

# THE ECONOMICS AND REGULATION OF THE PORTUGUESE RETAIL PAYMENTS SYSTEM

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# EXECUTIVE SUMMARY

This report provides a detailed analysis of how the Portuguese payment system operates and how regulatory interventions, especially those involving price controls, would likely affect the interest of the various stakeholders in the system including consumers, merchants, banks, schemes, and infrastructure providers.

## A. THE PORTUGUESE PAYMENT SYSTEM

Most Portuguese residents have access to a current account that typically includes an ATM/debit card, often a credit card, and the ability to engage in the electronic transfer of funds. The ATM/debit card gives them access to one of the densest networks of ATMs in Europe for obtaining cash, a variety of banking services available at ATMs, the ability to pay by debiting their current accounts at merchants, and the ability to pay their taxes and tolls. This same payment system helps Portuguese merchants engage in transactions with consumers. Banks provide merchants with current accounts and, along with other payment institutions, enable merchants to accept debit and credit card payments from consumers. Merchants benefit from the ready availability of cash for consumers and from bank and other services for depositing this cash into their accounts.

This payments system is what enables commerce to take

place in Portugal and makes it easier for consumers to buy things as well as manage their household finances. It also makes it easier for businesses, from very small ones to very large ones, to engage in exchange with consumers. By reducing friction associated with consumers paying merchants and for merchants in receiving payments from consumers, the payment system enables the process of exchange thereby increasing trade, employment, and welfare. It generally operates smoothly and reliably.

The payment system results from the interplay of several stakeholders. They include banks and other payment institutions that provide a wide array of cash and electronic payment services to consumers and merchants; domestic and international card schemes including Multibanco, Visa, MasterCard, and American Express; SIBS which provides much of the infrastructure for payments; merchants that provide payment options to consumers at their points-

of-sale; and consumers that use a variety of payment options to buy goods and services from merchants. Table 1 summarizes the major stakeholders and their role in the payments system.

Despite being one of the less wealthy (19 out of 27) countries in the European Union, Portugal has one of the most advanced retail payment systems in the EU. Portugal

has more ATMs per capita than any other country in the European Union and a higher number of debit and credit cards per capita than all of the countries in the European Union other than Luxembourg, Sweden, and the United Kingdom. Its ATM machines are some of the most advanced in the world, and provide more services than those in any other country.

**TABLE 1 | MAJOR STAKEHOLDERS IN THE PORTUGUESE RETAIL PAYMENT SYSTEM**

STAKEHOLDER	CONSUMERS	MERCHANTS	OTHER STAKEHOLDERS
FINANCIAL INSTITUTIONS	Act as issuers, providing vehicles for making payment including card, cash, and other electronic methods	Act as acquirers, enabling merchants to be paid through the payment vehicles used by consumers	Work with SIBS and card schemes to provide issuing services to consumers and acquiring services to merchants
SIBS FPS			Processes transactions and operates the gateways and clearing services between issuers and acquirers under several different schemes for multiple payment vehicles
SIBS PAGAMENTOS			Runs the Multibanco debit card scheme and the MB SPOT value-added scheme for issuers and acquirers who serve consumers and merchants
UNICRE	Credit card issuer using the Unibanco brand	Is the leading acquirer for internationally branded cards	Works with SIBS and the international card schemes to provide issuing and acquiring services
CARD SCHEMES (MASTERCARD, VISA, AND AMERICAN EXPRESS)			Run internationally-marked cards schemes that issuers and acquirers can use in providing consumers and merchants card payment services in Portugal and internationally
BANK OF PORTUGAL			Issues and redeems cash and regulates banking and payments.

TABLE 2 summarizes aspects of the Portuguese payment system compared to the five largest EU countries. Despite having GDP per capita that is more than 40 percent lower than the average of the EU-5 and having less than a fifth as many people as the average of the EU-5, Portugal has the highest number of ATMs per capita, more cards per

capita than four of the EU-5, fewer unbanked households than much larger Italy, and a higher number of merchant acceptance of cards than any country except the UK. Although Portugal has more households without bank accounts than the EU-5 average that is not surprising given that it is so much less wealthy than these countries.

**TABLE 2 | PORTUGAL COMPARED WITH THE EU-5**

COUNTRY	ATMS PER MILLION INHABITANTS	POS TERMINALS PER MILLION INHABITANTS	PERCENT WITH CURRENT ACCOUNTS	DEBIT AND CREDIT CARDS PER CAPITA	GDP PER CAPITA (€)	POPULATION (MILLIONS)
FRANCE	893	22,151	96%	1.27	30,632	65.18
GERMANY	1,030	8,693	95%	1.60	31,702	81.78
ITALY	853	20,651	75%	1.11	26,012	60.75
SPAIN	1,241	29,546	88%	1.50	23,051	46.13
UK	1,026	21,688	92%	2.35	27,844	62.74
EU-5 AVERAGE	1,009	20,546	89%	1.57	27,848	62.32
PORTUGAL	1,624	25,733	80%	1.89	16,050	10.65

Sources: European Central Bank (2012) Payment Statistics; European Commission (2012), Special Eurobarometer 373, Retail Financial Services.

The Portuguese payment system has also performed well over time. Table 3 shows the key historical developments according to several metrics concerning the use and availability of payment methods. Between 2000 and 2011 the per capita increase was 71 percent for ATMs, 59 percent for the number of debit and credit cards, and 188 percent for the number of POS terminals that accept payment cards. Although cash use remains strong (partly as a result of the expansion of ATMs), electronic methods of payments have sharply reduced the use of checks. Check use likely would have fallen more sharply in the absence of regulations, such as required bank guarantees for payments on checks of €150 or less.

Most of the advances in the Portuguese payment system have resulted from decisions and investments made in the 1990s and early part of the 2000s.

Analysts who have examined the Portuguese payment system have concluded that it is one of the most advanced in Europe. According to the European Payment Cards Yearbook, “Portugal has one of the most efficient payment systems in Europe.” In 2007, out of 162, countries, Portugal was ranked more highly than 138 countries in the public’s access to financial services.

**TABLE 3 | PORTUGUESE PAYMENT SYSTEM OVER TIME**

	ATMS PER MILLION INHABITANTS	DEBIT AND CREDIT CARDS PER CAPITA	POS TERMINALS PER MILLION INHABITANTS	CREDIT TRANSFERS AND DIRECT DEBITS PER MILLION INHABITANTS	CHECK TRANSACTIONS PER MILLION INHABITANTS
2000	949	1.19	8,926.895	16.246	31.601
2011	1,624	1.89	25,733.399	41.784	10.014
TOTAL PERCENT CHANGE (%)	71%	59%	188%	157%	-68%
CAGR (%)	5.0%	4.3%	10.1%	9.0%	-9.9%

Source: European Central Bank, Statistical Data Warehouse.

## B. COVERING THE COSTS OF PROVIDING THE PAYMENT SYSTEM

Of course, it costs money to provide consumers and merchants with payment services and to invest in maintaining and improving the payments systems and engaging in innovation. These costs are borne in the first instance by the financial institutions, including banks, schemes, and infrastructure providers, that provide these payment services. Banks have to recover these costs from the consumers and merchants that use the payments systems. SIBS, the card schemes, and other service providers to the banks in turn need to cover their costs from the banks that rely on their systems for providing services to consumers and merchants.

To understand how financial institutions cover these costs it is useful to review how consumers and merchants obtain these services and how financial institutions charge for them. Consumers and merchants obtain payment services as components of various banking services they have. It is common for banks to include many payment services as part of the current account. In some cases there may be separate charges but in other cases the service is included as part of a bundle of services. Portuguese banks, for example, do not—and, in fact, cannot under Portuguese law as we discuss below—charge consumers for ATM services, including getting cash or paying bills. They also do not charge transaction fees for using their debit or credit cards for making payments. They may waive annual

fees for ATM/debit and credit cards for consumers that keep minimum balances in their current account or use their debit cards frequently.

Banks also provide various services to merchants as part of their overall relationship. This typically includes a merchant deposit account and card acceptance services, and may also include a line of credit. In some cases, the bank will offer discounted merchant discount fees for accepting cards and processing card payments as part of its bundle. Larger merchants in particular are able to negotiate lower fees for many payment services as a result of their significant bargaining power.

While consumers and merchants receive some services “for free”, or at a discounted price, banks ultimately must charge these customers enough to cover their costs and make a profit.

Financial institutions face two issues when attempting to cover the costs of providing payment system services. The first concerns the portion of the costs that they recover from merchants and consumers that both jointly benefit from many of these services. This issue is commonly faced by “multi-sided platforms” that provide services jointly to several interdependent groups of customers. The second concerns precisely how to recover these costs from the

provision of a complex bundle of services involving a variety of complementary products. For example, if banks do not charge consumers for ATM services, they have to recover the costs of those services from other current account fees, from merchant fees for the use of cards at the POS, from annual fees for debit cards, or in other ways.

The fact that payments systems benefit consumers and merchants, and that both consumers and merchants receive complex bundles of services, have significant implications. The pricing decisions for payment services are inherently interrelated. If the revenue for one service declines, or costs for that service increase, financial institutions have to decide whether to increase the price or reduce the quality of that service or related services. But there is no free lunch. It is true that banks could absorb cost increases or revenue losses by earning less profit. Indeed, that is partly what happens. Banks, however, like all businesses, have to earn profits and therefore, like all businesses pass along at least part of cost changes or revenues losses to their customers.

Today, Portuguese banks are in a significant financial

quandary when it comes to payments. The Bank of Portugal reports that, on a stand-alone basis, Portuguese banks are providing payment services at a loss (calculated at €355 million in 2009). That situation results largely from the regulations we discuss next. It is likely to worsen, however, as the European Commission (as part of a larger regulatory package) is proposing a cap on interchange fees of 0.3 percent for credit and 0.2 percent for debit. That will cost Portuguese banks an estimated €137 million in annual revenue, based on current volumes of domestic card transactions. Portuguese banks have to make up their current losses from fees for other services they offer and by reducing the services they offer to consumers and merchants. The further losses coming from the decline in interchange fees will place significant financial stress on Portuguese banks and their provision of banking services, including payment and credit, to the economy, and necessitate increases in fees or reductions in services to consumers and merchants. As we will see next, this situation is exacerbated by an increasing array of government-imposed price caps that limit the ability of banks to charge fees to recover the costs of providing services.

## C. LAWS, REGULATIONS, POLICIES AND UNINTENDED CONSEQUENCES

The Portuguese payment system is subject to laws, regulations, and policies imposed by European Union, the Bank of Portugal, the Portuguese Competition Authority, the Portuguese Council of Ministers, and the Portuguese Assembly. Many of these government interventions have involved behavioral regulations or standard setting that have helped ensure the stability and reliability of the payments system. European regulations under the SEPA initiative are facilitating the interoperability and standardization of payment systems across Europe and are thereby helping to foster the integration of the European Community. Domestic regulation includes anti-money laundering restrictions that limit the use of the payment system for criminal activity, truth-in-lending laws to prevent deceptive practices, and rules for clearing and settling transactions. One measure of the success of the payments regulation in Portugal is how well the payments system worked during the depths of the financial crisis.

Increasingly, however, policymakers are proposing, and in some cases have implemented, price regulation of various aspects of the payment system. These include prohibitions on charging consumers fees for using ATMs, price caps on fees for credit cards, prohibitions on charging late fees, and limits on interchange fees that banks agreed to in response to demands by regulators.

This direction is surprising given that governments around the world, including Portugal, have largely abandoned

price regulation of companies and industries in favor of market forces. Starting in the 1980s, this has occurred in sectors as diverse as telecommunications, electricity, and transportation. European governments have moved away from price regulation because it is well known that such regulation has historically resulted in market distortions, low investment, slow innovation, and other unintended consequences.

Indeed, there are reasons to believe that price regulation of payment systems is especially likely to have unintended consequences that could ultimately harm consumers as well as overall economic performance. Price caps, in particular, can result in complex changes in the prices, services, investments, and pace of innovation for payment systems as a result of payment systems providing complex bundles and joint services to merchants and consumers. These changes can have unintended consequences that result from the complexity and interdependence of the various parts of the payments system.

### 1. INTERCHANGE FEES

The international experience with the regulation of interchange fees illustrates this point. Card issuers receive an “interchange fee” from merchant acquirers when one of their cardholders uses their card to pay at a merchant that has an account with the acquirer. The merchant acquirer typically passes the interchange expense, in part

or in whole, to the merchant. In recent years merchants in a number of countries have been engaged in various efforts to persuade policymakers and regulators to impose price caps on interchange fees.

#### PRICE CAPS THAT REDUCE INTERCHANGE FEES HAVE TWO OFFSETTING EFFECTS.

FIRST, they unintentionally shift the cost of the payment system to consumers. Any reduction in revenue from one side of the payment system platform must result in an increase in cost on the other side of the platform or a reduction in the quality of services or investment in innovation provided to either side. If banks lose a revenue stream from the merchants that benefit from payment systems they must replace that revenue stream from the consumers that benefit from payments systems by charging consumers higher prices or providing less service.

SECOND, since price caps reduce their costs of taking payment, merchants might reduce the prices they charge to consumers or increase the services they offer consumers. Whether consumers are harmed overall depends on whether merchants pass on enough of their savings to consumers—as opposed to adding those savings to their profits—to offset the higher prices and diminished services that consumers face as a result of their banks losing merchant revenue.

Studies of Australia, Spain and the United States have documented that reductions in interchange fees have resulted partly in banks taking lower profits but also, as economists would expect, recovering some of their losses through increased fees and reductions in product features that thereby deprive consumers of benefits. Meanwhile it

appears likely that merchants have kept a significant part of the cost savings they receive for themselves. These studies are summarized in Table 4.

A detailed study by the first author found that the debit-card price caps imposed in the United States resulted in banks eliminating many previously “free” bank accounts, closing branches, and increasing various bank fees. After accounting for the possibility that merchants lower prices to consumers as a result of lower card fees, the study estimated that the increased costs incurred by consumers was more than \$10 billion for the first two years. The study estimated that although merchants would pass some of the cost savings on to consumers they would retain a significant portion of the cost savings, with large merchants along getting more than \$10 billion of additional profits in the first two years.

The card schemes in Portugal reduced their interchange fees between 2004 and 2012 (Multibanco by 17 basis points, and Visa by 86 basis points for credit cards and 33 basis points for debit cards), in part to alleviate regulatory concerns<sup>1</sup>. No one has conducted the sort of systematic study of these reductions along the lines of the studies we have discussed. However, our interviews with financial institutions found that, as in these other countries, Portuguese banks increased various fees and reduced cardholder services. In addition, as with banks in other countries, the profits Portuguese banks earn from providing payment services has also declined. There is no evidence that Portuguese merchants have passed on these savings in the form of lower prices. As in other jurisdictions these changes have likely only partly offset the revenue losses and as a result profit margins on retail banking have declined.

