFR. For this reason, the reference year 2014 or even 2013 (Commission's IFR proposal) would be more appropriate.

Preliminary conclusion

The calculated result of the IF savings of €2.6 b is not only questionable in view of the significantly higher result of EDC. The result is obtained by multiplying the average IF savings (debit cards: 3.9 bsp; credit cards: 25.2 bsp) for the EU-28 by the total payment volume of cards issued in the EU 2015 according to ECB statistics (€2,851 b). For several reasons this multiplier is too high (see Appendix). So, applying the correct volumetric figures the EY/CE estimates should be even lower. This would make the gap between the estimates of ED and EY/CE even wider.

The worth reading EY/CE study includes not only the calculation of IF savings and their consequences for the players, but also a number of other interesting topics, such as the consequences of the business rules contained in the IFR (e.g. application choice for co-badged cards, separation of scheme and processing) as required by Art. 17 IFR. Here, too, there are partly differing results from the EDC study (see also the previous issue of the PaySys Report). The results of these topics will not be presented here and may be discussed in more detail in a future PaySys Report.

The issue of scheme fees will also certainly become a topic of discussion at the EU level. EuroCommerce stressed this issue in its new report "EuroCommerce submission to the EU Interchange Fee Regulation Review (Feb. 2020)"⁷. Again, both studies show astonishing differences. EDC comes to the conclusion that network fees (scheme fees plus processing fees) have slightly decreased on a transaction basis, while EY/CE notes an increase for both sides (issuing and acquiring). It is also noteworthy that the EY/CE study only

found higher scheme fees for debit cards on the acquiring side. At least in Germany and the UK, acquirers are also complaining about higher scheme fees for credit cards. Why do facts from the same sources obviously lead to different results?

Comparing the outcomes of both studies, Peter Sideinius, responsible for the EDC study, stated recently: *"Instead of rushing into premature amendments, we believe that the European Union should allow further time for the impact of the current regulation to develop within the market so a full understanding of its effect on merchants and consumers alike can be established."*⁸³ We agree!

Acquirers are the biggest beneficiaries.

Last but not least: Are prepaid cards not subject to the IFR?

In its calculations, the EY/CE study does not consider prepaid card figures.

The reason for EY/CE's exclusion is a strange legal interpretation of the relevance of e-money. The survey of market participants by EY/CE was accompanied by a document containing definitions.⁹ A distinction is made here between prepaid cards and electronic purses:

"A prepaid card is different to an "electronic purse". For an electronic purse an amount of electronic money can be stored on the chip of the card or on a central server,

which is debited when a payment is initiated. From a European legal perspective, such payment instruments are not regulated as card payments but as e-money. Hence, electronic purse payments are not in scope of this survey."(page 7)

It is not clear whether the Commission or EY/CE is the author of this text. In any case, the Commission agrees with this view.

According to the Commission (and EY/CE), prepaid cards are subject to the IFR except e-purses. Usually the term "e-purses" is linked to the 1990s e-money products, where digital money was stored on the chip of a card. These products are becoming obsolete in the EU market. E-purses according to the above-mentioned definition also include account-based or server-based e-money. Therefore, all e-money products (card based or not) are e-purses according to this definition. So, prepaid cards are included except prepaid cards linked to e-money. Therefore, the payment volumes of prepaid cards linked to e-money are not included in the study.

However, transactions with prepaid cards are subject to the IFR if these cards are payment instruments related to e-money funds, stored on the card or on a server. According to Art. 2 IFR, a prepaid card transaction is subject to the same IFR requirements as a debit card transaction (e.g. IF-cap of 0.2%). Therefore, all e-money related prepaid cards (including the former chip storage e-money) should be included in the IFR review analysis. To be sure, there are exemptions, however only for products such as, e.g. commercial prepaid cards, prepaid cards issued by three-party-schemes etc.

Apparently, the EU Commission does not know its own regulations. If its new *"European legal interpretation"* were correct, there would be an interesting option how to circumvent the IFR elegantly and legally.

