

# Analysis of debit card MSC differences within the EU

Peter Jones and Chris Jones<sup>1</sup>

*PSE Consulting, 32 Candler Mews, Amyand Park Road, Twickenham, TW1 3JF, United Kingdom, Tel: +44 20 8891 6244*

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This paper seeks to test the hypothesis that a negative relationship exists between a nation's debit Merchant Service Charges (MSCs) and the maturity of its payments infrastructure. The analysis outputs indicate a strong correlation between MSC levels and market development amongst the majority of Western European nations. The paper illustrates the consequences of ineffective commercial frameworks or national EftPos strategies and also suggests that markets should be allowed to develop at their own speed – with regulators only intervening to ensure free and open competition. As Europe's card market liberalises under the Single Euro(pean) Payments Area those involved in oversight or policymaking should ensure that each country is encouraged to improve the efficiency of its payments market; however these bodies must also recognise that any plans to lower MSCs in immature markets may reduce revenue streams at a time when they are most needed to improve market efficiency.

## I. SUMMARY

Many supporters of common Multilateral Interchange Fee<sup>2</sup> (MIF) believe that its introduction would substantially benefit the Eurozone and that as a result Merchant Service Charges<sup>3</sup> (MSCs) in many countries would decline. However PSE Consulting (PSE) has argued<sup>4</sup> that harmonising MIFs would severely impact some of Europe's debit card revenue structures, and that several nations with unsuccessful 'national EftPos strategies'<sup>5</sup> would be adversely impacted. This paper presents the results of an analysis and modelling exercise carried out to test this proposition. The paper seeks to test the hypothesis that there is a strong negative correlation between the level of debit MSCs in a nation and the maturity of its payments infrastructure or the effectiveness of its national EftPos strategy. The results of the analysis indicate a strong negative correlation between MSC levels and the level of market development amongst the majority of Western European nations. In summary the analysis reveals that, mature EftPos countries would be Denmark, Switzerland and Norway, closely followed by France, UK, Netherlands, Belgium and Finland. Using the same test, countries with less mature, and underdeveloped EftPos infrastructures are Austria, Italy, Spain, Greece and Germany.

The analysis demonstrates the consequences of market failure and the implementation of inappropriate domestic commercial frameworks. Intervening to mandate a lower or harmonised MSC and removing or reducing the revenue incentives for issuer and acquirer to invest in the cards market is unlikely to be effective and could lead to stagnation. These attempts to force immature markets to adopt the MSC levels of developed markets could be counter-productive. Our analysis suggests that markets should be allowed to develop at their own speed – with regulators only intervening to ensure free and open competition. Current MSCs and their underlying costs should decline naturally in the less-developed nations as they move to build more effective displacement

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<sup>1</sup> Respectively Managing Director and Senior Consultant at PSE Consulting, a London based research and consulting company.

<sup>2</sup> The Multilateral Interchange Fee (MIF) or interchange is the fee paid by the merchant's acquiring bank to a customer's bank card issuer to fund the costs of processing, fraud, bad debt and payments guarantee.

<sup>3</sup> The Merchant Service Charge (MSC) is the fee paid by a merchant (or retailer) to its acquiring bank to authorise process, guarantee, clear and settle a transaction made using a bank issued card. The charge broadly comes in two forms: unitary, where the charge is fixed; and ad valorem, where the fee is a percentage of the total value of the goods purchased

<sup>4</sup> See "Harmonizing Interchange" European Card Review July/ August 2005

<sup>5</sup> EftPos stands for Electronic Funds Transfer at the Point of Sale. National EftPos strategies typically refer to the displacement of high cost methods of retail point of sale payments (predominantly cash, cheques and paper vouchers) with plastic cards that are used at electronic terminals. For a discussion of the benefits of cards relative to cash see De Grauwe, Paul, Erik Buyst and Laura Rinaldi (2000a): The Costs of Cash and Cards Compared. The Cases of Iceland and Belgium, University of Leuven (mimeo). The European Payments Council has also produced a report which analyses the costs of cash - European Payments Council (EPC) (2002): Cash Working Group: Summary of Findings & Recommendations, DOC EPC-0165/03, 28.03.2003.

strategies<sup>6</sup>. Any plans to lower MSCs in immature markets will reduce revenue streams at a time when they are most needed to improve market efficiency.

As Europe's card market liberalises under the Single Euro(pan) Payments Area (SEPA), those involved in oversight or policymaking should ensure that each country is encouraged to improve the efficiency of its payments market and displace cash and cheques. Those with failed strategies and frameworks will need to rebuild and draw on the experiences and structures of more successful nations. In the meantime, MSCs will either reflect each country's current state of development or, in some cases, may need to rise to provide sufficient funds to enable a failed EftPos to work.

## II. INTRODUCTION AND BACKGROUND

Europe's debit card EftPos infrastructure is now over 15 years old, but European countries still apply different levels of MSC for debit card acceptance. This paper sets out to explain this apparent anomaly. The paper proposes a hypothesis that the level of debit MSC in any market is substantially linked to the maturity of its domestic EftPos payments infrastructure and the effectiveness of its national displacement strategy.