**TABLE 4 | STUDIES OF THE EFFECTS OF INTERCHANGE FEE REGULATIONS**

COUNTRY	STUDY	GENERAL FINDINGS
AUSTRALIA	Howard Chang, David Evans, and Daniel D. Garcia Swartz (2005), “The Effect of Regulatory Intervention in Two-Sided Markets: An Assessment of Interchange-Fee Capping in Australia,” <i>Review of Network Economics</i> , 4:4, pp. 328 – 358.	Australian card issuers passed on 30-40 percent of the reduced credit card interchange fee revenues to cardholders in about the first year, particularly in the form of increased annual fees. Subsequent examination suggests that banks eventually passed on all of the increased fees. It is unlikely that merchants passed enough of their cost savings on in the form of lower prices to consumers given the high degree of concentration of Australian retail categories and there is no evidence they did.
SPAIN	Iranzo Juan, Fernández Pascual, Matías Gustavo and Delgado Manuel (2012), “The Effects of the Mandatory Decrease of Interchange Fees in Spain,” MPRA Paper No. 43097.	The reduction in interchange of €3.329 billion led to an increase of more than 50 percent in annual fees, costing consumers €2.350 billion. Fees for overdrafts and debt claims increased, and rewards and promotions were reduced. The intervention slowed the pace of displacement of costly cash by more efficient electronic means of payment. It is unlikely and there is no evidence that merchants passed on enough savings to offset these increases.
UNITED STATES	David S. Evans, Robert E. Litan, and Richard Schmalensee, “Economic Analysis of the Effects of the Federal Reserve Board’s Proposed Debit Card Interchange Fee Regulations on Consumers and Small Businesses”, David S. Evans, ed., <i>Interchange Fees: The Economics and Regulation of What Merchants Pay for Cards</i> (Boston: Competition Policy International, 2011).	Reduced debit interchange will cause merchants to gain and issuers to lose, with some of these gains and losses being passed on to consumers. Over the first two years of the reduction, large merchants will gain a windfall between \$17.2 billion to \$19.9 billion. Consumers and small businesses will lose more on the bank side than they will gain from the merchant side, with a net consumer loss between \$16.2 billion and \$18.7 billion. The numbers in this paper are based on the reduction of debit interchange in the Federal Reserve’s original proposal (to either 12 cents per debit transaction or 7 cents per transaction). If we adjust their results to reflect the actual reduction (to 24 cents per transaction) the numbers are as follows: a gain to large merchants of \$10.7 billion, and a net loss to consumers and small businesses of \$10.1 billion.

<sup>1</sup> The data for MasterCard are only available for a shorter time span (2007-2012), but show a similar trends: a 19 basis point reduction for credit and 7 basis points for debit.



These results point to significant public policy issues concerning payments systems. As we noted above, these systems involve multi-sided platforms that jointly serve consumers and merchants. Payment systems have to determine a pricing structure that balances the interests of both constituencies. Merchants, however, could secure more profits for themselves if they could shift the costs of running the system to consumers. Merchants in Portugal and other countries have lobbied governments to impose price caps on interchange fees that result in their making great profits as a result of lower costs of taking payment cards. In effect, merchants have sought to impose monopsony prices (that is the prices a monopoly buyer or cartel of buyers would prefer) on the payment card system. The result of these monopsony prices is that consumers bear more of the costs of the payment system even after accounting for some lower prices at merchants and banks earn lower profits.

It is important to note that the interchange fee has been a central element of the pricing structure for payment cards in Portugal. It is what has determined the relative incentives for consumers to take cards, rather than paying with cash, and for merchants to accept cards and install point-of-sale acceptance devices. Those relative incentives are important determinants of the performance of the Portuguese payment system over time and relative to other countries.

## 2. THE CASH SUBSIDY AND ATM PRICE CAPS

An unusual feature of the Portuguese payments system is that the use of cash is promoted through a combination of a government subsidy to cash and price caps that prevent banks from charging for using ATM machines. These policies tend to promote a payment method that is often used for evading taxes and is therefore costly to the Portuguese treasury and ultimately the Portuguese taxpayer. According to a recent study, the shadow economy in Portugal, which is supported mainly through the use of cash, amounted to 19.1 percent of GDP or €33 billion. That was about average for the EU, which had an overall share of 19.5%, but higher than the EU-5 which had an average of 14.8 percent.

We mentioned above that Portugal has one of the highest ATMs per capita of any EU country. This is the result of significant investments made by the Portuguese banking industry to install ATM machines at branches and in remote locations. Banks have not charged for ATM services during this period of rapid deployment in large part because they wanted to encourage consumers to migrate away from more expensive branch banking services to cheaper ATM services. But now, with a

widely used ATM network, a payment system that is losing money, and the further erosion of interchange fee revenues, banks have pressing financial reasons to discontinue or reduce this subsidy for the services that consumers get from ATMs. Moreover, bank profit margins are depressed as a result of the financial crisis that has increased the cost of funding and maintaining bank capital.

However, a law enacted in 2010 prohibits the financial institutions that operate ATMs in Portugal from charging consumers any fees for virtually all of the services consumers get from ATMs. That is, there is a price cap of €0.00 on ATM services. No other EU country has imposed such stringent regulation on the pricing of ATM services, and as result, banks that own ATMs in other countries often charge fees to consumers, typically differentiating those fees between those who do not bank with them and those who do.

Currently, financial institutions have only one material source of revenue for ATMs. They receive an inter-banking fee when consumers withdraw money from their machines using an ATM/debit card issued by another bank. Every bank therefore obtains revenues from their ATMs but incurs costs from their cardholders using other banks' ATMs. Banks that have relatively more ATM than cardholders obtain positive net revenues and banks that have relatively more cardholders than ATMs incur negative net revenues. However, since this is a transfer between banks, this is a zero-sum game across all banks in Portugal—one bank's gain is another bank's loss.

Overall, therefore, banks earn no significant revenue at all from offering ATM services to consumers. All banks incur costs from placing and servicing ATMs and the transactions that take place from ATMs. They also incur costs from issuing ATM cards. Banks therefore lose money from providing ATMs and their related services and have no meaningful revenue stream to cover their investment in the deployment of ATMs, thereby forcing them to recover these costs from other services.

The government mandated subsidy by banks to the provision of ATM services, that results from the zero-price cap on ATM services, tends to reduce the marginal cost of cash to consumers thereby making this payment method seem cheaper than it really is. Consumers use cash from ATMs frequently to pay merchants who also do not bear any significant cost for the ATM system. Because consumers do not pay for ATM services Portuguese consumers withdraw cash from ATMs more often than in every EU country except the United Kingdom. The average number of annual ATM cash withdrawals per capita in Portugal is 42 which more than 75 percent greater than the EU average of 24.

This artificial stimulation of cash use has other potential



consequences. The cash subsidy discourages the use of modern electronic payment systems and encourages the use of a paper-based system. This is somewhat like subsidizing typewriters and thereby encouraging people to use typewriters instead of computers. There is nothing necessarily wrong with people using typewriters or cash but it is hard to see a public policy reason to subsidize older technologies at the expense of new ones. Since cash is priced so low in Portugal we would also expect that the country will move much more slowly to new technologies such as mobile payments or contactless cards that tend to displace cash for low valued transactions.

The ATM price caps also result in a subsidy to a payment method that, because of its anonymity, is used to avoid taxes and engage in black-market activities. As noted earlier, the cash-based shadow economy in Portugal amounts to almost a fifth of GDP. That subsidy to cash ultimately reduces the revenue received by the Portuguese Treasury and increases the taxes born by people and businesses that do not use cash to evade taxes. In this regard, Portugal has taken a different path than other EU member states—such as Sweden, Italy, and France—that are trying to shift payments from cash to electronic methods in order to reduce tax evasion and other black-market activities.

Finally, as with other price-cap regulations, there is no free lunch. If banks cannot charge consumers the market price for ATM services they will have to obtain revenues from other sources such as charges for the depository account, merchant service charges for using payment cards, or other ways.

### 3. OTHER PRICING REGULATIONS

Banks in Portugal are faced with many other regulations that limit the prices they can charge for services or require that they provide certain services for free.

Regulations place a cap on credit card fees. Technically, the cap limits the annual percentage finance rate for the card. However, in calculating the rate the cap includes the annual fee for the card. Therefore, the cap limits the annual fee they can charge and therefore how much they can charge consumers who do not revolve their balances; these consumers typically receive an average of 35 days of free float reflecting the lag between when they make charges and when they pay their monthly bill in full.

As mentioned earlier, banks are also required to honor checks for €150 or less regardless of whether funds are available. That shifts the risk of this payment instrument from merchants and consumers to banks.

### 4. PRICE REGULATION AND BURDEN SHIFTING FOR PAYMENTS

The previous examples indicate that price caps are like pressing on a balloon. If you press one part of the balloon in (impose a price cap on one service to one customer) then another part of the balloon will expand (increases in prices and reductions in service elsewhere among the interconnected products and customers). One could argue that the solution for this phenomenon is even more price caps—that is imposing price caps on various other fees that banks might raise as a consequence. The flaw in that reasoning is that someone must ultimately cover the cost of the payment system (just like the air in balloon ultimately needs to go somewhere—unless the balloon just pops). Moreover, if price caps prevent banks, and the other participants in the payments business, from earning a fair market return on their investments, those entities will not continue their investments. The payment system would deteriorate and innovation would slow.

## D. RECOMMENDATIONS

Portugal has one of the most highly developed payment systems in the EU and, indeed, in the world. However, its stature is primarily the result of investment decisions made in the 1990s and early 2000s.

The pace of innovations in Portugal has slowed for a variety of reasons including the severe financial crisis. Portugal is no longer on the cutting edge of payments. When compared to other EU countries, in particular the EU-5, little progress has been in introducing mobile payments, contactless payments, mobile POS solutions, or other innovations. There is no evidence that this situation will soon change. As noted above, the cash subsidy resulting from the ATM price cap will tend to slow the adoption of these new innovations relative to other EU countries.

Portuguese and EU policymakers should exercise caution in imposing price regulation, or mandated service offerings, on the payments system as these regulations have proved problematic in most sectors and have resulted in impeding economic progress and harming consumers.

In the case of payments there are two particular concerns with price regulation.

The first is that some regulations such as interchange fees shift the costs of support exchange from merchants to consumers. It is not apparent why government policy should shift costs in a way that taxes consumers and conveys benefits to merchants. It is clear as a matter of economics that merchants realize profits at the expense of consumers and banks by engaging in rent-seeking efforts to get governments to impose price caps on interchange.

The second concern is that, with two groups of customers receiving bundles of services, price caps ultimately shift costs between services and customer groups. The results can be very difficult to predict and can have unintended consequences on prices and services.

The ultimate worry for Portugal, however, is that by strangling the revenue streams that support the payment system, the investments necessary for maintaining and improving Portugal's payment system will dry up. Portugal could go, in the coming decade, from having a first-class payment system to a second-class one. That deterioration would not just be a matter of national pride. An efficient payment system is essential for making the economy work well. While the effects may not be readily discernible, deterioration in the payment system could stifle economic growth and cost jobs.



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# I. INTRODUCTION

Every day on average more than 3.0 billion euros change hands between Portuguese consumers and businesses<sup>2</sup>. These payments take place with cash, cards, checks, direct debits and credit transfers. More than 17 million transactions take place on an average day<sup>3</sup>. Businesses earn money and consumers receive goods and services. The process typically works so seamlessly that everyone forgets that the payments system is a critical part of the lives of Portuguese households and businesses.

Not surprisingly, this well-oiled machine does not come for free. Someone has to bear the costs of operating and investing in this system. Banks and financial institutions provide most of the payment services to consumers and businesses directly along with SIBS, which is their shared infrastructure provider, and financial institutions such as UNICRE. These banks and financial institutions incur most of the costs of the payments system in the first instance. They then recover these costs in the fees they charge their customers. Some of the costs are incurred by the Bank of Portugal and ultimately passed on to taxpayers.

Public policies can affect how much the various stakeholders in the payment systems pay as well as the services that payment system providers can offer to consumers and businesses. Well-crafted policies can improve the efficiency of the Portuguese economy to the benefit of consumers and businesses. Poorly crafted ones can harm the economy and hurt consumers and businesses. This report provides a framework for considering the impact of regulations, laws, and regulatory policies—from EU institutions as well as domestic ones—concerning the payment system in Portugal. It also examines the political economy of payments which concerns the incentives that stakeholders have for using the political process to shift costs to other stakeholders.

The Report has six main chapters including this introduction.

**Chapter II** provides an overview of retail payments in Portugal. It identifies the key players, the services they provide, and how they relate to each other.

**Chapter III** then examines the performance of this system. It considers the prices and services provided by the major participants in the system. It also compares prices, service, and innovation in Portugal to several other countries.

**Chapter IV** provides an in-depth analysis of the economics of the Portuguese payments system. It focuses on the business models of the various players and how these business models translate into recovering costs of payments from the various stakeholders.

**Chapter V** provides a framework for evaluating the impact of regulations, laws and policies on beneficiaries of the payments systems. The framework can be used to evaluate both existing and proposed regulations. This chapter also reviews evidence concerning the impact of government interventions in the payments industry in various jurisdictions. As part of this analysis the report examines how certain stakeholders can use the political process to raise the prices for using the payments system to other stakeholders. A key point is that when it comes to payments “there’s no free lunch”: whenever one stakeholder pays less another stakeholder bears more of the cost. Policymakers need to assess the merits of shifting the burden between stakeholders and the consequences of doing so.

**Chapter VI** presents conclusions and recommendations.

<sup>2</sup>Euromonitor International (2012), “Financial Cards and Payments in Portugal,” Table 8.

<sup>3</sup>Euromonitor International (2012), “Financial Cards and Payments in Portugal,” Table 9.





## II. OVERVIEW OF RETAIL PAYMENTS

Portuguese consumers spent €113.8 billion in 2011 to pay their bills, shop for food, clothing, and many other things, and buy many other things that comprise personal consumption expenditures<sup>4</sup>. Most of those €113.8 billion were received by businesses. Portuguese consumers use one of several payment methods to pay for these goods and services and Portuguese businesses, and other recipients including the government, use the same payment methods to receive these funds. The Portuguese payment system makes this possible. It comprises a number of interconnected entities that provide consumers and businesses with several cash and electronic methods of sending and receiving funds.