Appendix:

Some critical comments on the methodology of the Study on the application of the Interchange Fee Regulation by Ernst & Young and Copenhagen Economics (EY/CE)

EY/CE calculates the total decrease in IF (€2.682 b) by multiplying the estimated IF changes (debit cards: minus 0.039%; credit cards: minus 0.252%) by the respective volumes of card payments (debit & credit) according to the ECB statistics for 2015 (€2,851 b). The changes in IF rates refer to the national and intra-European payments with consumer cards which are affected by the caps.

However, the volume of card payments according to the ECB refers to all cards issued in the EU-28 and all sales transactions made with these cards worldwide. The figure therefore includes sales of cards under the three-party schemes and commercial cards, as well as sales outside the EU (interregional), which must be deducted. In addition, sales of prepaid consumer cards, which are not included in the ECB statistics under debit and credit cards, are missing. These must be added. This figure must therefore be adjusted for methodological reasons.

Moreover, the ECB statistics for the EU-28 still contain a serious error in this statistical position. Since 2013 the Bank of England has been reporting not only card payments (sales) but also ATM withdrawals. Since the British generate roughly one-third of all EU card payments, this error by the BoE is of considerable significance. For 2015, 260 billion euros (UK ATM withdrawals) must therefore be deducted.¹⁰

A rough calculation leads to the following result:

Table 2: Adjustment of the relevant card payments volume (2015) as multiplier

	€ b	Comments
Total transaction value EU-28	2851	Source: ECB
ATM-withdrawals UK	-260	Source BIS
	2591	
payments by 3-party-cards	-130	5% (PaySys estimation)
	2461	
payments by commercial cards	-148	6% (PaySys estimation; excl. Amex)
	2314	
interregional payments	-69	3% (PaySys-estimation)
	2244	
payments by prepaid cards	20	Source: ECB (excl. UK)
	2264	

Based on the IF reductions (in %) calculated by EY/CE, the relevant card payment volume will have to be adjusted by approximately 20% (minus € 587 b) in 2015. Assuming that cash withdrawals in the UK are mainly made via debit cards and that three-party and commercial cards are generally credit cards, the reduction in turnover can be divided roughly equally between the two types of card. Based on the IF rates estimated by EY/CE and taking into account the relevant card payment volume, the IF reduction for 2015 is approximately €1.8 b (instead of 2.7 b). Taking the relevant card payment volume will also affect the extrapolation of the scheme fees, paid by issuers (€ 270 m) and acquirers (€ 280 b) and the reduction of MSC (€ 1,200 b).

The calculation of the IF reduction for the EU-28 is based on ECB (2015) issuing data, as shown above. In contrast, the card sales at physical POS terminals published by the ECB are used for extrapolating the IF changes per Member State and for the pass-through effect "merchant to consumer". However, these acquiring volumes do not include card-not-present card sales, which account for approximately 15.3% (value) on the issuing side. Furthermore, the authors of the study made the mistake of including all POS sales reported by the ECB at country level. Accordingly, the POS sales made at POS terminals installed abroad by domestic PSPs are also included. This leads to double counting.

This methodological change not only leads to much too low volumes, but also to inconsistencies. It is incomprehensible why the entire analysis was not conducted only on the basis of the issuing data.

Has the IFR boosted the European card business?

(hg) According to the IFR, the IF caps were applied from 9 December 2015, and as EU data on card business is not yet available for 2019, the metric effects of the IF caps over the last 3 years (YE 2015 - YE 2018) can already be considered. The card business has been growing continuously for many years. The question arises whether the reduction in IF and thus the cost redistribution from the acquiring to the issuing side has rather impaired or promoted growth? An analysis of card payments in the 3 years up to the end of 2015 and

in the 3 years thereafter is suitable for this purpose. In these 6 years (2012-2018) the value (in €) of card payments in the EU increased by almost 50% from € 2,109 b. to € 3,151 b. Both IFR assessment studies (Edgar, Dunn & Company and Ernst & Young/Copenhagen Economics; see previous article of this report) refrain from this pre-IFR vs. post-IFR analysis, although the topic is almost indispensable. Here we make a first attempt at an analysis.