PSE has developed this analysis as a follow-up to an article which analysed the potential impacts of a mandated harmonised MIF on MSCs and acquirer and issuer revenues within the EU<sup>7</sup>. The article argued that imposing a common European debit MIF could have unforeseen impacts, and that a lengthy convergence period would be required to enable several countries' markets to adjust to the new MSC. This article also suggested that countries with under-developed card payments markets typically require higher MSCs to fund the continued development of the national payments infrastructure and to encourage consumers to displace cash (and cheques) with plastic card transactions. MIF and its relationship to SEPA is an issue that the European Central Bank (ECB) has recently specifically recognised as requiring attention<sup>8</sup>.

The objective of this analysis is to further explore the basis, structure and differences in Europe's debit MSCs and the relationship between national displacement strategies and the use of plastic cards and EftPos.<sup>9</sup> The analysis may be helpful to European and domestic regulators and other bodies as they assess the level of MSCs within individual countries, and compare themselves to other SEPA nations. It is hoped that this work will promote the potential benefits of maintaining country-based differences and that allowing these to persist within a Single Euro(pan) Payments Area must be accommodated within any new commercial and regulatory frameworks<sup>10</sup>.

## III. APPROACH

The paper is based on the results of a three stage modelling exercise involving:

- A simple normalisation methodology which enables a more accurate comparison of MSCs across Western Europe.<sup>11</sup>

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<sup>6</sup> For evidence that MSC level are declining across Europe see "Study of the Impact of Regulation 2560/2001 on Bank Charges for National Payments" September 2005 by the European Commission page 9

<sup>7</sup> "Harmonizing Interchange" European Card Review July/ August 2005

<sup>8</sup> See speech given by Gertrude Tumpel-Gugerell on 4<sup>th</sup> October 2005 to the European Payments Council (EPC)

<sup>9</sup> The focus of the paper is primarily on cash displacement strategies. It is recognised that in the UK and France, cheque displacement was the original key driver for EftPos implementation, but that cheque use at the Point of Sale (POS) is now low in both nations

<sup>10</sup> For example compliant SEPA zone schemes will probably maintain differential MSC/ MIF levels to accommodate previous national commercial structures for some time.

<sup>11</sup> The countries included in this analysis are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Switzerland, and the UK. National data from Eastern European nations on historical and current card and cash usage was not yet regarded as sufficiently reliable, or comparable, to allow inclusion. Once this data has been collected and validated, this analysis framework could be extended to the whole of the European Union.

- A simple Debit Cash Displacement (DCD) metric which links consumers’ propensity (in each country) to acquire and use cash as opposed to plastic cards at the Point of Sale (POS), to show the effectiveness of each nations cash displacement strategies.
- The correlation of normalised debit MSCs with DCD to demonstrate the link between the level of MSC and the maturity of plastic cards payment infrastructure.

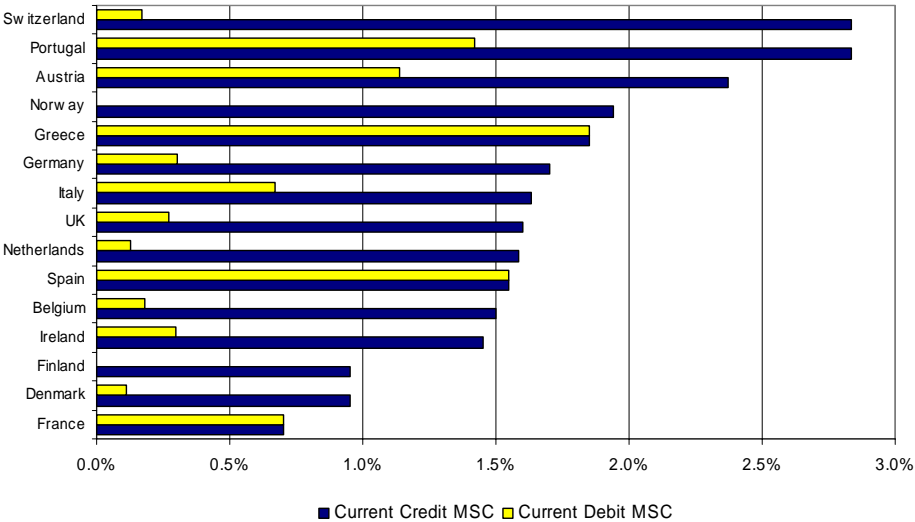
Section 3 identifies some of the causes of debit MSC rate differences and describes how different rates in 15 countries were normalised in order to allow cross-country comparison. The normalisation modelling shows that in several cases headline MSC data available in the public domain is over or under-stated because of the propensity of some acquiring banks to bundle services within their merchant service fees.

Section 4 describes the basis and rationale for the DCD metric: comparing consumer cash acquired from cash machines (ATMs<sup>12</sup>) with debit card expenditure at the POS to produce a metric which quantifies the maturity of the EftPos infrastructure and the effectiveness of cash displacement strategies.

Section 5 correlates normalised debit MSCs with the DCD metric and shows that nations with low debit usage typically need high MSCs to enable the continued development of their cards infrastructure. Those with a high DCD scores have low MSCs because they have implemented effective displacement strategies and their cards markets are now mature. This section also analyses the results of the DCD model and provides a brief summary of the conclusions.