This chapter provides an overview of the retail payments system. Part A describes the role of payments in the economy and explains how payment methods increase economic performance. Part B summarizes the historical developments of payments focusing on the modern development of electronic methods of payments. Part C then provides a statistical overview of the importance of different payment methods for conducting transactions between consumers and merchants. Part D describes the structure of the Portuguese payments industry and describes the role played by each group of the various stakeholders in it.

<sup>4</sup>European Commission, Eurostat Database, [http://epp.eurostat.ec.europa.eu/portal/page/portal/national\\_accounts/data/database](http://epp.eurostat.ec.europa.eu/portal/page/portal/national_accounts/data/database), Household and NPISH Final Consumption Expenditure.





## A. ROLE OF PAYMENTS IN THE PORTUGUESE ECONOMY

Strictly speaking, “payments” refers to the method by which consumers pay businesses and businesses receive payment from consumers. Modern payments services have evolved into a broader collection of services that facilitate transactions between consumers and businesses. Pure payment functionality—the swapping of money—is usually just one feature of the service. Other important features include providing credit for the consumer, ensuring the timely receipt of funds for the merchant, reducing risk for both the consumer and the merchant, making payment convenient for the consumer, and making acceptance of payment convenient for the merchant. Of course, the direct and indirect costs of making and receiving payments are also important features for both consumers and merchants.

Payments themselves are usually part of a larger bundle of services that consumers and merchants get from their banks.

Most Portuguese households have a current account that they use to manage their finances. The paychecks of members of the household are often deposited automatically into these accounts. Payments are one of the important services provided by current accounts in addition to the safe keeping of funds and access to savings and other banking services. For example, consumers have the ability to obtain cash by using their ATM/debit cards at ATMs or by going to a bank branch. They also have the ability to make electronic payments using bank-provided debit and credit cards as well as make direct debit and credit transfers.

Businesses also make use of current accounts to manage receivables and payments to their employees and suppliers. Their bank typically provides a variety of

payments services including the receipt of cash, the acquisition credit and debit and credit card transactions for the various schemes (MB, Visa, MasterCard, and American Express), credit facilities, B2C services such as bill payment, and B2B payments services.

### PAYMENTS ARE VERY IMPORTANT TO THE HEALTH OF THE PORTUGUESE ECONOMY FOR SEVERAL REASONS.

FIRST, they increase the efficiency of conducting commerce. Instead of going to a bank branch and withdrawing money—all of which takes time and presents risk—consumers can simply present the merchant with a card, go to an ATM and take out cash, or in some cases make an electronic debit. Similarly, merchants can sell more because it is easier for consumers to pay. Beyond that, merchants receive their funds quickly, which helps with their cash flow, as they do not need to wait for checks to clear. Even with cash, there are increasingly efficient services for picking up and delivering cash to their accounts. Consequently, consumers benefit because they can more easily pay for goods and services they want and merchants are better off because they can more easily receive payments from consumers. Electronic payments, of course, are critical for ecommerce that accounts for 1.2 percent of card payments in Portugal and is likely to grow rapidly as a result of the expansion of web-based commerce and the spread of smart mobile devices.

SECOND, credit and deferred debit cards provide short-term financing that helps households avoid liquidity constraints resulting from the fact that the timing of the receipt of funds and the timing of expenditures are not synchronous. Instead of living from paycheck

to paycheck, consumers can smooth their consumption patterns over time by borrowing when they have a shortfall and paying it back when monies come in. The provision of credit to consumers also makes it easier for merchants to sell products and services, which in turn enables them to expand and hire more workers. It is true they could offer credit themselves, and in past times many did. But providing credit involves scale economies and special skills. Merchants derive efficiencies from having banks provide credit, thereby allowing them to focus on merchandising and selling goods.

THIRD, by shifting transactions away from cash, the use of electronic payments helps the government ensure that businesses are paying their taxes and helps make money laundering and other black market activities more difficult. Electronic payments provide a transaction trail that can be audited and monitored. That of course is why some consumers and merchants prefer to pay with cash.

## B. HISTORICAL DEVELOPMENT OF MAJOR PAYMENT INSTRUMENTS

Portugal, like most countries, has seen a continual increase in the use and availability of various types of payment instruments over the course of history. In ancient times the people who inhabited the Iberian Peninsula engaged in barter transactions. About three millennia ago metallic money started sweeping across Europe. During medieval

times, bills of exchange—the early version of checks—were introduced. Table 5 shows the historical development of modern payment instruments in Portugal beginning with the introduction of paper money by Queen Maria I in 1796<sup>5</sup>.

**TABLE 5 | HISTORICAL DEVELOPMENT OF MODERN PAYMENT INSTRUMENTS**

YEAR	DEVELOPMENT
1796	Paper money was introduced
1934	Consumers started using checks
1970	Banco Pinto & Sotto Mayor issues BankAmericard credit cards, the first credit cards in Portugal
1974	UNICRE was created and merchants began accepting MasterCard cards
1983	SIBS was created to provide electronic payments infrastructure
1985	The Multibanco ATM network was launched
1987	Multibanco cards could be used to pay at point-of-sale using EFTPOS
1989	Electronic processing of checks began
1992	Electronic credit transfers were made available by SIBS, replacing a cumbersome paper process
1995	VISA Portugal members began issuing cards
1996	Mobile banking first became available
2000	Electronic direct debits become available (replacing older system based on bilateral agreements between banks)

<sup>5</sup>The notes were circulating interest-bearing promissory notes issued by the Portuguese government, and arguably should not be considered proper paper money. The first Portuguese banknotes were issued in Brazil in 1808, when the Portuguese government relocated there during Napoleon's invasion. The first banknotes in the Portuguese mainland were issued in 1821. Fundação Dr. António Cupertino de Miranda (2011), *Breve História do Papel Moeda*, available at <http://www.facm.pt/facm/facm/pt/servico-educacao/recursospedagogicos/Breve-Hist-ria-do-Papel-Moeda>.

Consumers began using checks as part of their current accounts in 1934.<sup>6</sup> The next major development was the introduction of direct debits and credit transfers that enabled consumers to have their banks transfer funds directly to businesses (credit transfers) or to give businesses permission to take money from their accounts (direct debits). In 1974, UNICRE, a company owned by several banks, was created to facilitate the acceptance and issuance of MasterCharge branded cards.<sup>7</sup> Portuguese merchants began accepting foreign MasterCharge cards in August 1974, with the first transactions on domestically issued MasterCharge cards occurring on November 4, 1974.<sup>8</sup>

In 1983, SIBS was created to provide infrastructure that banks could share. It deployed the national Multibanco ATM network in 1985 so that consumers were able to take cash out more conveniently than at the bank branch.<sup>9</sup> Consumers and merchants were able to use these same ATM cards for electronic payment through a national point-of-sale network starting in 1987.<sup>10</sup> ATM cards became dual-purpose debit cards that could be used at ATMs to withdraw cash or at the point-of-sale to pay electronically.

The electronic processing of checks and credit transfers began in 1989 and 1992, respectively.<sup>11</sup> Visa Portugal began working with banks to issue Visa cards in 1995.

Starting in 1996, Portuguese consumers could use mobile banking services to handle many of their banking needs.<sup>12</sup> In the early years, mobile banking was limited

to some basic ATM features that were made available on mobile phones. More recently, mobile payments have expanded, although slowly, both in quantity and in the range of services. In 2007, mobile operators Optimus, TMN and Vodafone Portugal entered into a deal with SIBS to offer mobile payments to their subscribers.<sup>13</sup> Portugal Telecom, the largest telecom provider in Portugal, signed an agreement for the carrier to resell mPowa services as the centerpiece of its own mobile payments solution.<sup>14</sup> Despite these developments, mobile-based payments are not widely used, and have not gained significant traction, in Portugal.

Unlike other some other countries, schemes in Portugal do not necessarily operate the network over which their transactions are processed. In Portugal, SIBS is the only substantial network processor. It serves as the network for its own MB scheme, as well as for the Visa, MasterCard, and American Express schemes. That is likely a source of significant efficiencies for the payment systems.

As of today, the payments system in Portugal is broadly similar to that in highly developed countries with consumers and merchants having the full spectrum of payment methods available to them. Indeed, Portugal is well ahead of most countries. According to the European Payment Cards Yearbook, "Portugal has one of the most efficient payment systems in Europe."<sup>15</sup> In 2007, out of 162 countries considered, Portugal was ranked more highly than 85 percent in the public's access to financial services.<sup>16</sup>



<sup>6</sup>Decreto 23.721, de 29 de Março de 1934. Checks were accepted for payments to the state much earlier, in 1921. Nuno Valério, History of the Portuguese Banking System, Volume 1, at p. 194.

<sup>7</sup>Prior to the creation of UNICRE, one Portuguese bank (Banco Pinto & Sotto Mayor) had begun issuing and acquiring BankAmericard credit cards in Portugal. This program was absorbed into UNICRE in 1974. Nuno Valério, History of the Portuguese Banking System, Volume 2; Agostinho Fields Ferreira (2008), "A introdução dos cartões de crédito em Portugal : 1960-1975," Dissertation, available at <http://biblioteca.sinbad.ua.pt/teses/2009000802>.

<sup>8</sup>UNICRE, História da UNICRE, available at <http://www.UNICRE.pt/site/?idc=17>.

<sup>9</sup>Banco de Portugal (2009), "Payment Systems in Portugal," at p. 10.

<sup>10</sup>European Payment Cards Yearbook 2012-13 – Portugal, at p. 6.

<sup>11</sup>SIBS (2008), "25th Anniversary," at p. 8, available at [http://www.sibs.pt/export/sites/sibs\\_publico/pt/documentos/Noticias/20081002\\_Dossier\\_MB\\_25Anos.pdf](http://www.sibs.pt/export/sites/sibs_publico/pt/documentos/Noticias/20081002_Dossier_MB_25Anos.pdf)

<sup>12</sup>SIBS (2008), "25th Anniversary," at p. 9, available at [http://www.sibs.pt/export/sites/sibs\\_publico/pt/documentos/Noticias/20081002\\_Dossier\\_MB\\_25Anos.pdf](http://www.sibs.pt/export/sites/sibs_publico/pt/documentos/Noticias/20081002_Dossier_MB_25Anos.pdf)

<sup>13</sup>Portuguese operators offer mobile payment service with SIBS' Mobile financial.com, January 16, 2009.

<http://mobile-financial.com/news/portuguese-operators-offer-mobile-payment-service-sibs>

<sup>14</sup>"Square Competitor mPowa signs Up Portugal Telecom In Multi-Million-Dollar, 7 year International Deal." Techcrunch.com, February 4, 2013.

<http://techcrunch.com/2013/02/04/square-competitor-mpowa-signs-up-portugal-telecom-in-multi-million-7-year-international-deal/>.

<sup>15</sup>European Payment Cards Yearbook 2012-2013 – Portugal. November 2012.

<sup>16</sup>Cross-country Variation in Household Access to Financial Services, Patrick Honohan, the World Bank, Trinity College Dublin and CEPR, February 2007.

## C. USE OF DIFFERENT PAYMENT TYPES IN PORTUGAL

Consumers and businesses use several different payment types. Consumers decide whether to pay with cash, card, direct debit, or credit transfer based on a variety of factors including whether the receiver of funds can take payment that way. Businesses in turn decide which method of payment to take depending in part on what payment types their customers want to use. These joint decisions ultimately determine the portion of spending that takes place with each payment type.

Table 6 reports the share of spending for cash, debit cards, and credit cards from 2000 to 2011 as a percent of personal consumption expenditure. The table is based on Bank of Portugal data (as reported to the European

Central Bank) for debit and credit cards and estimates prepared by Evans et al. for cash spending.<sup>17</sup> The table does not include three other payment types for which consumer-to-business payments are not available. Data for checks, direct debit, and credit transfers include business-to-business payments and do not provide separate breakdowns for consumer-to-business payments.<sup>18</sup> Based on anecdotal information and the data in Table 6, consumer payments by check have declined considerably over this period as consumers have migrated to debit cards for payment at the point-of-sale and direct debits and credit transfers for paying bills and other large sums.

**TABLE 6 | CASH AND CARD SPENDING IN PORTUGAL AS PERCENTAGE OF PERSONAL CONSUMPTION EXPENDITURE**

YEAR	CASH SPENDING (PERCENT)			CARD SPENDING (PERCENT)			CASH + CARD SPENDING (PERCENT)
	ATM	OTC	TOTAL	DEBIT	CREDIT	TOTAL	GRAND TOTAL
2000	19.8	11.3	31.1	13.6	4.3	17.9	49.0
2001	21.3	9.6	30.8	17.5	3.7	21.2	52.0
2002	22.6	8.6	31.2	19.4	4.4	23.9	55.1
2003	23.6	7.8	31.4	20.7	4.8	25.5	56.9
2004	24.1	7.0	31.1	21.9	5.0	26.9	58.0
2005	25.3	6.6	31.8	23.7	5.3	29.0	60.9
2006	26.1	6.1	32.2	25.0	5.9	30.8	63.0
2007	26.4	5.5	32.0	26.6	6.0	32.6	64.6
2008	26.4	5.0	31.4	28.2	6.1	34.3	65.8
2009	28.0	4.8	32.8	31.8	7.0	38.9	71.7
2010	27.8	4.3	32.0	39.0	8.1	47.0	79.1
2011	27.4	3.8	31.2	40.5	8.5	49.0	80.2

Sources: Eurostat; European Central Bank, Statistical Data Warehouse, Evans et al.

Over the last decade, card use has expanded significantly as a result of more merchants accepting cards and consumers becoming more accustomed to paying with their debit and credit cards. The percent of personal consumption expenditures paid for with debit cards almost tripled from 13.6 percent in 2000 to 40.5 percent in 2011 while the percent paid for with credit cards almost doubled from 4.6 percent in 2000 to 8.5 percent

in 2011. The total percent of personal consumption expenditures paid for with debit or credit cards increased from 17.9 percent in 2000 to 49.0 percent in 2011. Meanwhile, cash use has remained roughly steady at about 30 percent of personal consumption expenditure. That, of course, implies that the increased use of debit and credit cards have come from a decline in the use of checks.

<sup>17</sup>David S. Evans, Karen Webster, Gloria Colgan, and Scott Murray, "Paying with Cash," May 2013. Available at: [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2273192](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2273192).

<sup>18</sup>It is useful to note, however, the growth in the total value of checks, direct debit, and credit transfers as a percent of GDP between 2000 and 2011 despite the fact that the figures include both consumer-to-business and business-to-business payments. As a percentage of GDP, the value of check transactions declined by 66 percent; the value of direct debit transactions increased by 97 percent, and credit transfers increased by 63 percent. Clearly the move has been to electronic payments and away from paper checks.