Our Comment:

If the IF is the device to optimally balance the card business in a two-sided-market, then the "right" level of the IF theoretically leads to an optimal result, i.e. to maximum volumes. Now this optimization of the card business was certainly not the political objective of the IFR, even though the Commission tried to justify the level of IF caps negotiated with the schemes in retrospect by theoretical considerations (keyword "merchant indifference test").

In the recitals of the regulation we find beside the usual EU-buzzwords (more internal market, competition, innovation) targets like pan-European harmonization of national IF-regulations (recital 13) and setting "*fees at an economically efficient level*" (recital 22). At the end of the day, the Regulation should benefit merchants and consumers (recital 9 & 20) or just consumers by lowering payments costs (recital 10 & 11). The question therefore arises as to which volume effects were triggered in the market by this politically motivated price regulation. Is the new position of the balancing device better today than it was in the pre-IFR period?

As a result of the reduction in the IF, the willingness to accept cards is increasing among those merchants who have so far only accepted cash or, in ecommerce, other inexpensive means of payment (invoice, direct

debit). If the cardholder is not charged additional fees by his issuer (due to the lower IF revenues), the card payment volume will increase. So much for the theory.

Both IFR assessment studies (EDC and EY/CE) describe the significant growth in card payments in the post-IFR period. But they do not really provide a thorough analysis of IFR reduction on card volumes.

According to the EDC (p. 16), the drivers behind the significant growth in card usage since 2014 are:

- Significant growth in the use of contactless, e-commerce and cross-border activity,
- Initiatives to migrate from cash to electronic transactions,
- Organic growth.

The intensified usage of card payments in e-commerce and cross-border sales and the convenience of card payments at POS-terminals through contactless technology are certainly drivers behind growing card payments volume. But who are the drivers of the additional usage of the cards in these segments?

The growth of contactless and card-not-present card usage could also have been fueled by lower IF for

these specific segments. For example, in Germany a contactless low-value payment of 5 euros by a Visa debit card in the pre-IFR-period of 2015 still generated an IF of 0.8% (post-IFR: 0.2%).

Card acceptance

The EDC study found a low increase of card acceptance of just over 2% from 2014-2018 (p. 27). EDC concludes: *“The growth in acceptance of regulated payment card brands was much lower than the growth in transaction and value, which argues that the growth in cards usage is due to the pre-existing initiatives rather than a result of the IFR.”*(p. 16).

The EY/CE study comes to the different conclusion that card acceptance has increased significantly measured for the **brick-and-mortar segment** by the number of merchant outlets (+11%) and POS terminals (+50%). Nevertheless, the study states: *“However, we find no evidence that the increase is larger after 2015 than before 2015, which means that the increase may not only be due to the IFR.”* (p. 15).

The only source for the increase in outlets is a not freely available RBR analysis. The 50% increase in POS terminals (2014-2018) is based on verifiable ECB figures. However, the study does not show details of an analysis of terminal growth in the pre-IFR period (p. 160¹¹). The statement quoted above thus stands on shaky ground.