**IV. NORMALISATION OF DEBIT MSC DATA**

MSC rates vary substantially across Western Europe. Figure 4.1 below shows the extent of the differences within Western Europe and provides comparative headline debit and credit card MSC rates by country. On this simple measure the ad valorem (percentage) MSC rates charged to a merchant for a debit transaction range from 1.85% in Greece to zero in Norway and for a credit transaction from 2.8% in Portugal and Switzerland to 0.7% in France<sup>13</sup>.



**Figure 4.1: Current Headline MSC Levels for Debit<sup>14</sup>**

<sup>12</sup> Automatic Teller Machines  
<sup>13</sup> The focus of the paper is primarily on debit MSCs reflecting the European consumers’ preference to use debit cards rather than credit. However, where relevant, reference is made to credit card MSCs particularly for those countries where these products are not differentiated (France, Spain and Greece).  
<sup>14</sup> Denmark’s figures are as at end 2004 and do not reflect the more recent regulated fee structure.

PSE regularly surveys merchant acquiring banks across Europe, collecting data on current headline MSC data and details of the components included within the fees<sup>15</sup>. These surveys suggest that headline rates have to be carefully interpreted. Often they obscure costs because of the tendency of acquiring banks in several countries to bundle other costs into their MSCs or offer differing settlement periods<sup>16</sup>.

Could MSC bundling contribute to the wide differences in Europe's MSC rates? Figure 4.2 below provides a summary of the components that make up MSCs in each major country.

Country	Terminals	Terminal Maintenance	Telecoms	Consumables	Settlement Period
Austria	N	N	N	Y	T + 2
Belgium	N	N	N	N	T + 3
Denmark	N	N	N	N	T + 1
Finland	N	N	N	Y	T + 6
France	N	N	Y	N	T + 1
Germany	N	N	N	N	T + 3
Greece	-	-	-	-	T + 3
Ireland	N	N	N	Y	T + 1
Italy	N	N	N	N	T + 1
Netherlands	N	N	N	Y	T + 2
Norway	-	-	-	-	T + 2
Poland	Y	Y	N	Y	T + 2
Portugal	N	N	Y	Y	T + 1
Spain	Y	Y	Y	Y	T + 1
Switzerland	N	N	N	N	T + 2
UK	N	N	Y	N	T + 2

Source: PSE Surveys in 2002 and 2005

*Figure 4.2: Types of Services Bundled into Debit MSC*

As Figure 4.2 shows, some countries (Greece, Italy, Portugal, Spain and Poland) include terminals, terminal maintenance, telecommunications and terminal consumables within their MSCs. Other countries (France, and the UK) only include telecommunications, still others offer just a basic MSC with no free of charge features. Settlement terms also vary with several settling at transaction day plus one (T+1), but with some exceptions with settlement at T+3 or T+6.

In addition, when setting MSCs, acquiring banks take into account the MIF costs they pay to foreign card issuers as a result of international cross-border and intra-European transactions<sup>17</sup>. Different countries have very different cross-border/intra-European transaction flows, reflecting patterns of tourism. For credit cards these can represent up to 20% of the total volume processed and for debit up to 3%. In several countries these are additional costs which have to be factored into the MSC.<sup>18</sup> These different cost flows result in further differences in the total MIF paid and in the final MSCs charged to merchants.

<sup>15</sup> See surveys published in European Card Review in 1995, 1997, 2000 and 2003

<sup>16</sup> Settlement period is the time between the merchant accepting a card for payment from a consumer and receiving payment from their acquiring bank. This is typically expressed as T+x, where x is the length of the settlement period in days

<sup>17</sup> Using International Card Scheme branded cards (Visa and MasterCard)

<sup>18</sup> In France, Spain and Poland debit is tariffed at the same rate as credit, therefore debit rates are impacted by cross border costs

Given these cross border, bundling and settlement anomalies and differences, PSE has developed a series of filters to normalise the most significant of these factors to enable a more effective like-for-like comparison<sup>19</sup>. Appendix 1 describes the methodology adopted, and Figure 4.3 summarises the model output.