Table 7 compares consumer spending using cash and cards as a percent of personal consumption expenditures to the EU-5. Portugal has the second highest share of spending with debit and credit cards among these five countries. It has the fourth highest share of spending with cash among these five countries. Interestingly, however, Portugal has a much higher share of cash spending compared to the United Kingdom, which has

a similarly high density of ATMs. Cash as a percent of personal consumption expenditures is only 23 percent in the United Kingdom. Portugal also exceeds all of the EU-5 in the importance of ATMs for securing cash. Cash withdrawn from ATMs as a percent of personal consumption expenditures is 27.4 percent compared with an EU-5 average of 16.9 percent.

TABLE 7 | SPENDING USING CASH AND CARDS AS A PERCENTAGE OF PCE, 2011

COUNTRY	CASH (PERCENT)			CARD PERCENT
	ATM CASH	OTC CASH	TOTAL CASH	
PORTUGAL	27.4	3.8	31.2	49.0
FRANCE	11.6	26.2	37.8	34.1
GERMANY	22.4	22.4	44.8	12.6
ITALY	12.8	26.2	39.0	12.6
SPAIN	18.3	37.0	55.3	17.3
UK	19.6	3.3	22.9	51.4
EU-5	16.9	23.0	40.0	25.6

Sources: Eurostat; European Central Bank, Statistical Data Warehouse.

## D. STRUCTURE OF THE PORTUGUESE PAYMENTS INDUSTRY

There are a number of stakeholders in the Portuguese payments industry and many of these stakeholders are part of the supply chain of entities that are responsible for various aspects of payments. Others are the end-customers of payments—consumers who want to pay for goods and services and businesses that want to be paid for goods and services.

The **GOVERNMENT** plays two major roles in payments. With authorization from the European Central Bank, the Bank of Portugal issues euro banknotes and coins.<sup>19</sup> It also regulates the payments industry. In its role as a euro issuer, the Bank of Portugal is responsible for the production of cash, treasury functions (deposit, withdraw,

and exchange by banks), storage, sorting, authenticity checks, banknote destruction, counterfeit analysis, and training/communications.<sup>20</sup> In its role as a payments regulator, the Bank sets rules and operating procedures for the interbank settlement systems, oversees the implementation of the Single Euro Payments Area (SEPA), maintains a list of entities which have defaulted on check payments, and oversees retail payment systems in order to ensure smooth operation and stability.<sup>21</sup>

**BANKS** play a central role in payments. As depository institutions they provide consumers and businesses with current accounts. Consumer current accounts as mentioned above come bundled with a variety of

<sup>19</sup>Banknotes issued by the Banco de Portugal may be printed in Carregado, Portugal (by the company Valora SA, which is 75 percent owned by Banco de Portugal and 25% owned by the UK company De La Rue) or in Gateshead, UK (by the UK company De La Rue).

[http://www.ibiblio.org/theeuro/InformationWebsite.htm?](http://www.ibiblio.org/theeuro/InformationWebsite.htm?http://www.ibiblio.org/theeuro/bnkprintcode.htm)

<http://www.ibiblio.org/theeuro/bnkprintcode.htm>

<http://www.bportugal.pt/en-US/OBancoeEurosisistema/ComunicadoseNotasdeInformacao/Pages/comb19990420.aspx>. Portuguese euro coins are minted by the Imprensa Nacional-Casa da Moeda in Lisbon. [https://www.incm.pt/portal/mpm\\_mcr.jsp](https://www.incm.pt/portal/mpm_mcr.jsp)

<sup>20</sup>Banco de Portugal, "Issue and Treasury," <http://www.bportugal.pt/en-US/OBancoeEurosisistema/MissaoeFuncoes/EmissaoeTesouraria/Pages/default.aspx>

<sup>21</sup>Banco de Portugal, 2010 Annual Report, at pp. 292–392, available at [http://www.bportugal.pt/en-US/EstudosEconomicos/Publicacoes/RelatorioAnual/RelAnuaisAnteriores/Documents/ra\\_10\\_e.pdf](http://www.bportugal.pt/en-US/EstudosEconomicos/Publicacoes/RelatorioAnual/RelAnuaisAnteriores/Documents/ra_10_e.pdf).

payment methods so that consumers can use the funds in their current accounts to pay for goods and services. Banks issue debit and credit cards to consumers and supply cash over the counter and through ATMs. They also provide direct debit and credit transfers. In addition, banks acquire debit card transactions from merchants for the MB scheme and CCAM, CGD and BIC, in addition to UNICRE, acquire debit and credit card transactions for the international schemes. Finally, many of the large banks in Portugal are shareholders in SIBS and UNICRE and members of the American Express, MasterCard, and Visa international schemes.

**SCHEMES** refer to entities that administer systems for card issuing and acquiring. The major schemes in Portugal are MB, Visa, MasterCard, and American Express. MB is the domestic scheme, owned by SIBS PAGAMENTOS, that administers the ATM and debit card systems that run on the SIBS FPS Multibanco network. MasterCard and Visa are international schemes that operate as associations in Portugal. Today most Portuguese retail banks issue MB debit cards, many which are co-badged Maestro, Electron, VISA or MasterCard. Finally, American Express has a contract with Millennium bcp and Banco Espírito Santo to issue American Express cards in Portugal. Cards associated with the American Express, MasterCard and Visa schemes are accepted at merchant locations outside of Portugal that have contracts with these three international schemes. As noted earlier, unlike other some other countries, schemes in Portugal do not necessarily operate the network over which their transactions are processed. In Portugal, SIBS is the only substantial network processor. It serves as the network for its own MB scheme, as well as for the Visa, MasterCard, and American Express schemes.

**INFRASTRUCTURE PROVIDERS** provide services to the banks and schemes. SIBS operates the ATM and POS acceptance networks in Portugal. It acts as a payment processor for issuing and acquiring banks, both for its own scheme and for the other major schemes in Portugal. As of the end of 2011, the SIBS network consisted of 13,911 ATMs, which facilitated over 896 million transactions with a total value of €53.5 billion.<sup>22</sup> Its network also contains a large majority of all Portuguese POS terminals. As of the end of 2011, SIBS's network had 274,080 POS terminals in Portugal which handled a combined 1.25 billion transactions with a total value of €56.7 billion.<sup>23</sup> SIBS has also facilitated the migration to EMV in over 97 percent of its point-of-sale terminals as of the end of 2011.<sup>24</sup>

**OTHER PAYMENT SERVICE PROVIDERS:** UNICRE is an interbank credit card organization, created in 1974 and owned by 13 banks, which serves as an acquirer to the international schemes under the Redunice brand. Like many acquirers, it signs up merchants to accept cards that are associated with international card schemes, rents POS card acceptance equipment to those merchants, and provides processing services to those merchants so that they receive payment when a consumer uses a card from an international scheme to pay. UNICRE was the only acquirer for the international card schemes in Portugal until 2005, but now faces competition from CGD, CCAM, and BIC.<sup>25</sup> As of the end of 2011 UNICRE had about 49,400 establishments subscribing to its Redunice service, which is the brand under which UNICRE acquires terminals, accounting for over 80,400 point-of-sale terminals. Those terminals facilitated over 400 million transactions with a total value in excess of €16.6 billion.<sup>26</sup> UNICRE also issues Visa and MasterCard credit cards under the Unibanco brand.

Other payment service providers include several cash-in-transit companies that transport cash between banks and retailers and restock ATMs.<sup>27</sup>

**RETAILERS** are major consumers of payment services. Some categories of retailing in Portugal are relatively concentrated. For example, the top five supermarket chains account for 75% of total payment card sales by hypermarket and supermarkets, a category with accounts for more than 25 percent of all payment card sales. The hypermarket giants include the Sonae group, which acquired Carrefour's Portuguese operation in 2007.<sup>28</sup> There is an association of retailers, APED, which has been in existence for over 30 years.<sup>29</sup> The association engages in lobbying efforts with regard to payments.

**HOUSEHOLDS** are the other major consumers of payment services. Portugal has more than 10.6 million people and 4 million households.<sup>30</sup> About 80 percent of Portuguese households have access to a bank account.<sup>31</sup> That account is used for most payment services with the exception of credit cards.

In many ways this system has worked very well for consumers and businesses as we discuss next.

<sup>22</sup>European Payment Cards Yearbook 2012-13 – Portugal, at p. 9.

<sup>23</sup>European Central Bank, Statistical Data Warehouse.

<sup>24</sup>European Payment Cards Yearbook 2012-13 – Portugal, at p. 9.

<sup>25</sup>European Payment Cards Yearbook 2012-13 – Portugal, November 2012, available at <http://www.paymentcardyearbooks.com/>.

<sup>26</sup>European Payment Cards Yearbook 2012-13 – Portugal, November 2012, available at <http://www.paymentcardyearbooks.com/>.

<sup>27</sup>Companies that provide both cash transportation and ATM management in Portugal include Loomis and Prosegur. <http://www.loomis.com.pt/servicos/transporte-os-seus-valores/index.html>, <http://www.loomis.com.pt/servicos/gestao-integral-de-maquinas-automaticas/index.html>, <http://www.prosegur.pt/PT/Servicos/Logistica/Valores/index.html>, <http://www.prosegur.pt/PT/Servicos/ATMs/index.html>.

<sup>28</sup>Carrefour: Divestment of Portuguese Hypermarket. Datamonitor, July 30, 2007.

[http://www.datamonitor.com/store/News/carrefour\\_divestment\\_of\\_portuguese\\_hypermarkets?productid=0E34916D-ECF6-49C1-8370-F4CB7B7BA16E](http://www.datamonitor.com/store/News/carrefour_divestment_of_portuguese_hypermarkets?productid=0E34916D-ECF6-49C1-8370-F4CB7B7BA16E).

<sup>29</sup><http://www.aped.pt/Detail.aspx?contentId=27&areaid=10>.

<sup>30</sup>Eurostat.

<sup>31</sup>Patrick Honohan, "Cross-Country Variation in Household Access to Financial Services," The World Bank, Trinity College Dublin, and CEPR, Prepared for the Conference "Access to Finance" Washington, D.C., March 15-16, 2007. The author's data for Portugal was compiled from the 2005 European Commission Eurobarometer household survey.







# III. THE PERFORMANCE OF THE PORTUGUESE PAYMENTS SYSTEM

As noted in the previous chapter, Portugal has been recognized as having “one of the most efficient payment systems in Europe” and its citizens as having some of the best access to financial services in the world. This chapter provides confirmation of these findings. It examines the performance of the Portuguese payment system from two perspectives.

1. Its performance over time in terms of prices, output, innovation, and other relevant metrics;
2. Its performance relative to other countries in the European Union.

Although no industry is perfect, the Portuguese payments system has performed quite well on both dimensions.

<sup>4</sup>European Commission, Eurostat Database, [http://epp.eurostat.ec.europa.eu/portal/page/portal/national\\_accounts/data/database](http://epp.eurostat.ec.europa.eu/portal/page/portal/national_accounts/data/database), Household and NPISH Final Consumption Expenditure.



## A. PERFORMANCE OVER TIME

Payment systems serve two major groups of customers: consumers who want to pay and merchants who want to be paid. We discuss the performance of the payment system for both of these key stakeholders.

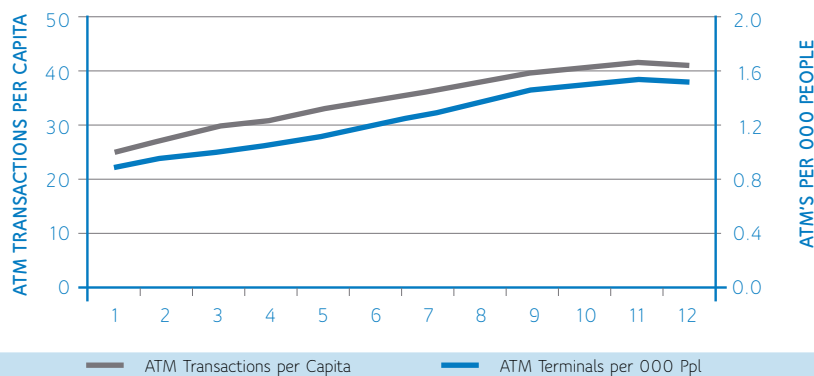
**Consumers:** It is useful to begin by examining the availability of payment services to consumers. That begins with their ability to obtain a bank account. For the last decade most households in Portugal have been able to secure a bank account. Those bank accounts have come with an increasing array of services. In addition, as we discuss below, many new features and capabilities have been added to several of the payment services making them more valuable to the consumer. In addition, as a result of legislation originally enacted in March 2000 and later amended in May 2011, banks must provide Portuguese consumers with access to a basic current account that access to a debit/ATM card, access to the ATM network, home banking, and the ability to do direct

debit and credit transfers.<sup>32</sup>

One of the major payment services available with a current account is access to ATMs. Over the past decade consumers have had significantly greater availability of ATMs. Figure 1 shows the number of ATMs per 1,000 inhabitants and the number of ATM transactions per capita for the years 2000 to 2011. The number of ATMs per capita increased by almost 60 percent from 0.88 per 1000 people in 2000 to 1.50 per 1000 people in 2011, a compound annual growth rate (CAGR) of 5.0 percent.

We can see that not only has there been a significant increase in the number of ATMs relative to population during this time period, but that people have been making more ATM withdrawals. The annual number of withdrawals per capita has increased from 24.8 in 2000 to 40.7 in 2011, a CAGR of 4.6 percent.<sup>33</sup>

FIGURE 1 | ATMS PER 1000 PEOPLE AND ATM TRANSACTIONS PER CAPITA



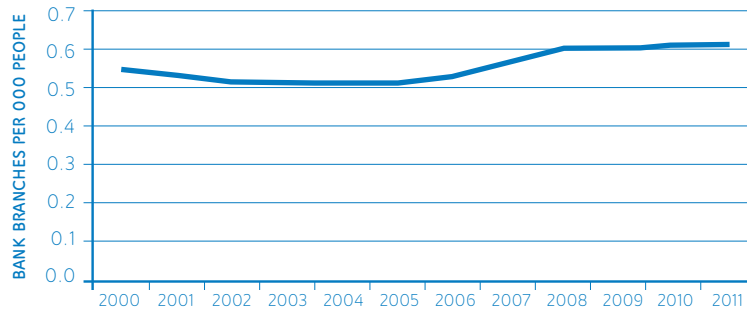
<sup>32</sup>Decree-Law 27-C/2000, March 10th; Law 19/2011 of May 20th and Decree-Law 225/12 of October 17th. The cost of the current account has increased over time partly as a result of the expansion of services and partly as a result recovering the losses of revenue from other sources such as interchange fees.