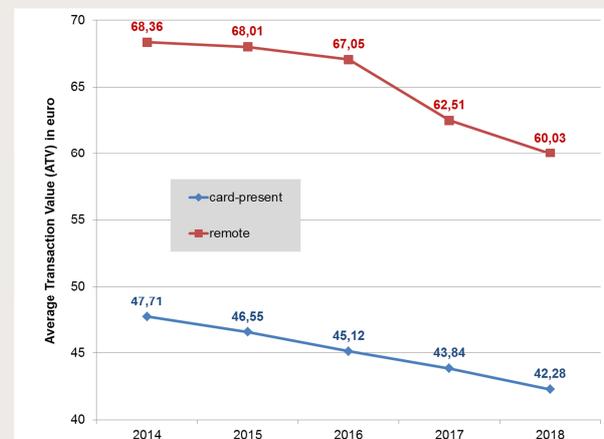
The above-average increase in card payments in **e-commerce and for digital services** is undisputed. Since 2014, the share of remote card payments (card-not-present) of all card payments (excluding e-money based card payments) increased from 12.7% to 16.9% (2018) in the EU.¹² It is very plausible that the lower MSC triggered by IFR has significantly improved card acceptance in e-commerce.

The causality between higher acceptance and higher usage is obvious. But even without improved acceptance in e-commerce, it can be assumed that the relative share of remote card payments compared to card-present payments will increase due to changes in consumer habits in favor of e-commerce. It is difficult to separate structural effects (general shift in consumption towards e-commerce) from price effects (improved card acceptance in e-commerce).

Unfortunately, both studies do not seriously consider the possibility that increased card acceptance has been a driver of rising card payment volumes in e-

commerce. The reason for this omission is probably the lack of sound data, even within the internal statistics of the card schemes. However, we see a strikingly strong decline in the average amounts of remote card payments from 2014 onwards from € 68.36 to € 60.03 in 2018. See figure 3. It indicates that in e-commerce (incl. digital services) card payments are also expanding in the low-value segment. This development may have been triggered by an expansion of card acceptance.

Fig. 3: Average Transaction Value of card payments in the euro area (card-present & remote)¹³



The increased share of **cross-border (XB)** card transactions of total transactions since 2015 (2014: 10%; 2018: 12.1%¹⁴) could support EDC's thesis that structural effects rather than IF-reduction have driven card growth. In this segment, IF for intra-European card payments had already been reduced to 0.2% and 0.3% before 2015, respectively, by "voluntary" agreements between the EU and the international 4-party schemes. However, detailed data from individual Member States show that this relative increase in XB payments was mainly caused by the growth of e-commerce.

In contrast to brick-and-mortar commerce, XB-acquiring is a widespread phenomenon in e-commerce. Even if the transaction between a domestic cardholder and merchant is considered as a domestic transaction for tax purposes, this transaction is statistically recorded as an XB-card payment if the acquirer is located abroad. XB-acquiring in e-commerce is an important driver behind XB-transactions.

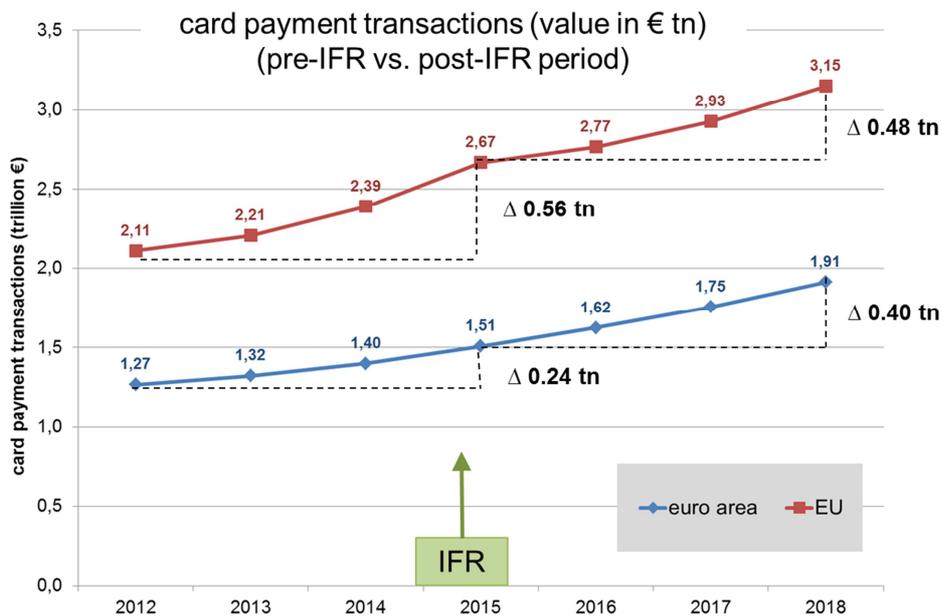
Table 3: Increase of GDP and card payments (pre- vs. post-IFR-period)