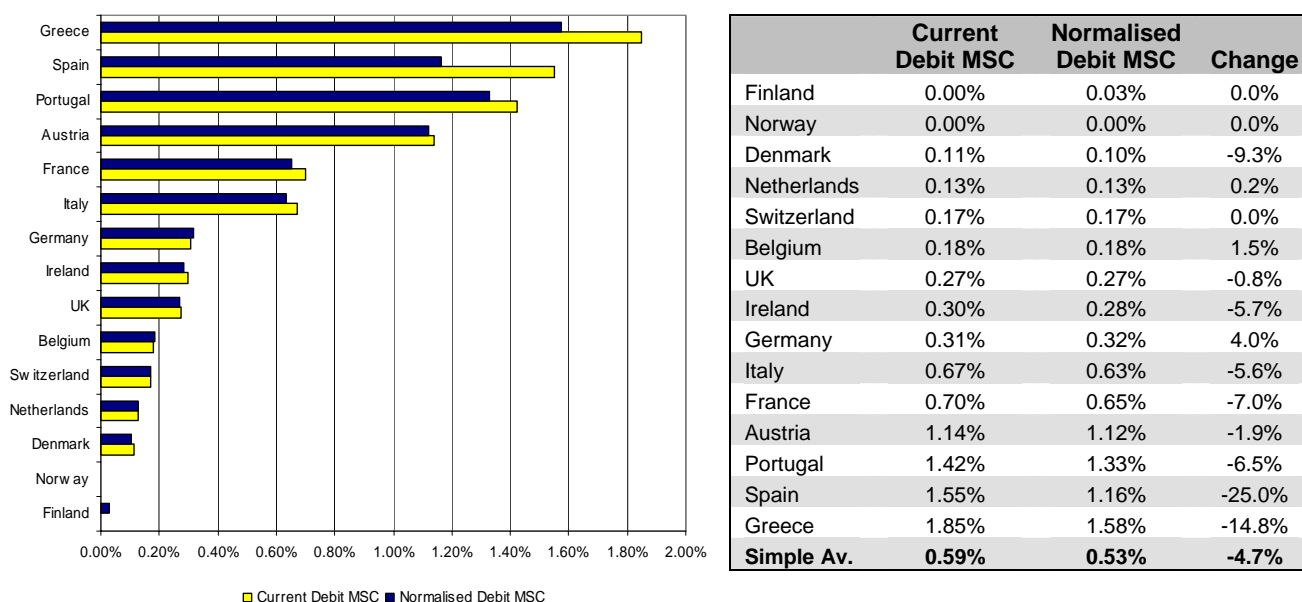


Figure 4.3: Impact of Debit MSC Normalisation

The overall effect of the normalisation process is to reduce average debit MSCs by 4.7%. The most substantial changes are with respect to Spain and Greece where the headline rate drops 25% and 15% respectively for debit (see Figure 4.4). This reflects the extent to which these two nations bundle high cost terminals and telecoms services into their MSCs.

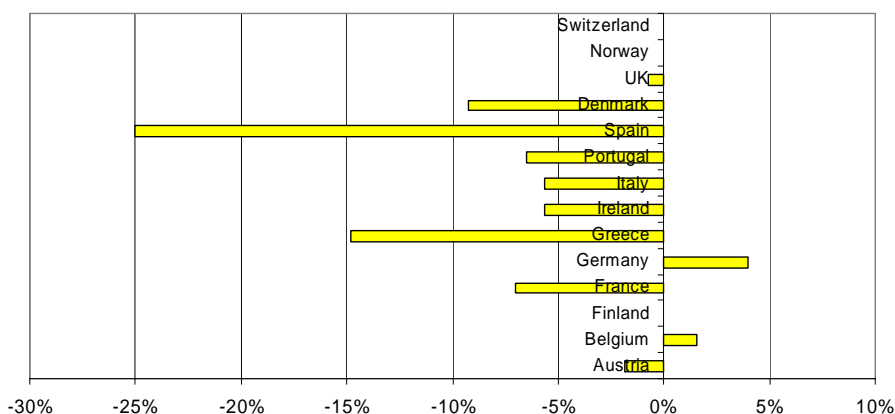


Figure 4.4: Impact of Debit Card MSC Normalisation from Base

The normalisation process explains some of the variance in MSC rates. However unexplained differences persist: some countries have zero rates and others over 1.5%. Further analysis is required to explain the cause of this spread.

<sup>19</sup> There are four filters applied to headline MSCs: The first converts issued volumes/values from the ECB Blue Book into acquired volumes/values (very minor adjustments); the second adjusts for cross border (inter/intra) MIF payments; the third strips out any bundled services – telecoms, terminals, consumables and terminal maintenance; the fourth standardises the settlement period to T+2

As indicated at the beginning of this paper, the hypothesis is that a substantial proportion of these differences can be explained by the effectiveness of national EftPos strategies within each country. PSE has developed a consistent measure of maturity in order to test this hypothesis: the Debit Cash Displacement metric.

**V. DEBIT CASH DISPLACEMENT (DCD) METRIC BY COUNTRY**

Figure 5.1 shows the wide diversity of card usage per head of population, and the total MSCs (using normalised rates as discussed above) paid per POS in each country.

	<b>No. of Debit POS Transactions per annum per capita</b>	<b>Value of Debit POS Transactions per annum per capita</b>	<b>Value of ATM Withdrawals per annum per capita</b>
Austria	27	1,432	1,849
Belgium	57	2,845	2,565
Denmark	108	5,061	2,565
Finland	82	3,141	3,249
France	105	4,867	3,236
Germany	8	748	3,169
Greece	0	26	2,937
Ireland	24	1,429	3,781
Italy	15	1,317	2,408
Luxembourg	49	3,141	1,744
Netherlands	78	3,693	3,632
Norway	126	6,284	2,847
Portugal	36	1,338	1,994
Spain	17	701	1,888
Sweden	67	4,296	3,367
Switzerland	47	5,467	2,757
UK	79	4,631	3,736

*Figure 5.1: 2005 Current Debit Cardholder Usage Data*

This wide diversity of transaction activity is, at face value, hard to explain. Why, for example, do the Danes use their debit cards 100 plus times per annum compared with the Italians who achieve only 15 times per annum?

Our hypothesis suggests that each market is at a different stage of development, as a result of adopting different EftPos displacement strategies. However, there is no consistent metric to measure effectiveness.

DCD is a simple comparative metric that seeks to measure the maturity of a country’s card infrastructure. The metric compares consumers’ use of cash for their day-to-day domestic spending at the POS in different countries. Ideally, the metric would utilise data for total cash expenditure versus total card payments but the lack of reliable, Europe-wide, comparable data relating to cash spending has required that two proxy metrics be used:

- **Debit POS expenditure value per capita per annum:** This indicates, for each national market, the value of domestic debit POS expenditure per capita per annum (debit has been used rather than credit

due to the European propensity to use debit for domestic transactions – c.79% of plastic card transactions in Western Europe are debit).