<sup>33</sup>European Central Bank, Statistical Data Warehouse.

Banks also provide services through bank branches although ATMs have replaced these services and made them more conveniently available to consumers over time. Figure 2 shows the number of bank branches per 1000 inhabitants since 2000. There was a slight increase from about 5 branches per 10,000 people in the mid-2000s

to slightly more than 6 branches per 10,000 people in 2011. However, based on discussions with the banks, it is our understanding that over time branches have become more self-service with fewer employees per branch and that in the last two years, for which public data are not available, the number of branches has declined.

FIGURE 2 | NUMBER OF BANK BRANCHES PER 1000 PEOPLE



Source: European Central Bank Statistical Data Warehouse

Not only are there more ATMs, they also provide many more services to consumers. Currently, the typical ATM allows the consumer to withdraw and deposit funds, look up account information, transfer funds. Some payment services are also made available.

- WITHDRAW AND DEPOSIT FUNDS
- VIEW ACCOUNT BALANCES AND LAST TEN TRANSACTIONS
- CHANGE PIN
- TRANSFER FUNDS BETWEEN ACCOUNTS, EVEN AT DIFFERENT BANKS
- ORDER CHECKS
- PAY BILLS (WATER, ELECTRICITY, GAS, AND OTHERS)
- PRE-PAY FOR CERTAIN INTERNET SERVICES
- PRE-PAY FOR CERTAIN PHONE PLANS AND PREPAID PHONE CARDS
- MAKE PAYMENTS TO THE GOVERNMENT (TAXES, FEES, COURT COSTS, ETC.)
- PURCHASE HUNTING AND FISHING LICENSES
- AUTHORIZE DIRECT DEBITS
- PURCHASE INTER-CITY TRAIN TICKETS
- LOAD TRANSIT CARDS FOR THE LISBON AND OPORTO MASS TRANSIT SYSTEMS
- LOAD VIA VERDE (AUTOMATIC TOLL SERVICE)
- BOOK AND PAY FOR CINEMAS, SHOWS, AND OTHER ENTERTAINMENT
- SECURELY CONTRIBUTE TO CHARITIES

As we will discuss in more detail later, under a law passed by the Portuguese Council of Ministers in 2010, Portuguese banks cannot charge directly for most of these ATM services.<sup>34</sup>

The same card that consumers use for accessing ATMs and withdrawing money can be used as a debit card to pay at the point of sale and online. These debit cards have become more valuable to consumers because they can be used to pay at more places.

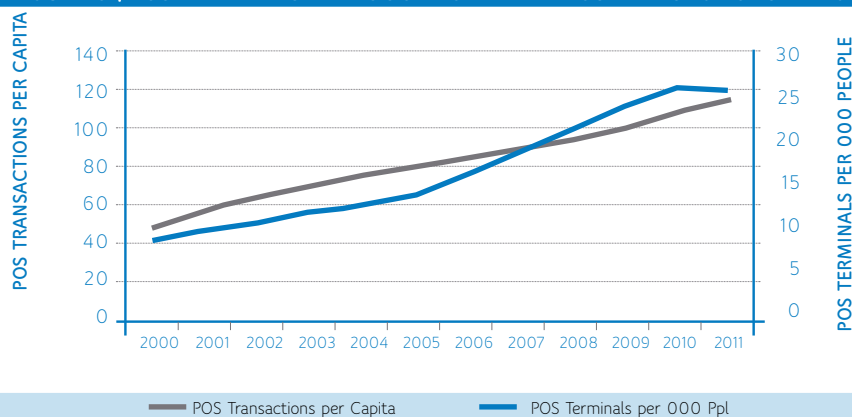
Figure 3 shows the evolution in the number of POS terminals and POS terminal transactions in Portugal relative to population. We can see that the development of POS terminals has been similar to that of ATMs. There are significantly more POS terminals relative to population in 2011 than in 2000 and people are using payment methods that are facilitated by POS terminals much more often. There was over a 189 percent increase between 2000 and 2011 in the number of terminals per 1,000 people, which is a CAGR of 10.1 percent. There was also a 144 percent increase in the volume of transactions handled by those terminals over that same time period, which is a CAGR of 8.5 percent.

It is useful to reflect on how the ATM/debit card has provided increasing benefits to consumers over the

decade. This single card is really the cornerstone of managing household finances. It is the key for obtaining access to ATMs that at least in urban areas are generally within an easy walk from where most people work or live. At those ATMs, consumers can use a wide variety of banking services including paying their bills and taking cash out. Then, that same card can be used at retail stores throughout Portugal—and, for ATM/debit cards that are co-branded with an international scheme, around the world—to pay for things at the cashier. And finally, the numbers on that card can be used for paying for things online. The vast increase in the number of ATMs, in the number of points of sale that accept ATM/debit cards, and in the number of online merchants that accept debit cards have all contributed to their increasing utility.

By the early 2000s, most Portuguese consumers had ATM/debit cards. Over the last ten years, as we have seen, they have paid for an increasing amount of their personal consumption expenditures with these cards. In the previous chapter we saw that by 2011 consumers were paying for 41 percent of their personal consumption expenditures with debit cards. But another 27 percent was paid for with cash obtained from an ATM using their ATM/debit card. So we can trace more than two-thirds of consumer spending to this card.

FIGURE 3 | POS TERMINALS PER 1000 PEOPLE AND POS TRANSACTIONS PER CAPITA



Source: European Central Bank Statistical Data Warehouse.

One of the issues with electronic payment cards for consumers is the possibility of fraud. That problem is minimal in Portugal. In 2008 SIBS and UNICRE created PAYWATCH in a partnership to provide fraud detection and prevention for both issuer and acquiring banks and it

has helped reduce fraud rates in Portugal. Currently, the majority of POS transactions are authorized online-to-issuer. While official statistics are not released, fraud rates were believed to be 0.02% of payments value during 2011.<sup>35</sup>

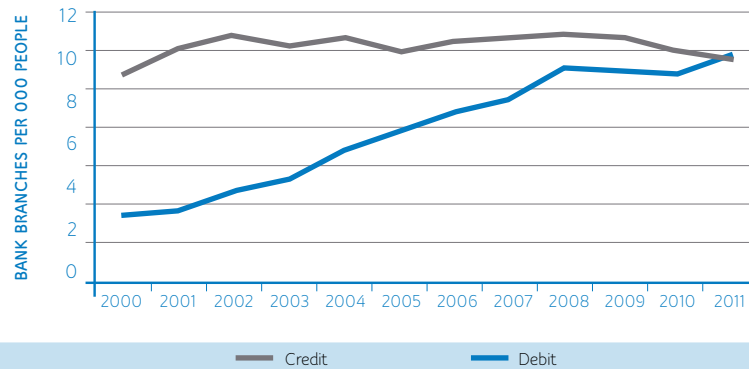
<sup>34</sup>More precisely, neither the ATM owner nor the issuing bank may charge for the use of the ATM to access these services. Obviously, some of these services will cost the consumer (e.g., the purchase of train tickets or donations to charity). Decreto-Lei n.º 3/2010, Diário da República, 1ª série - N.º 2-5 de Janeiro de 2010, at 26-27, available at <http://dre.pt/pdf1s/2010/01/00200/0002600027.pdf>

<sup>35</sup>Euromonitor (2012), Financial Cards and Payments in Portugal, Euromonitor International, May 2012, Table 3 and Table 11.

One of the major developments in the 2000s in Portugal was the increasing amount of consumer spending attributable to the ATM/debit card through payments at the point of sale or from cash taken out from the ATM. The other significant development was the expansion of credit cards and deferred debit cards that provide immediate access to financing. Between 2000 and 2011, as shown in Figure 4, the number of cards with debit and/or delayed debit capabilities carried by consumers

increased by a modest 9 percent from 9.2 million to over 10.0 million, a CAGR of just 0.8%. However the number of cards with credit and/or delayed debit capabilities increased 237 percent from 3.0 million to 10.1 million, a CAGR of 11.7 percent. Over that same time period the number of debit and/or delayed debit per capita cards increased from 0.90 to 0.94 and the number of credit and/or delayed debit cards per capita increased from 0.29 to 0.95.<sup>36</sup>

FIGURE 4 | NUMBER OF DEBIT / DELAYED DEBIT AND CREDIT / DELAYED DEBIT CARDS



Source: European Central Bank Statistical Data Warehouse

Although credit cards have grown rapidly they still account for significantly less consumer spending than debit cards. In 2011, the number of card payments made using a debit and/or delayed debit card was 94.3 per capita and the value of those transactions was €4,330.2 per capita. The number of card payments made using credit and/or delayed debit cards was 21.9 per capita and the value of those transactions was €903.2 per capita.<sup>37</sup> We also saw in the previous chapter that the percent of personal consumption expenditures in 2011 on debit cards was 41 percent versus 9 percent on credit cards.<sup>38</sup> This emphasizes the fact that for consumers the current account is really the foundation of payments and the ATM/debit card is the primary vehicle for accessing those funds when they go shopping.

## MERCHANTS

Businesses are the other side of the coin for payments. They are obviously most interested in getting paid for the goods and services they provide consumers but, since they are also competing with each other for consumers, they are also interested in providing convenient payment options for their customers.

Merchants have an increasing number of ways to be paid that are convenient for them as well as for their customers. To begin with, it has become increasingly easy for consumers to pay with cash because consumers can withdraw money from widely available ATMs. Some retailers have installed ATMs in their stores to make it even easier for their customers to obtain and pay with cash. In addition, almost all large retailers, and many smaller ones, accept cards for payments. As a result there are over 25 POS terminals in Portugal for every 1,000 people.<sup>39</sup> Most consumers who walk into retail stores with POS terminals can pay with their debit card. As noted above, 80 percent of Portuguese consumers have current accounts and virtually all of these come with a debit card. In addition, most of these merchants can also accept credit cards issued by Visa, MasterCard, and American Express. As a result, consumers can finance purchases they make, increasing the likelihood that the merchant will make a sale.

Payments are generally included in a bundle of services that businesses obtain from their banks. They usually pay a merchant service rate for each transaction. The current average for debit and credit cards is 87 basis points (50 basis points for MB debit, 81 basis points for Visa and MasterCard debit, and 142 basis points for credit).<sup>40</sup> That rate has declined significantly as shown in Figure 5,

<sup>37</sup>European Payment Cards Yearbook 2012-13 – Portugal.

<sup>38</sup>European Central Bank, Statistical Data Warehouse.

<sup>39</sup>European Central Bank Statistical Data Warehouse.

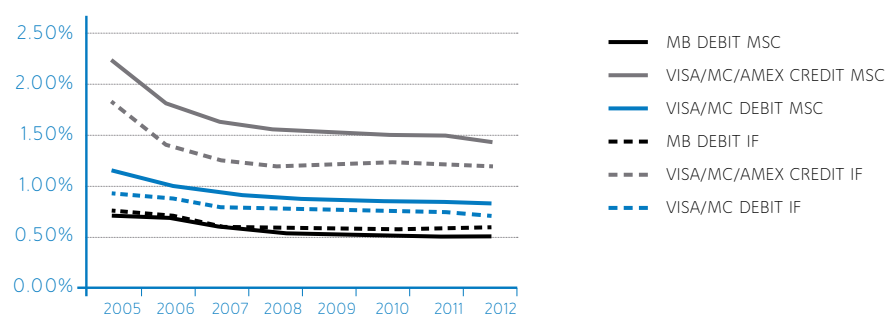
<sup>40</sup>Calculation based on data provided by SIBS.

which reports both the change in interchange fees and the overall merchant service fee.<sup>41</sup> The interchange fee rate fell sharply after 2004 as a result of an agreement between the schemes and merchants to lower the interchange fee<sup>42</sup> and has declined in recent years as well.

The other financial aspect of accepting cards that is of

significant concern to merchants is the extent of fraud costs that they are liable for. Fraud losses have decreased from 15.7 million Euros in 2006 to 12.9 million Euros in 2011. During the same time, total card payments increased from €41.8 billion to €51.5 billion in 2011. As such, fraud rates have dramatically decreased from 3.8 basis points to 2.5 basis points.<sup>43</sup>

FIGURE 5 | INTERCHANGE FEES AND MERCHANT SERVICE CHARGES, 2005-2012



## B. PORTUGUESE PAYMENTS RELATIVE TO OTHER COUNTRIES

It is also useful to compare payments in Portugal with other countries. We selected two overlapping groups for comparison. First, in a recent study, the European Central Bank identified groupings of countries that were similar based on economic development, size, and variety of other characteristics. Portugal was part of a group that included Belgium, Estonia, Slovenia, Spain and the United Kingdom. Second, although Portugal is a modest size economy in the European Union, it is useful to compare it to the five large EU countries. Those of course are France, Germany, Italy, Spain, and the United Kingdom. Combining these countries we have a total of eight countries as Spain and the UK are in both groups.

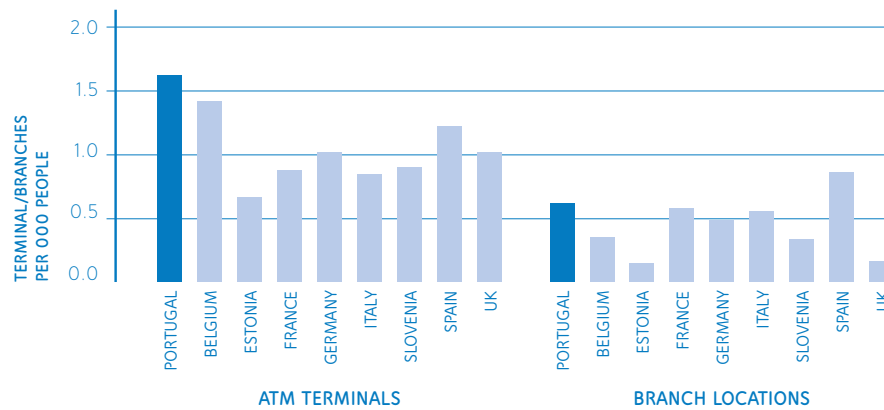
Figure 6 shows how Portugal compares to these eight EU countries in terms of the density of ATM terminals throughout the country. As shown in the chart, Portugal has the highest concentration of ATMs relative to population. In addition, Portugal has the second highest number of bank branches relative to the population.

Figure 7 shows the number of POS terminals per 1,000 inhabitants. As shown on this chart, Portugal is second only to Spain with more than 25 POS terminals per 1,000 inhabitants.