Euro area (Δ in € b)	2012-2018	thereof in pre-IFR-period (2012-2015)	thereof in post-IFR-period (2015-2018)
GDP	1,816.2	779.3 (43%)	1,036.9 (57%)
Card payments	643.0	239.9(37%)	403.1 (63%)

The ECB statistical positions "card payments with cards issued by resident PSPs" for each Member State have been corrected and completed for this analysis as follows:

- Excluding ATM withdrawals for UK**
 Cash withdrawals for the UK have been incorrectly included under "card payments" since 2013. Correcting this error will result in a significant decrease, as UK cards generate around 30% of the EU card payments.
- Adding ELV card payments for Germany**
 In the years up to 2014, card-initiated direct debits without payment guarantee (so-called ELV) were only partially included as card payments for Germany. From 2014 these card payments have no longer been included under "card payments". We take the ELV figures of the yearly PaySys card market statistics of Germany.
- Adding payments with prepaid cards (e-money)**
 These card payments are listed in the ECB statistics as e-money payment transactions issued by resident PSP (with cards on which e-money can be stored directly and with e-money accounts accessed through a card). As figures for the non-euro zone are largely missing, the correction largely affects the euro zone.
- Excluding the card payments of the Member States Malta and Slovakia**
 The card payments of these Member States are still missing for the year 2018. For the sake of comparability, these volumes are also excluded retroactively for the period 2012-2017.
- Allocation of the figures of Lithuania to the euro area**
 Although Lithuania joined the euro area in 2015, card payments will continue to be allocated to the euro area in the period 2012-2014 for reasons of comparability.

Fig. 4: Value of card payments with cards issued within the EU (trillion €)



Card volumes

It is uncontroversial that card acceptance at the physical POS has been rising since 2014. It is highly likely that the main driver behind this development has been the reduction of MSCs. A look at card payment volumes in the pre-IFR period (2012-2015) and in the post-IFR period (2015-2018) can provide further insights. Although IFR reductions may have been anticipated before December 9, 2015, we take end of 2015 as dividing line for the two periods (pre IFR , post IFR).

The data source for the analysis is the ECB Statistics. The data of the position "card payments with cards issued by resident PSPs" cannot be easily adopted as the statistics need to be corrected for some errors and for the lack of comparability of annual series (see box).

Another problem is the extremely high weight of the former member state UK in the European card business (approx. 30% on a value basis) and the volatile exchange rate of the GBP (UK Pound) against the Euro during the period under review. Although the UK card business in GBP has been growing steadily, the volume in Euro in 2018 will show an absolute decline compared to 2015. For this reason, we are focusing on developments in the euro zone.

The growth of card payments is mainly influenced by two factors:

- General growth of consumer payments (in line with the growth of Gross Domestic Product - GDP),
- Substitution of other means of payment (e.g. cash at the physical POS).

For the analysis of the impact of IF reductions, the second factor is relevant.

In the period 2012-2018 the card payment volume in the euro zone grew from € 1,268 b to € 1,911 b. See figure 4. In the first 3 years (pre-IFR period) 37% of the additional volume (delta € 643 b) was achieved, and in the following 3 years 63%. This indicates that the IFR could have given a boost to the card business. However, it must be taken into account that in the post-IFR period the increase of GDP in this period has also been higher than in the pre-IFR period (43% and 57% respectively). See Table 3.

The higher delta in card payments in the post-IFR period (compared to the pre-IFR-period) is thus partly due to the higher increase in GDP (**GDP effect**).