- **ATM Withdrawal value per capita per annum<sup>20</sup>**: This indicates the total value of cash acquired from ATMs per capita per annum. Again, this is a proxy for cash spending based on the assumption that a high proportion of cash spent at merchants is acquired through the ATM<sup>21</sup>.

In order to create a single metric, and take account of differential levels of total consumer expenditure, the DCD metric has been constructed in the following manner:

$$\text{Debit Cash Displacement} = \frac{\text{The total value of debit POS expenditure per head per annum}}{\left( \text{The total value of ATM withdrawals per head per annum} + \text{The total value of debit POS expenditure per head per annum} \right)}$$

A country with a DCD score of zero percent would indicate that consumers always use cash withdrawn from ATMs to carry out their transactions. At the other end of the scale a country with a DCD score of one hundred percent would indicate consumers were using debit for all their transactions and acquiring no ATM cash for POS usage.

Figure 5.2 shows the DCD calculated for each European country. According to this metric Switzerland and Norway would be regarded as having highly developed plastic card markets and have had very successful national cash displacement strategies. At the other end of the development scale, in Germany, Italy, Greece and Spain, for example, cash is still the dominant form of consumer payment reflecting a relatively unsuccessful approach to cash displacement.

Country	DCD Score
Austria	44%
Belgium	53%
Denmark	66%
Finland	49%
France	60%
Germany	19%
Greece	1%
Ireland	27%
Italy	35%
Netherlands	50%
Norway	69%
Portugal	40%
Spain	27%
Switzerland	66%
UK	55%

*Figure 5.2: Current DCD Scores for Major European Countries*

Figure 5.3 below illustrates that over the past ten years cash has steadily been displaced by debit card usage as consumers use debit cards to fund a greater proportion of their domestic expenditure. The DCD metric provides a broad and simple indication of the effect of the national displacement strategies and suggests a likely path for the future migration to plastic cards.

<sup>20</sup> A more sophisticated model of national cashflow is to be found in Carbo-Valverde, S Humphrey and D & R Lopez del Paso (2003) in the paper “The Falling Share of Cash Payments in Spain”, Moneda y Crédito, Vol.217, pp. 167-190

<sup>21</sup> This data excludes branch counter cash withdrawals and merchant POS cashback for which no EU wide statistics are available

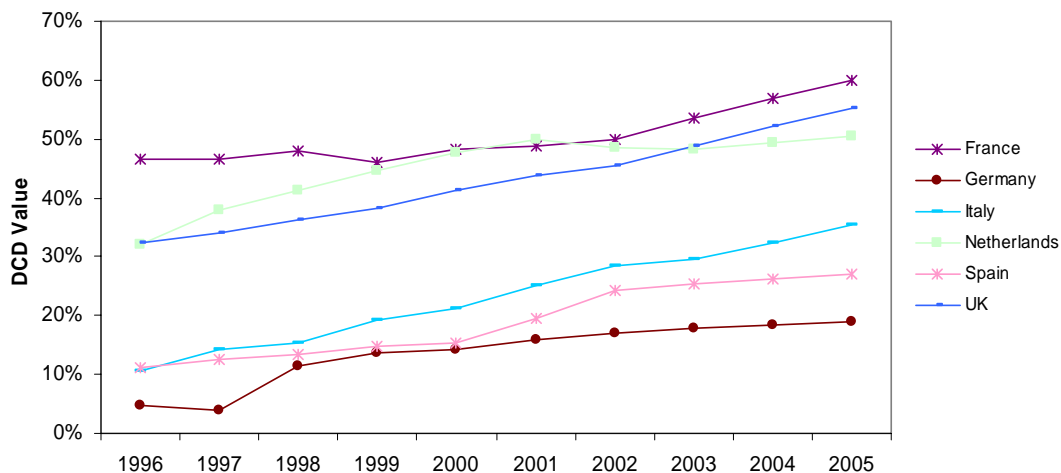


Figure 5.3: Cash Displacement Strategies – Major Country DCD Scores 1996-2005

The DCD metric emphasises the widely different level of payments market development within Europe but also demonstrates that the movement from cash to debit dominated markets occurs gradually, driven by each nation’s cash to EftPos strategy.

Whilst it may be obvious to state that each market has its own cash displacement strategy each moving at its own pace, this observation raises three important questions:

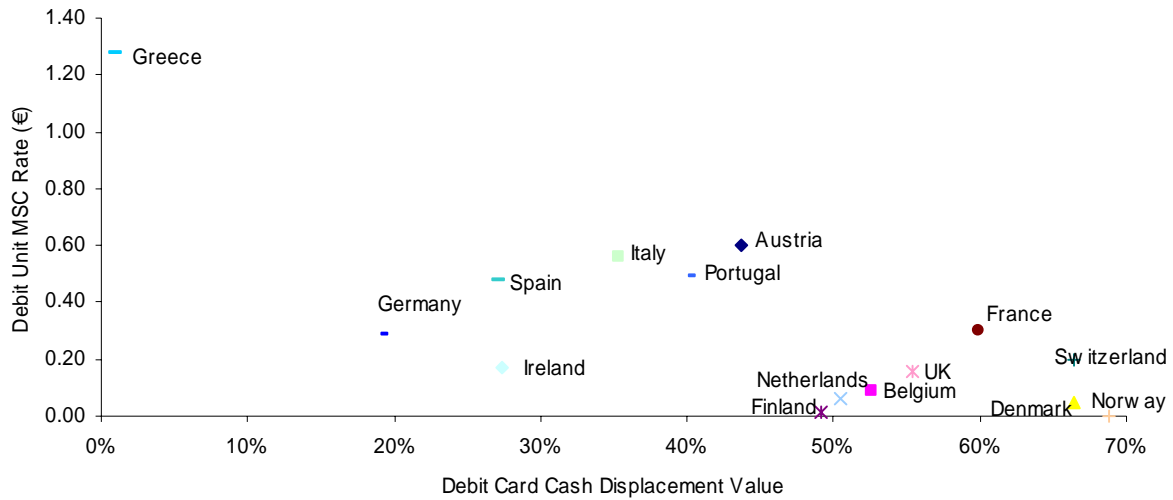
- Why have national displacement strategies produced such variable results, given that EftPos and plastic card acceptance was implemented in the late 1980s/early 1990s in nearly all European countries (Ireland and Greece the exceptions)?
- Have countries with a high DCD score used a more effective combination of commercial frameworks and incentives to enable the faster displacement of cash and build successful national EftPos strategies?
- Similarly, why has the plastic card infrastructure failed to develop effectively in several countries which now show low DCD scores? How has their approach differed from countries with high DCD?

Our hypothesis is that strategies that generate high DCD scores now reflect both the use of a mature commercial framework and a successful national consensus to implement EftPos. Conversely, those nations with poorly developed infrastructures lack a clear cash displacement strategy and operate a commercial framework which does not encourage displacement and thus show low DCD. This hypothesis is examined further in the next section.

## VI. THE MSC AND DCD RELATIONSHIP

In this analysis we have compared DCD and normalised MSCs for each country to establish the strength of the relationship between these two variables. MSC is an appropriate measure because it represents the primary income streams available to banks (ie. the costs of acquiring, which is underpinned by the MIF cost paid to the

card issuing bank) and the cost to merchants of card acceptance. Figure 6.1 below shows the correlation between these two variables.



**Figure 6.1: MSC DCD Relationship**

Broadly the analysis indicates that countries with less developed infrastructures and cash displacement strategies (according to the DCD) appear to have higher MSCs and that as countries become more developed their MSC rates appear to fall. Spain, Italy and Austria have less developed card markets and also have high MSCs, whereas the reverse is true for Switzerland, and Norway.

When all countries are included, the correlation coefficient is -0.74, showing a reasonable degree of correlation<sup>22</sup>. However, there are two countries (Ireland and Germany) where the relationship between the MSC and development is not so clear. If Germany<sup>23</sup> and Ireland<sup>24</sup> are excluded the correlation coefficient increases to -0.88. Greece looks to be such an outlying point (very immature debit market with, so far, very low volumes but stronger in credit card), that it could be said to exert undue influence over the correlation coefficient. If we exclude Ireland, Germany and Greece from the correlation, the coefficient is -0.72 which still indicates a correlation.

Based on PSE’s European research over the past 15 years, we suggest that several factors may explain the strong correlation between the level of debit MSCs and DCD in countries with “successful” cash displacement strategies (further research is needed to confirm the following observations):

- **National Consensus and Funding:** Countries with low DCD scores appear to have built a national consensus over the benefits of cash (and cheque) displacement. In addition, they have ensured ownership of the strategy through strong and well funded interbank bodies (APACS – UK, Carte

<sup>22</sup> The correlation between the two variables can be measured using the correlation coefficient, where +1 would show a perfect positive correlation, -1 would show a perfect negative correlation and 0 would show no correlation at all.

<sup>23</sup> Germany is unique in Europe in implementing a three party debit scheme which operates without a MIF and without acquirers. Lack of card revenue has reduced incentives for issuing banks to change consumer behaviour and encourage card usage. Similarly, there is no acquirer margin to drive merchant acceptance. Merchants have been reluctant to accept the value of the payments guarantee and, as a result, over 50% of transactions are accepted offline using the ELV scheme, a merchant driven initiative.

<sup>24</sup> One of the major reasons for low MSC rates in Ireland is that Irish debit MSCs are aligned to UK rates, reflecting large merchant demands (local and UK owned) for common British Isles rate structures. This pressure may have artificially limited the level of MSCs in Ireland. There is, however, a major difference when comparing Ireland with Germany. In Ireland, merchants recognise the need to accept cards and consumers are relatively well educated about card usage, therefore these lower rates have not caused the market to stagnate. Germany’s DCD score only rose from 5% to 19% (a three times increase) between 1996 and 2005. Over the same period, Ireland’s score increased from 1% to 27% (a forty times increase). Ireland, as a late entrant into debit EftPos, has managed to leverage many of the UK market concepts and accelerate the growth of a relatively under-developed market. On the basis of past performance, we would expect that Germany will only see gradual improvements in its cards market development by 2010. Ireland should, on the other hand, develop a score much close to that of the UK.