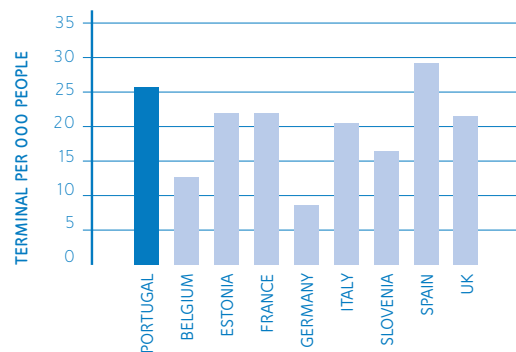
<sup>41</sup>Calculation based on data provided by SIBS.

<sup>42</sup>Fumiko Hayashi (2012), "Public Authority Involvement in Payment Card Markets: Various Countries - April 2012 Update," <http://www.kansascityfed.org/publicat/psr/dataset/regulator-dev-interchange-fees.pdf>; European Payment Cards Yearbook 2012-2013 - Portugal, November 2012.

<sup>43</sup>Euromonitor (2012), Financial Cards and Payments in Portugal, Euromonitor International, May 2012, Table 3 and Table 11.

**FIGURE 6 | ATM TERMINALS AND BANK BRANCH LOCATIONS PER 1.000 PEOPLE, 2011**

Source: European Central Bank Statistical Data Warehouse and the World Bank.

**FIGURE 7 | POS TERMINALS PER 1,000 PEOPLE, 2011**

Source: European Central Bank Statistical Data Warehouse and the World Bank.

Portuguese are more likely to have debit and credit cards than in most comparison countries. Table 8 shows the average number of payment cards per inhabitants for Portugal and the comparison countries. As the table shows, Portuguese citizens carry more payment cards

than all other comparison countries except for the United Kingdom. Portuguese inhabitants carry 1.89 cards per person. That is 31.3 percent more than the EU average of 1.44 cards per inhabitant.<sup>44</sup>

**TABLE 8 | PAYMENT CARDS PER INHABITANT**

COUNTRY	CARDS PER CAPITA
PORTUGAL	1.89
GERMANY	1.60
ITALY	1.11
FRANCE	1.27
SPAIN	1.50
UNITED KINGDOM	2.35
EUROPEAN UNION	1.44

Sources: Eurostat; European Central Bank, Statistical Data Warehouse,

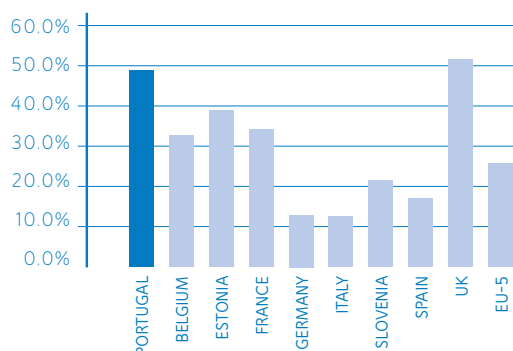
<sup>44</sup>European Central Bank, Statistical Data Warehouse.



Figure 8 describes how Portugal ranks against the comparison countries with regard to the amount of card spending relative to the PCE of the country. This metric shows the value of card transactions as a percentage of PCE. As the chart shows, a relatively high value of card payments are made by consumers and taken by merchants. In 2011, card payments amounted 49.0

percent of PCE in Portugal. That is higher than any of the other comparison countries except for the United Kingdom, which has card spending that at 51.4 percent of PCE. The next highest country, after Portugal, is Estonia, which shows card transaction value of 38.7 percent of PCE.

**FIGURE 8 | TOTAL CARD SPENDING AS A PERCENTAGE OF PCE, 2011**



Generally, these comparisons show that people in Portugal have much better access to a payments infrastructure than in many other comparison countries. They have better access to an ATM system that enables them to pay with cash and obtain other services and better access to debit and credit cards which allows them to pay merchants in physical locations and online. These comparisons, however, are incomplete because the services offered by different payment products can differ dramatically across countries. It turns out that people in Portugal appear to get more and pay less than people in many comparison countries.

consumer in each country. We chose a typical consumer because features, particularly for the current account, vary depending on income. Table 9 summarizes the key features and prices for current accounts, ATMs, and debit cards for the countries for which we were able to obtain reliable information. Portuguese consumers receive one of the better current account packages, considering prices and features, relative to their counterparts in other countries. Most Portuguese households use direct deposit of the paychecks into their current accounts and as a result pay no monthly fee.

We have attempted to identify the key features of payments products that are available to the “typical”

**TABLE 9 | COMPARISON OF CURRENT ACCOUNTS ACROSS COUNTRIES**

	PORTUGAL	FRANCE	GERMANY	ITALY	SPAIN	UK
<b>BANK ACCOUNT</b>	Banco Espírito Santo	BNP Paribas Individual Checking Account	Deutsche Bank Active Account	UniCredit Super Genius	La Caixa Cuenta Corriente	HSBC Bank Account
<b>DDA MONTHLY FEE</b>	€0.00 (with direct deposit of paycheck)	€3.33	€9.99	€6.00	€3.25 plus debit card monthly fees starting in the second year	£0
<b>WAYS TO AVOID DDA MONTHLY FEE</b>	Paycheck direct deposit; Loan	None	None	Reduced to €3.00 with balance > €2500	Online only account	NA
<b>MINIMUM BALANCE</b>	€0 (€3.33 monthly fee with minimum balance of €2000)	€150		€0		No minimum with £500 / month of deposits
<b>POS TRANSACTION FEE</b>	Free	Free	Free	Free	Free	Free
<b>ATM OWNER SURCHARGE</b>	Free	Free	€3-5 at ATMs outside of the Cash Group ATM alliance (~10% of German ATMs)	Free	Up to 4.5% at ATMs outside of the Servired ATM alliance (~50% of Spanish ATMs)	Free at bank ATMs; up to £10 at non-bank ATMs
<b>TRANSFER FEES (TO A DIFFERENT BANK)</b>	Free	Free online, €3.50 OTC	Free	Free	€3.50 minimum	Free

Sources: Bank websites

Of course, payments systems cost money to operate. It is therefore useful to look at two measures of the cost of providing payment services that allow us to compare Portugal to other countries.

The first concerns how much Portugal as a country spends in support of the payments system. The European Central Bank has conducted a detailed study of the “social cost” of payment in a number of EU member states. Social cost means the total amount that society is spending on payments. This measure “nets out” costs that are incurred by one group in society but then compensated by another group in society. Thus social cost measures the total value of resources that society spends on support a payment system.

The ECB study examined all aspects of the payment system and its cost. That ranged from looking at how much central banks were spending on supporting the cash system to how much merchants spend on accepting payments. The study worked with the central bank of each member state of compile the relevant data in a consistent format that could be compared across countries. Based on the results, it found Portugal spent less than one percent of its GDP—0.77 percent precisely—in supporting the payment system. It then compared those results to the comparison countries mentioned earlier: Belgium, Estonia, Slovenia, the United Kingdom and Spain.<sup>45</sup> For those comparison countries the social cost of payments as a percent of GDP was 1.11. Therefore, the social cost of payments in Portugal was 31 percent lower than in the comparison countries. Recently, a study released by the bank of Portugal on the same subject but with a wider scope, since it includes also the social costs incurred by merchants, indicates slightly different figures, with the social cost of payment instruments amounting to 1.38% of Portuguese GDP (of which 0.79% of GDP are borne by the banks). However in terms of unit costs, all instruments but cash are below the average of the above mentioned European study.<sup>46</sup>

The second concerns a controversial subject that we will address in more detail later: the interchange fee that banks that acquire cards for merchants pay to banks that issue cards to consumers. This interchange fee is not included in the social cost calculations above. That is because it is not really a “cost” of the payment system. Rather, it is a method for allocating the cost of payments between merchants and consumers. An interchange fee of €1 for a transaction results in the bank that issued the card used to pay at a merchant receiving €1. That bank may then pass on some of this

revenue to its cardholders in the form of lower fees, rewards, or service. An interchange fee of €1 also results in the bank that acquired the transaction from the merchant incurring a cost of €1. That acquirer passes on some of that interchange fee of merchants. So the interchange fee provides a method for shifting some of the burden of paying for the card system from the cardholder side to the merchant side.

Table 10 shows interchange fees in Portugal versus the EU-5. In several cases these fees were not established by the market but by either regulation or the settlement of investigations. That includes interchange fees in Spain, debit-card interchange fees in Italy, and interchange fees in France.<sup>47</sup> The interchange fees for debit and credit are somewhat higher in Portugal than in these large European member states.

However, that comparison is not the whole story. Most of the cards in use are debit/ATM cards which enable consumers to access their current account and pay with funds in it at the POS or access their current account and withdraw cash at an ATM machine. While Portuguese banks currently receive more than banks in Spain from interchange fees paid when the consumer pays at the POS they receive much less than banks in Spain when the consumer takes cash from the ATM. Figure 9 shows the acquirer revenue from ATM/debit cards in Spain and Portugal, both including and excluding fees for cash withdrawals. While Portuguese merchant service charges have recently surpassed those in Spain, once revenue from cash withdrawals are accounted for, the greater cost of the Spanish cards becomes apparent.

Moreover, as the social cost results above suggest, the credit and debit card interchange fees do not imply that the card payment system in Portugal is more expensive than in other countries.<sup>48</sup> Cardholders and merchants jointly benefit from the provision of a payment service—debit and credit cards—that helps consumers to pay merchants for goods and services and for merchants to sell things to consumers and be paid by them. Portugal, like most other countries including the United States, has developed a system in which a relatively higher portion of the cost of operating this payment system falls on merchants than on consumers. That is a common pricing result for multi-sided platforms that act as intermediaries between multiple groups of customers.<sup>49</sup>

<sup>45</sup>Heiko Schmiedel, Gergana Kostova, and Wiebe Ruttenberg, “The Social and Private Costs of Retail Payment Instruments: A European Perspective,” European Central Bank Occasional Paper Series, No. 137 (September 2012), Table 12.

<sup>46</sup>Bank of Portugal (2013), “Os Custos Sociais dos Instrumentos de Pagamento de Retalho em Portugal.”

<sup>47</sup>Fumiko Hayashi (2012), “Public Authority Involvement in Payment Card Markets: Various Countries – August 2012 Update,” <http://www.kansascityfed.org/publicat/psr/dataset/regulator-dev-interchange-fees.pdf>

<sup>48</sup>By way of comparison, the regulated debit card interchange fee in the US is around 0.6 percent based on an average transaction and the unregulated credit card interchange fee in the US is around 1.15 percent. Board of Governors of the Federal Reserve System (2011), “2009 Interchange Revenue, Covered Issuer Cost, and Covered Issuer and Merchant Fraud Loss Related to Debit Card Transactions,” [http://www.federalreserve.gov/paymentsystems/files/debitfees\\_costs.pdf](http://www.federalreserve.gov/paymentsystems/files/debitfees_costs.pdf)

<sup>49</sup>Evans, David S. and Schmalensee, Richard, *The Antitrust Analysis of Multi-Sided Platform Businesses* (January 30, 2013). Roger Blair and Daniel Sokol, eds., *Oxford Handbook on International Antitrust Economics*, Oxford University

The interchange fee has been a central element of the pricing structure for payment cards in Portugal. It is what has determined the relative incentives for consumers to take cards (rather than paying with cash) and for merchants to accept cards and install point-of-sale acceptance devices. Those relative incentives have therefore determined the results we have surveyed in this chapter. With this pricing structure Portugal has achieved what is recognized as one of the best and

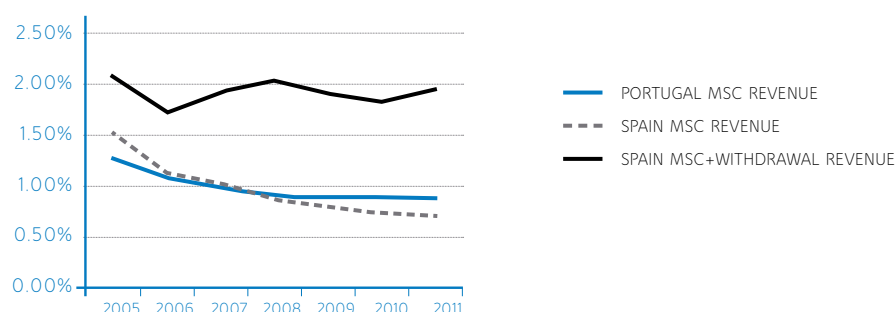
most efficient payment systems in the world, which is operating at a social cost of almost a third less than comparison countries, and has a higher percent of payments as a percent of personal consumption expenditure than four of the five major EU economies.

TABLE 10 | INTERCHANGE FEES

COUNTRY	DEBIT CARD SCHEMES	DEBIT INTERCHANGE RATES	VISA CREDIT CARD INTERCHANGE RATES
PORTUGAL	MB	0.5% - 0.8%	1.47%
FRANCE	Cartes Bancaires	0.47%	0.35% + €0.10
GERMANY	Electronic Cash-Debit Card Scheme	0.2 % - 0.3%	1.58%
ITALY	Bancomat/PagoBancomat	€0.12 + 0.1579%	0.65%
SPAIN	ServiRed; Sistema 4B; Euro 6000	0.57% - 0.74%	0.76% + 0.03
UK	MasterCard, Visa, Solo, Amex, Diners	€0.107	1.30%

Sources and notes: Debit card interchange rates are generally taken from Ann Börestam and Heiko Schmiedel (2011), "Interchange Fees in Card Payments," European Central Bank Occasional Paper No. 131. The exception is France, where they do not report a valid interchange rate for debit and we rely on American Banker, July 8, 2011, "French Banks Agree to Cut Debit Card Interchange in October," available at [http://www.americanbanker.com/issues/176\\_131/french-banks-cut-debit-card-interchange-1039843-1.html?CMP=OTC-RSS](http://www.americanbanker.com/issues/176_131/french-banks-cut-debit-card-interchange-1039843-1.html?CMP=OTC-RSS), summary available at <http://www.paymentsjournal.com/Page.aspx?id=6140>. Visa credit card interchange rates are taken from Visa Europe, "Fees and Interchange," [http://www.visaeurope.com/en/about\\_us/our\\_business/fees\\_and\\_interchange.aspx](http://www.visaeurope.com/en/about_us/our_business/fees_and_interchange.aspx). We use the interchange rate applicable for General Electronic Authorized transactions at small merchants who do not qualify for a sector-specific rate, except in countries where this category is not used, where we report the rate for Standard / Non-Electronic transactions at small merchants who do not qualify for a sector-specific rate.

FIGURE 9 | DEBIT/ATM CARD REVENUE IN SPAIN AND PORTUGAL, 2005-2011



## C. SUMMARY

The Portuguese payment system has performed well for consumers and merchants over time. Output has expanded, service has improved, frequent innovations have been introduced, and prices have remained stable or declined.