The coefficient "card payments/GDP" is an indicator of changes in card payments that are not due to changes

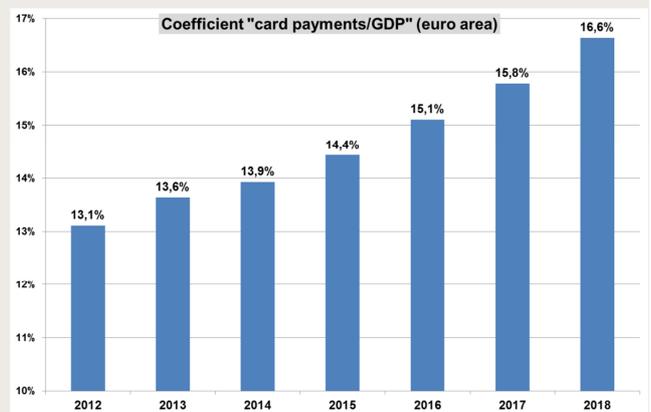
in GDP but to changes in payment habits. The increase in the coefficient in the pre-IFR period was 1.3 percentage points (from 13.1 to 14.4%). In the post-IFR period, the increase was significantly higher at 2.2 points (from 14.4 to 16.6%). See figure 5.

For the sake of simplicity, we assume in our model that changes in payment habits represent a continuous and constant trend in the medium term. Under this assumption, the 1.3 percentage points of the three-year pre-IFR period can simply be extrapolated for the post-IFR period of the same length. If this **structural effect** (medium-term change in payment habits) is projected to the post-IFR period, the share in 2018 would be 15.7% (14.4% + 1.3%) instead of 16.6%.

Contactless card payments at POS terminals may have been a special effect of the post-IFR period, increasing the medium-term substitution of cash by cards (structural effect) in this period. EDC certainly thinks so. But contactless may also have mainly substituted "normal" card payments. In this case, the increase of card payment volumes must be explained differently.

While the question cannot be decided with certainty, one interesting indicator may shed some light on this issue. The development of the average amount in the card-present area shows - at least for the euro zone - a continuous trend. (See figure 3. Unfortunately, this data is missing for the period before 2014.) So, there is no acceleration of the trend, as we would expect if contactless would be substituting mainly cash transactions. That suggests that the IFR may have been important for card payment growth, after all.

Fig. 5: Coefficient card payments volume (value) as percentage of the GDP



If we eliminate the GDP-factor (by taking the coefficient card sales/GDP) and the structural effect of medium term change of payment habits, the remaining growth of card sales could be caused by the IFR-

effect. Assuming that there were no other influencing factors in the entire period, the IFR effect for 2018 would be approximately € 102 b additional card payments in the euro area (+5.6%).

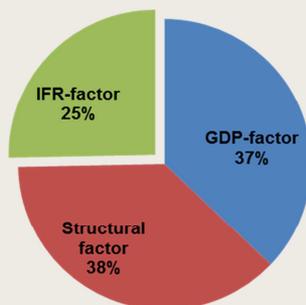
Results

The result of this first rough estimate of the IFR effect shows that the growth in card payments (delta) was significantly higher in the post-IFR period (delta € 403.1 b) than in the pre-IFR period (€ 239.9 b). Three growth drivers can be identified for the increase in card payments (euro area) in the post-IFR period:

- **GDP factor** (more consumer payments): € 149.6 b (assumption: the coefficient “card payments/GDP” remains constant at level 2015; 14.4%)
- **Structural factor** (change of payment habits): € 151.4 b (assumption: the increase of the coefficient “card payments/GDP” is the same as in the pre-IFR-period; 1.3 percentage points)
- **IFR factor** (increased acceptance): € 102.0 b (assumption: the increase of card payments that cannot be explained by the GDP-effect and structural effects is caused by IF-reductions)

In other words, card payment volume in the euro area in 2018 (€ 1,910.5) would have been 5.3% (€ 102.0 b) lower without the IF-reduction. Even if this is a rough back-of-the-envelope estimate, it should be undisputed that the IFR-related cost reallocation from the acquiring to the issuing side has not affected the card business negatively in terms of volume.