Bancaires – France, PBS – Denmark, Banksys – Belgium, SIBS – Portugal, etc) and have worked closely with large merchants and merchant associations to encourage the use of debit for day-to-day purchases. Also, successful EftPos strategies reflect a consistent approach using a cohesive structure and a commercial framework, which ensures a balance of revenue streams to issuers and acquirers.

- **Competition:** As the volume and value of card usage increases there is greater scope for competition. In large developed markets with high DCD scores merchants are more likely to have a choice of acquirers, each of whom have to compete for business. Competition squeezes acquirer's profit margins, reducing MSCs but also encouraging unbundling. In the UK, for example, the low MSC rates are accompanied by unbundled terminal, support and consumables charges. However, those countries that have poor cash displacement tend to bundle: in Italy up to a third of merchants have bundled MSCs that include free terminal, telecoms, consumables; in Spain almost 100% of merchants have bundled fees.

As the volume of card transactions grows, there is a natural increase in direct or indirect pressure from merchants and their associations to reduce or cap MSCs. This pressure sometimes results in a voluntary reduction in rates. In other cases, regulators, under merchant pressure, encourage schemes to reduce or minimise rates. This secondary competitive force results in MSC rates that gradually decline over time or remain static<sup>25</sup>.

- **Cardholder Perceptions and Incentives:** In successful cash displacement countries consumers are now fully aware of the convenience of card usage over cash. Over the last 15 years, issuers have used their share of card income streams to fund cardholder behaviour change campaigns and to promote usage at the POS. In mature markets consumers no longer require further education or substantial incentives to encourage usage – these markets have passed their 'tipping point' where there are sufficient number of card holders and density of acceptance to ensure ongoing usage with very limited need for incentives. In high-DCD nations a lower level of MSC income is sufficient to continue to propel displacement strategies forward.
- **Merchant Perceptions and Benefits:** EftPos and card acceptance deliver substantial benefits to merchants. These include the payments guarantee, removal of bad debt (where cheques are displaced), new revenues from spontaneous purchases, easy consumer access to lines of credit and (most important) a more convenient method of payment and much reduced cash handling costs. At the heart of the EftPos offer is the payments guarantee which enables the merchant to transact with any cardholder without fear of default. High score DCD nations appear to have been more successful in persuading merchants of the value of the funds guarantee. They have also persuaded merchants that they can achieve substantial benefits through improved customer service and cost savings through cash (and cheque) displacement at the POS and throughout the internal payments processing chain.

It appears that a combination of these four factors help develop successful national card infrastructures and propel forward their EftPos strategy.

In contrast, countries with low DCD appear to suffer from the following:

- Lack of a coherent national displacement strategy and strong central leadership, often reflecting a devolved or regionalised governance structure of the country. This results in a fragmented approach to EftPos.

<sup>25</sup> For evidence that MSC level are declining across Europe see "Study of the Impact of Regulation 2560/2001 on Bank Charges for National Payments" September 2005 by the European Commission page 9

- Difficulty in building early support for debit card EftPos amongst the largest merchants and supermarkets.
- Business models that vary substantially from those of successful countries, namely:
  - Three party structures which eliminate the use of an acquiring bank and operate without a MIF generating insufficient revenues to incentivise consumers and deliver merchant benefits.
  - Bundled MSC structures, complex MIF formulae and merchant contracts.
  - Fragmented and complex acquiring structures which result in multiple terminal placement, loss-making acquiring and insufficient funds to change consumer behaviour.

## VII. SUMMARY AND CONCLUSIONS

The relationship explored here, between MSCs and card market maturity, provides useful pointers and guidance for competition authorities and regulators, particularly when reviewing the implications of a common debit MIF. The hypothesis that there is a link between the level of MSCs in a country and the maturity of its cards infrastructure, appears to have reasonable substance. There is a negative correlation between the simple DCD metric and the level of normalised debit MSC, indicating that immature markets have high debit MSCs and that more advanced have lower debit MSCs<sup>26</sup>. The analysis also indicates that these differences are necessary and that inappropriate intervention may have undesirable consequences on the development of domestic payment infrastructure. If working effectively, card markets will converge over time around lower debit MSC levels as card payments displace cash usage. Successful cash displacement strategies reflect clear national direction, strong competitive structures, and good incentives to invest in infrastructures, change consumer behaviour and deliver merchant benefits.

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<sup>26</sup> If branch counter cash withdrawal data can be calculated it is believed that the DCD metric for immature markets would fall further

# Appendix 1: DCD and Debit MSC Normalisation Methodology

## 1. Scope of Modelling

The market analysis was undertaken based on the following scope:

- **Countries:** The following countries have been included in this analysis: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Switzerland and UK. Sweden has been excluded from the study because no MSC data could be obtained.
- **Card Products:** The analysis focuses on debit cards (domestic and Visa/MasterCard branded) with reference to credit cards, where relevant.
- **Rates:** Debit MSC rates for domestic transactions have been used within the modelling exercises.
- **Time Period:** The analysis is based upon projected 2005 figures using data for 2002.
- **Sources of Data:** Research is drawn from the following sources:
  - The 2003 European Central Bank European Blue Book with changes to this data using PSE local knowledge
  - 2005 PSE European Cards Market Model
  - 2004/2002 PSE European MSC Survey
- **Level of Accuracy:** The modelling data is based on the best information available to PSE. However model output should be regarded as indicative.