The Portuguese payment system has performed very well relative to comparable countries as well as the five largest EU countries. Portugal has more ATM terminals per inhabitant than any other EU country, and beats most of its peers on the number of POS terminals per inhabitant, the number of payment cards per capita. Its ATMs provide a diverse range of service offerings that is unmatched in Europe.





## IV. ECONOMICS OF THE PORTUGUESE PAYMENTS SYSTEM

In its purest form payments system involves moving money from one party to another. Electronic payment systems do this by debiting the account of the sender of the money and crediting the account of the receiver. Cash is even simpler as it involves the sender handing cash, thereby debiting the sender's "wallet", to the receiver, thereby crediting the receiver's "wallet". This ability to move money between senders and receivers is the engine of all payment systems. The retail payment system is a two-sided platform with this sending-and-receiving money engine at its core. The platform jointly serves senders (usually consumers) and receivers (usually merchants) of money.

Pure payment functionality is usually just one component of the multi-dimensional service that provides value to customers. The various participants in the payments platform bundle access to the payments engine with many other services. In fact, since many participants have access to the same basic payments engine, payments businesses make money primarily by providing value-added services on top of this payments engine.

Portuguese consumers, for example, typically obtain the ability to send and receive money as part of their current accounts that include a MB debit card, checks, fraud authentication, access to ATM machines that enable them to withdraw cash, and direct debit. Portuguese retailers, to make another example, typically obtain the ability to send and receive money as part of a package of banking services that includes acquiring and processing card payments from consumers, picking up cash receipts, check cashing, and fraud protected authorization through the PAYWATCH partnership.

This chapter shows that the payment services that participants in the Portuguese payments system provide to consumers and merchants are highly interdependent as a result of the bundling of services into larger packages and the joint provision of payment services to consumers and merchants. This interdependency has three significant consequences.

**THE FIRST** is that anything that affects one component of a service can affect the other components of that service or, indeed, of related services. If payment system participants cannot recover their costs for providing one component of a service, for example, they are forced to recover that cost somewhere else, often by raising the prices for other elements of the service, or reducing the amount of services provided.

**THE SECOND** consequence is that, given that payment services are provided jointly to senders and receivers of money, anything that affects revenues and costs for one group (such as senders) necessarily has an effect on the other group (such as receivers). If payment system participants lose a source of revenue, for example, from one group they are forced to recover that cost from the other group or reduce the amount of services provided.

**THE THIRD** implication is that much of the costs of providing the payments system jointly benefit senders and receivers of money. Naturally, both sides of the payment platform might prefer that the other side bears this cost. Unfortunately, this situation provides incentives for beneficiaries of payment systems to engage in what economists call "rent-seeking" in which these beneficiaries use the political (or in some cases the legal) process to shift costs away from them and onto others.

To understand why these are natural consequences of modern payment systems it is necessary to describe the economics of the payments system business in detail. Part A below describes the major stakeholders in the Portuguese retail payments system. Part B presents an extensive discussion of the economics of payments from the standpoint of retail banks that are central to the payments system. Part C then examines the payment card and ATM systems. Section D focuses on the cash ecosystem. Section E and F examine the role of merchants and consumers respectively. Section G provides brief concluding remarks.



## A. SPHERES OF INFLUENCE

There are six "spheres of influence" for the Portuguese retail payments system. Each of these spheres represents a major group of stakeholders in the system.

These spheres of influence also represent a set of economic interests that can affect every other sphere. For example, suppose that consumers decided to increase their use of cash for making payments. That would have economic

consequences for retail banks that provide cash services, retailers that accept cash, the cash-in-transit operators that transport cash, the Multibanco system that operates the ATM network, the card schemes that are used instead of cash, and the government both as a central actor in the cash system and as a collector of taxes.

1

Consumers that manage their household finances including making payments.

2

Merchants and others that receive payments and obtain various other services related to that.

3

Retail banks that provide current account and other services to consumers and merchants.

4

Card schemes and shared infrastructure entities that provide services to retail banks and other participants.

5

The cash system that includes the Bank of Portugal, the retail banks, the Multibanco ATM system, and other cash-service providers.

6

The government that includes a diverse set of interests including tax collecting and control of the cash system through the Bank of Portugal.



## B. RETAIL BANKING AND THE PROVISION OF PAYMENT SERVICES

In Portugal, as in all developed countries, it is essentially impossible to disentangle the provision of payments services from the current account that is the cornerstone of household finance. As we have noted, about 80 percent of consumers have a current account.<sup>50</sup> Households usually deposit their wages and other receipts of money into their current account. They then rely on the current account for making household payments and for basic savings. Payment services include debit and credit cards, checks, direct debits, and credit transfers, as well as cash. These services enable consumers to make payments directly. Most of these payment methods are included in the current account package that consumers receive from a bank along with many other non-payment related services the most important of which is savings.

### 1. COMPETITIVE STRUCTURE OF RETAIL BANKING

There are at 18 banking groups in Portugal.<sup>51</sup> Five banks account for about 80 percent of retail deposits and two banks account for about 50 percent of retail deposits. The HHI, which varies from 0 to 10,000, is a commonly used measure of business concentration. The Portuguese Competition Authority considers an HHI of less than 1000 as indicating a low level of concentration and a level between 1000 and 2000 as a moderate level of concentration.<sup>52</sup> The HHI for the Portuguese banking industry is less than 1350 based on demand deposits and less than 1250 based on total deposits, indicating that the Portuguese banking is only moderately concentrated.<sup>53</sup>

These are national figures. What matters to a typical Portuguese household is how much choice they have in selecting a bank for a current account. Obtaining a current account and getting some services usually requires visiting a branch. Consumers, to minimize travel costs including the use of their own time, therefore tend to choose banks that have branches near where they live or work. A typical resident of Lisbon can choose among 26 banks that have branches throughout the city. Residents of Braga, the fourth largest city and a bit more than a fourth the size of Lisbon, can choose among 20 banks that have branches throughout the city.<sup>54</sup> This fact will turn out to be important in the next chapter in which we analyze the role of banking and retailer competition in determining how changes in fees are passed on to end consumers. Consumers have many more choices of banks than they have of many other retail products and services.

The Portuguese retail banking business is generally considered to be fairly competitive. That is not surprising given the number of choices that consumers have. Academic studies of retail banking in Portugal typically find that the sector has become more competitive since the early 1990s, with the most recent study finding that the market's performance had become statistically indistinguishable from perfect competition in the period after 2000.<sup>55</sup>

<sup>50</sup>Patrick Honohan, "Cross-Country Variation in Household Access to Financial Services," The World Bank, Trinity College Dublin, and CEPR, Prepared for the Conference "Access to Finance" Washington, D.C., March 15-16, 2007.

<sup>51</sup>Portuguese Banking Association (2012), "Statistical Bulletin," available at [http://www.wapb.pt/content/files/Statistical\\_Bulletin\\_N48\\_1st\\_Half\\_2012.pdf](http://www.wapb.pt/content/files/Statistical_Bulletin_N48_1st_Half_2012.pdf).

<sup>52</sup>Portuguese Competition Authority, "Draft Guidelines for the Economic Analysis of Horizontal Concentration Operations," at 52-53, available at [http://www.concorrencia.pt/vPT/Noticias\\_Eventos/Comunicados/Documents/Linhas\\_de\\_Orientacao\\_para\\_a\\_Analise\\_Economica\\_de\\_Operacoes\\_de\\_Concentracao\\_Horizontais.pdf](http://www.concorrencia.pt/vPT/Noticias_Eventos/Comunicados/Documents/Linhas_de_Orientacao_para_a_Analise_Economica_de_Operacoes_de_Concentracao_Horizontais.pdf).

<sup>53</sup>Calculations based on Portuguese Banking Association, "Statistical Bulletin," No. 48 (First Half 2012), available at [http://www.wapb.pt/content/files/Statistical\\_Bulletin\\_N48\\_1st\\_Half\\_2012.pdf](http://www.wapb.pt/content/files/Statistical_Bulletin_N48_1st_Half_2012.pdf); Banco de Portugal, Banking Sector Statistics.

<sup>54</sup>Portuguese Banking Association, Branch Statistics, available at [http://www.wapb.pt/content/files/2011\\_-\\_Balcoes.xlsx](http://www.wapb.pt/content/files/2011_-_Balcoes.xlsx). Note that there are more banks than banking groups in Portugal.

<sup>55</sup>This statement refers only to retail banking and does not necessarily apply to other parts of Portuguese banking. Paulo Soares de Pinho (2000), "The Impact of Deregulation on Price and Non-Price Competition in the Portuguese Deposits Market," *Journal of Banking and Finance*, 24, 1515-1533; Ana Canhoto (2004), "Portuguese Banking: A Structural Model of Competition in the Deposits Market," *Review of Financial Economics*, 13, 41-63; Stijn Claessens and Luc Laeven, "What Drives Bank Competition? Some International Evidence," *Journal of Money, Credit and Banking*, 36(3), Part 2: Bank Concentration and Competition: An Evolution in the Making A Conference Sponsored by the Federal Reserve Bank of Cleveland May 21-23, 2003. (Jun., 2004), pp. 563-583; Barbara Casu and Claudia Girardone, "Bank Competition, Concentration and Efficiency in the Single European Market," *The Manchester School*, 74(4) Special Issue 2006, pp. 441-468; Miguel Boucinha and Nuno Ribeiro (2009), "An Assessment of Competition in the Portuguese Banking System in the 1991-2004 Period," Banco de Portugal Working Papers 1-2009.

## 2. CONSUMER CURRENT ACCOUNTS AND RELATED SERVICES

Portuguese consumers can obtain a current account that provides a wide variety of payment and banking services for about €6 a month for consumers who keep balances of less than €2,000. These services are included without any additional charges:

- › Ability to conduct various banking services at a branch
- › MB ATM/debit card that provides access to ATM services and the ability to pay at merchants that accept MB cards.
- › Access to Multibanco ATM network of 13,911 ATMs<sup>56</sup> throughout Portugal at which consumers can withdraw and deposit funds, view account balances and last ten transactions, change PIN, transfer funds between accounts, even at different banks, order checks, pay bills (water, electricity, gas, and others), pre-pay for certain internet services, pre-pay for certain phone plans and prepaid phone cards, make payments to the government (taxes, fees, court costs, etc.), purchase hunting and fishing licenses, authorize direct debits, purchase inter-city train tickets, load transit cards for the Lisbon and Oporto mass transit systems, load Via Verde (automatic toll service), book and pay for cinemas, shows, and other entertainment, and securely contribute to charities
- › Checking
- › Direct debit which provides for automatically paying bills
- › Online banking
- › Mobile payments

(As noted earlier, a law enacted in 2000, and amended in 2011, provides all Portuguese citizens with a basic current account that includes a debit card, access to the ATMs, home banking, and ability to make debit and credit transfers.<sup>57</sup>)

In addition, consumers who have a current account can obtain additional bank services including:

- › Credit card
- › Debit card with bug of international scheme so it can be used abroad for payment
- › Mortgages, consumer loans, and small business loans<sup>58</sup>

Table 11 summarizes the common features of the current accounts available to Portuguese consumers and the typical prices for the current account and add-on services such as credit cards.

Consumers may take some of these features for granted. For example, Portuguese consumers can generally withdraw up to €400 at an ATM and generally get that in denominations of €10 and €20 notes.<sup>59</sup> ATM machines have cartridges for each of these denominations. Portuguese banks have to make sure that ATM machines are filled on a regular basis with the appropriate denominations. The same is true at the bank branch. In order for consumers to be able to obtain €500 (either as a withdrawal from their account or cashing a check) as twenty €20 notes and ten €10 notes the bank has to hire a cash-in-transit company to make sure it has an adequate supply of cash currency in the appropriate denominations.

To make another example, when a consumer obtains a credit card they receive a monthly bill which they can pay in full or revolve at least in part. The consumer does not have to pay anything between when they make a charge until the time they send their monthly payment in (or choose to take out a loan). In effect, the card issuer is providing an interest-free loan from the time of the charge until the time of the payment—the average of that is about 35 days. That may not seem like much, especially in times of low interest rates, but it adds up to a significant expense for the bank across many consumers. It also exposes the bank to the risk that the bank reimburses the merchant but then does not for various reasons receive repayment from the consumer.

TABLE 11 | TYPICAL CURRENT ACCOUNT FEATURES AND SERVICES IN PORTUGAL

FEATURE	PRICE
MONTHLY FEE	€0–€6
WAYS TO AVOID MONTHLY FEE	Paycheck direct deposit; loan
MINIMUM BALANCE	€0–€3500
MB DEBIT/ATM CARD	Free
POS TRANSACTION FEE	Free
FOREIGN ATM WITHDRAWAL FEE	Free in Europe and in euros
ATM OWNER SURCHARGE	Free
TRANSFER FEE (TO AN ACCOUNT AT A DIFFERENT BANK)	Free
DEBIT CARD COBRANDED WITH INTERNATIONAL SCHEME	€0–€10 / year
CREDIT CARD	Free with sufficient purchases, otherwise up to €25 / year

<sup>56</sup>European Payment Cards Yearbook 2012-13 – Portugal, November 2012, available at <http://www.paymentcardyearbooks.com/>.

<sup>57</sup>Decree-Law 27-C/2000, March 10th; Law 19/2011 of May 20th and Decree-Law 225/12 of October 17th. Before the implementation of this law, many customers have qualified for an exemption from the monthly fee due to meeting a minimum balance, enrolling in paycheck direct deposit, or using some other bank service. For customers who do not, the monthly fee for a basic checking account is €0 at CGD, €6 at Millennium bcp, and €5.30 at Banco Espírito Santo. [https://www.cgd.pt/\\_layouts/fin.aspx?pf=400&pfc=026](https://www.cgd.pt/_layouts/fin.aspx?pf=400&pfc=026); [http://ind.millenniumbcp.pt/pt/Particulares/Contas/Documents/fin/contas\\_ordem/FIN\\_Ordenado.pdf](http://ind.millenniumbcp.pt/pt/Particulares/Contas/Documents/fin/contas_ordem/FIN_Ordenado.pdf); <http://www.bes.pt/sitebes/cms.aspx?plg=af50c6a6-ddf6-4917-baeb-aaf9392ecafb>.

<sup>58</sup>European Commission Staff (2007), Report on the Retail Banking Sector Inquiry, at 51, available at [http://ec.europa.eu/competition/sectors/financial\\_services/inquiries/sec\\_2007\\_106.pdf](http://ec.europa.eu/competition/sectors/financial_services/inquiries/sec_2007_106.pdf).

<sup>59</sup>Cadernos do Banco de Portugal, “Terminais de Pagamento e Caixas Automáticos.”