Fig. 6: Weighting of the factors influencing card payment growth in the post-IFR period (euro zone)



The result is a first attempt. More precise results can be obtained if card payments are set in relation to consumer payments (instead of GDP). Furthermore, such an analysis per Member State would show the effects of the respective IF reductions on card vol-

umes.

This would improve the validity of the results because pre-IFR levels were different. Therefore, the IF reduction brought about by the IFR differs between countries.

IFR-related cost reallocation has not affected the card business negatively in terms of volume.

This finding contradicts the arguments of card schemes and also of much of the academic literature. Both have argued that IF is needed as a balancing device and that a big reduction may negatively effect the market, and that such effects may actually be quite strong. This is not what we see. The reduction may even have had a positive effect. This is in line with earlier results for Spain.¹⁵

Notes

- 1 <https://edgardunn.com/2020/01/interchange-fee-regulation-impact-assessment-study-report/>
- 2 https://ec.europa.eu/commission/presscorner/detail/en/IP_20_442
- 3 <https://www.bargeldlosblog.de/die-studie-zur-interchange-regulierung/>
- 4 In this case, the IF reduction may nevertheless lead to volume effects triggered by the direct price changes. For the payer, the price for card use increases and for the merchant, the costs for card acceptance decrease. Depending on the price elasticity on the respective market sides, the IF reduction can have a positive or negative impact on transaction volumes despite the zero-sum result for the players.
- 5 The results are therefore not directly comparable with the metric results of the EDC analysis. There, the net revenues from two different periods (2014 vs. 2018) are compared, which also takes into account volume effects (increase in card payments).
- 6 https://ec.europa.eu/commission/presscorner/detail/en/IP_20_442
- 7 https://www.eurocommerce.eu/media/174634/eu-interchange_fee_regulation_review_-_eurocommerce_submission_04-feb-2020.pdf
- 8 <https://www.politico.eu/sponsored-content/eu-interchange-fee-regulation-card-payments-cheaper-for-retailers-but-full-impact-unclear/>
- 9 COMP/2018/005 – Support Study of the application of the Interchange Fee Regulation, Definitions, Abbreviations, Merchant Categories of 30 November 2018.
- 10 See PaySys-Report Issue 3-4 (2019) for more details. We discussed this error publicly, however without any correction by the BoE or ECB respectively. See <https://paytechlaw.com/en/ecb-payment-statistics/>
- 11 The study (p. 272) only shows POS terminal data from 2014 onwards; an analysis of the pre-IFR period should cover at least several years.
- 12 Source: ECB statistics (differentiation since 2014). The shares are based on the transaction value in €. However, several central banks are not reporting this data or the figures are not complete or consistent (Estonia, Malta, Slovakia, Czech Republic, Denmark, Poland, Croatia, Sweden and UK).
- 13 Source: ECB statistics (differentiation since 2014); Estonia, Malta and Slovakia are excluded (incomplete or no data)
- 14 Source: ECB statistics (differentiation since 2014). The shares are based on the transaction value in €. A few central banks are partly or not reporting these data (Malta, Slovakia, Czech Republic, Sweden and UK).
- 15 See: Carbó Valverde, Santiago, Sujit Chakravorti und Francisco Rodríguez Fernández (2016): The Role of Interchange Fees in Two-Sided Markets: An Empirical Investigation on Payment Cards, Review of Economics and Statistics, 98/2, pp. 367-381. The results of this paper are summarised in: PaySys Consultancy (2012): New study on the effects of mandatory decrease of interchange fees in Spain, PaySys Report (formerly PaySys SEPA newsletter), December 2012 (<http://www.paysys.de/download/SepaDec12.pdf>).

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