## 2. MSC Normalisation

A summary of the modelling steps followed for the MSC normalisation process is outlined below. A schematic which illustrates the normalisation process is provided by Figure A1.

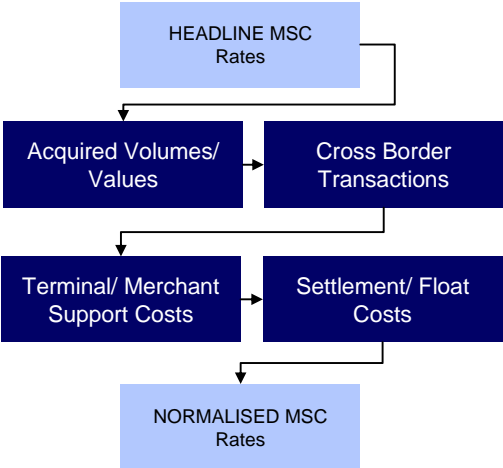


Figure A1: MSC Normalisation Methodology

- **Acquired Volumes/ Values:** For the purposes of this paper, generally ECB Blue Book issuer data has been used as acquired volumes and values for debit in each nation, reflecting the very low usage of domestic debit for intra EU POS expenditure (some minor adjustments have been made).
- **Cross Border Transactions:** For selected countries (Austria, France, Greece, Portugal, Spain) an estimate was made of the percentage of International Card Scheme (ICS) transactions that:
  - originate outside Europe (typically referred to as “international”)
  - originate from within Europe (typically referred to as intra transactions)

The standard ICS debit MIF rates for international and intra rates were applied to the transaction volume and compared with domestic debit MIFs, where they apply. The ± total value of the international/intra MIF was added to the total MSC value and a new average MSC calculated. The result of this calculation is to produce an MSC that is greater/less than domestic. The calculation for Denmark and Ireland has been adjusted to make allowance for the higher MSCs raised on ICS cards.

- **Terminal/Merchant Support Costs:** Terminal capital/maintenance costs and telecoms represent the highest “bundled” component in the MSCs for several nations.

Average capital costs of terminals were calculated and spread over a five year life to give an annual depreciation. The average age of a country’s terminal population was set at 3.5 years and the annual spend on terminal renewal set at 20%. A 40% mark up was added to allow for overhead and profit contribution. Terminal maintenance was calculated at an average of 10% of the capital value per annum. Telecoms costs per transaction were based on estimated values for those nations where they are free of charges. Terminal population statistics and transaction volumes were drawn from the PSE European Cards Market Model.

- **Settlement/Float Costs:** Acquiring banks apply different settlement periods when agreeing card acceptance contracts with merchants. Typically settlement times can vary from tomorrow (transaction date plus one day = T+1) through to T+3. In a small minority of countries this can extend to six or more days, particularly for high risk merchants.

Faster settlement is a cost to acquirers for they pay the merchant before they receive funds from the issuer. Conversely, extended settlement periods reduce acquirer costs and generate positive funds from float and are thus an acquirer benefit or revenue stream.

In order to normalise float, a standard settlement period of T+2 is applied to all nations. Those with settlement greater than T+2 have their MSCs increased by the cost of each days float benefit to the acquirer. Those with settlement less than T+2 have their MSCs reduced by the cost of each days float to the acquirer.

3. DCD Methodology

- **Formula:** The following formula has been used to calculate the Debit Cash Displacement Metric:

$$\text{Debit Cash Displacement} = \frac{\text{The total value of debit POS expenditure per head per annum}}{\left( \frac{\text{The total value of ATM withdrawals per head per annum}}{\text{annum}} + \frac{\text{The total value of debit POS expenditure per head per annum}}{\text{annum}} \right)}$$

- **Assumptions:** The following key assumptions have been made to calculate the DCD metric:
  - ATM transaction value has been used as a proxy for cash in circulation because the latter figure is not consistently, accurately, available in all European countries.
  - Payments by cheque at the POS have been excluded for all nations in recognition that cheque usage for this purpose is rapidly declining and is now a very small percentage of payments in all countries surveyed (<5%).
  - Similarly, counter cash withdrawals by cheque (or other means) have been excluded at this stage given these represent a relatively small proportion of cash acquisition and no European-wide data is yet available.

- The ATM cash acquisition data should also include cash back at the POS, but unfortunately no European wide data is available. For this reason, values shown for Denmark probably overstate the DCD metric given cash back is used extensively in this country.
- The value of debit card transactions will also include a small proportion of cardholder not present and e-commerce payments.
- All countries have had their MSCs changed to unitary equivalents to allow for direct comparison.
- Germany includes ec-Cash<sup>27</sup> (using a 0.3% MSC rate and €0.05 to cover settlement) but excludes transactions which are based on POS generated direct debits (ELV)<sup>28</sup>.
- The Portuguese figures are approximate and have had motorway toll transactions removed.
- The French figures have been adjusted to remove deferred debit transactions (60%) because they are perceived as almost equivalent to credit transactions.
- The Spanish debit data is as that reported to the ECB. Spanish debit and credit cards have the same MSCs in Spain.

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<sup>27</sup> ec-Cash is Germany's guaranteed full on-line EftPos sponsored by banks

<sup>28</sup> ELV is an offline signature based direct debit generated at the POS and is a merchant sponsored solution