### 3. OTHER CONSUMER SERVICES

In addition to the services listed above there are a number of other services that consumers receive from banks and usually need to have a current account with that bank to receive these services. Table 12 lists the major ones.

**TABLE 12 | BUNDLED SERVICES FROM BANKS**

SERVICE
MORTGAGE
CONSUMER LOANS
SMALL BUSINESS LOANS
LIFE INSURANCE

### 4. MERCHANT SERVICES

Merchants also receive a variety of services from banks. Typically, banks offer retailers a package that includes a current account for receiving funds and for making payments, in some cases a cash transport and management service, and various card acquiring and processing services. A typical package for retailers from banks includes the following components listed in Table 13.

**TABLE 13 | BUNDLED MERCHANT ACCOUNT SERVICES**

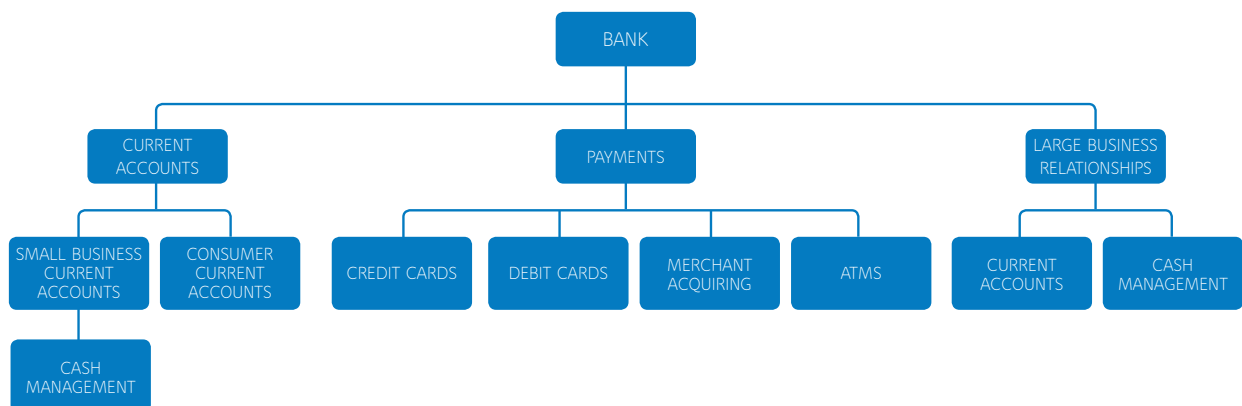
SERVICE
CURRENT ACCOUNT
CARD ACQUIRING AND PROCESSING
CASH MANAGEMENT AND TRANSPORT
LINE OF CREDIT

### 5. RETAIL BANKING ORGANIZATION

Retail banks in Portugal, as in many other EU countries, have several “business units” that are responsible for sets of activities many of which interact with the activities in other business units. Figure 10 shows the typical organizational structure for a bank in Portugal. At a high level, most Portuguese banks will have units devoted to current accounts, payments, and large business accounts. The key “units” or “lines of business” usually include:

- › Current accounts
- › Payments
- › Large business relationships
- › Credit cards
- › Debit cards
- › Merchant acquiring
- › ATMs
- › Merchant accounts
- › Cash management

**FIGURE 10 | PAYMENTS-RELATED BUSINESS LINES AT A TYPICAL LARGE PORTUGUESE BANK (SIMPLIFIED)**



**TABLE 14 | PAYMENT-RELATED BANK BUSINESS LINES AT TYPICAL, LARGE PORTUGUESE BANKS**

BUSINESS LINE	CUSTOMER(S)	REPORTING RELATIONSHIP
CONSUMER CURRENT ACCOUNTS	Consumers	Current Accounts
SMALL BUSINESS CURRENT ACCOUNTS	Merchants	Current Accounts
CREDIT CARDS	Consumers; Merchants	Payments
DEBIT CARDS		Payments
MERCHANT ACQUIRING	Consumers; Service Providers	Payments
ATMS	Merchants	Payments
LARGE BUSINESS ACCOUNTS	Merchants	Large Business Relationships
CASH MANAGEMENT	Merchants	Large Business Relationships, or Small Business Current Accounts

Source: Interviews with Portuguese bankers.

Table 14 summarizes the key business lines, the customer groups they benefit, and any other reporting relationship within the bank.

Each of these units has a profit-and-loss statement that gets consolidated with higher-level units. However, the reality for banks is that there are many common costs of operating a bank and numerous revenue streams that end up supporting those costs. The ATM unit, for example, incurs costs that ultimately benefit the current account unit, which provides ATM-based services to its customers; the payments unit that issues debit cards, which are more valuable to consumers because they double as ATM cards; and the cash management part of the bank because the ATM machine is an efficient dispenser of cash; and retail banking overall since ATM machines help substitute for physical branches and tellers.

In banks, as in most modern business organizations, attempts to allocate these common, or joint, costs across business units are necessarily imperfect. A simplistic example would be for the allocation of the salary cost of the Executive President of the bank. Since this individual would be involved in all aspects of the bank, part of the total salary would have to be charged to the various areas of the bank. However, it is unclear how to do this. So a bank might use the relative size of the revenues of the various business lines of the bank, but that is not likely very well correlated with the time spent on each area. In the end, bank decisions will be affected by both the underlying economics and the organizational incentives induced by imperfect accounting. This problem can become quite large when considering larger cost items, such as customer service groups that support multiple areas or capital items such as building and computer systems that serve multiple business lines.

An example of this is the relationship between the debit card and ATM operations.<sup>60</sup> Some Portuguese banks are quite aggressive in using payment cards as a marketing tool for the current account, waiving payment card monthly fees for consumers with a qualifying associated current account.

Other banks impose a more strict separation between the two lines of business. The more aggressive banks have internal accounting procedures to try to capture these cross-subsidies. For example, the payments unit may have two P&L statements – a statement that reflects standard accounting practices and a statement that shows what the P&L would have been without the subsidization of other business lines. Managers in the payments unit have career incentives to pay attention to both P&L statements. Banks with stronger separation have fewer incentive problems induced by this accounting, but at the cost of reduced pricing flexibility.

## 6. BANK PRICING OF SERVICES

These common costs make the pricing decisions for banking services highly interdependent. Increases in common costs have to be made up for through increases in prices on the various services these common costs support.

As the discussion above has indicated, many banking services are complements to each other. That also leads to interdependencies in their pricing. Many banking services are basic complements to each other as a result of the fact that it is convenient for consumers to obtain multiple services from the same bank because it saves them time or because their bank has more information on how credit worthy they are. The complementarities are even stronger in some cases. Consumers like paying with debit cards and cash depending on the circumstances. Therefore, debit cards and ATM machines are complements from their standpoint and, although they do not interact directly for the bank's cash management operation, that is a complement too.

There are other notable interdependencies between the various services provided by retail services. The provision of ATMs enables banks to reduce their investment in branch banks including physical locations and tellers. As a result there is an economy of scope between ATMs and branch banking.<sup>61</sup>

<sup>60</sup>The example in this paragraph is based on interviews we conducted with senior managers at several different large Portuguese banks.

<sup>61</sup>D. Humphrey et al. "Cost Savings from Electronic Payments and ATMs in Europe," Working Paper Federal Reserve Bank of Philadelphia (August 2003); D. Humphrey, "Delivering Deposit Services: ATMs Versus Branches," Federal Reserve Bank of Richmond Economic Quarterly, Vol. 80 (Spring 1994).

FOUR FACTORS, THEN, RESULT IN INTERDEPENDENCIES IN PRICING DECISIONS ACROSS BANKING SERVICES:

Basic economics tells us that, as a result of these interdependencies, any changes in the demand or costs or any regulatory interventions such as price caps on particular products will necessarily have an effect on the prices of all of the packages offered the bank. We return to this point in the next section.

1

THE BUNDLING OF MANY COMPONENT SERVICES INTO PACKAGES SUCH AS THE CURRENT ACCOUNT

2

THE EXISTENCE OF COMMON COSTS FOR THESE COMPONENT SERVICES AND THE NEED TO RECOVER THESE COSTS.

3

COMPLEMENTARITIES IN DEMAND BETWEEN COMPONENT SERVICES AND IN SOME CASES BETWEEN DIFFERENT PACKAGES OF SERVICES.

4

ECONOMIES OF SCOPE IN COST OF PROVIDING THE COMPONENT SERVICES.

## C. ELECTRONIC PAYMENT CARD AND ATM SYSTEMS

The retail banks are the businesses that primarily interface with consumers and merchants. They rely on two other types of businesses: shared infrastructure providers and card schemes. The shared infrastructure providers offer a variety of services to banks. The card schemes operate card brands and provide authorization and settlement services for participating banks. This part of the section describes these businesses, their costs, and how they cover these costs and make profit.

### 1. SHARED INFRASTRUCTURE PROVIDERS

SIBS provides a diverse set of payments services to virtually all retail banks and credit institutions in Portugal. The majority of SIBS is owned by seven Portuguese banks. As the European Central Bank notes, "SIBS ... is the central operational body of the automated interbank payment system [and] has played a central role in all projects related to payment systems."<sup>62</sup> Two key components are of particular interest:

**1: THE MULTIBANCO ATM NETWORK.** Banks install both ATMs and issue ATM/debit cards that allow their customers to take money from these ATMs. Of course consumers can use their ATM cards at any ATM regardless of whether it was installed and operated by their bank and in either case, by law, face no fees. MB is responsible for connecting ATM transactions between the ATM card issuer and the ATM owner.<sup>63</sup>

**2: MULTIBANCO EFTPOS NETWORK.** Banks acquire merchants to take MB debit cards and banks issue MB debit cards to consumers. SIBS operates a network which authenticates cardholders who present cards and authorizes transactions by checking to make sure they have adequate funds. SIBS also settles the accounts daily between bank acquirers and bank issuers. For every transaction there is a debit to the bank issuer and a credit to the bank acquirer. Across transactions banks are sometimes the issuer and sometimes the acquirer. SIBS calculates the net settlements based on these debits and credits and moves the required funds into the appropriate accounts.

<sup>62</sup>European Central Bank, Payment and Securities Settlement Systems in the European Union: Volume 1," Blue Book (August 2007), p. 365.

<sup>63</sup>Some banks operate their own ATM systems for the exclusive use of their customers.

SIBS recovers the costs of operating this system by serving two distinct roles.<sup>64</sup> As the processor for a variety of schemes it earns revenue from a number of processing and network management fees, with most revenue coming from volume-based fees on the acquiring side. As the operator of the MB scheme (through SIBS PAGAMENTOS), it earns revenue from the MB issuers and acquirers. It charges MB members a one-time entrance fee, a monthly membership fee, and issuing and acquiring fees based on the members' MB issuing and acquiring volume of both ATM and POS transactions. In recent years, the issuing and acquiring volume-based fees each account for about 70 percent of scheme revenues, with the monthly fees accounting for most of the remaining 30 percent of scheme revenue.<sup>65</sup> Ultimately, scheme fees are relatively unimportant—MB scheme fees are about € 1 million, or under 1 percent of total SIBS revenue (most of which comes from processing fees).<sup>66</sup> This is small, both for SIBS and for its customers.

## 2. CARD SCHEMES

Card schemes provide value to the acquiring and issuing banks. They do this in several ways.

- 1: They define the procedures and rules processors must adopt for authenticating cardholders at the point of sale, authorizing the transaction by making sure the cardholder is good for the money, and settling transactions between the acquirer (crediting their account) and issuer (debiting their account).
- 2: They set the rules such as who bears liability in various circumstances for the scheme and other policies such as the level of the interchange fee that the issuer of a card that was used at a merchant receives from the acquirer of that transaction from the merchant.
- 3: They engage in other business activities such as advertising and marketing the scheme brand and developing value-added services for the member banks.
- 4: They facilitate the use of cards outside of Portugal.

Card schemes cover their costs and earn profit from a variety of fees. It is important to emphasize that they do not receive any of the interchange fee. That fee is a pure transfer from the acquirer to the issuer. The card schemes charge entry fees into the scheme and annual fees for participating in the scheme. They also charge transaction fees to both issuers and acquirers. It is also important to emphasize that scheme fees are relatively small compared to interchange and processor fees, with SIBS revenue from the MB scheme at just over €1 million.

## 3. BANK ISSUERS AND ACQUIRERS

We have already discussed the fact that banks issue debit and credit cards to their current account holders and acquire merchants often as part of a package of services included a current account provided to those merchants. We now discuss the economics of these two lines of businesses.

### a. Issuing

Table 15 shows the non-interest revenue breakdown for Visa Portugal issuers.<sup>67</sup> Interchange fees account for almost 40 percent of revenues overall. However, they account for 59.3 percent of debit card revenues and 37.7 percent of credit-card revenues. Obviously reductions in interchange fees would have a serious consequence for the profitability of payment cards and particularly of debit cards.

Debit issuers incur a number of costs that are summarized in Table 16.<sup>68</sup> Importantly, these costs do not include other costs that result indirectly when a bank issues a debit card. When a consumer receives a debit-card as part of her current account she can also use that card to take money out of ATMs. There are costs of operating ATMs and replenishing them with cash. Under Portuguese law it is not possible to charge fees for taking out cash from ATMs or securing other ATM services. Offsetting these costs are the benefits of a consumer reducing the use of branch banking.

Credit-card issuers incur a number of costs that are summarized in Table 16, along with the debit card costs.<sup>69</sup> For the purposes of issuing a card for making transactions these costs are similar to debit cards, which provide similar (although not identical) transaction services. Credit cards, however, also bundle the extension of credit. That results in banks incurring the costs that any lender would—namely the cost of funds that are extended and loans that default.

### b. Acquiring

As noted above, banks acquire MB debit-card transactions. UNICRE and several other acquirers, including CCAM and CGD for cards, acquire debit and credit-card transactions for the international schemes. There are various costs of acquiring and processing payment card transactions. Of course these acquirers and processors need to develop and maintain software and hardware platforms for managing transactions in real time, providing data to the merchant, and interacting with the card schemes. After that there are variable costs of acquiring and processing transactions, primarily communications costs and fraud risks.

There are two major business models for acquirers. Some acquirers such as UNICRE primarily provide acquiring and processing services to merchants. They earn revenue by

<sup>65</sup>Calculation based on MB scheme revenue provided by SIBS.

<sup>66</sup>Calculation based on data provided by SIBS.

<sup>67</sup>Data provided by Visa Portugal.

<sup>68</sup>Data provided by Visa Portugal. Note that this Visa Portugal dataset described in this Table does not distinguish between costs for credit cards and costs for debit cards. On one hand, this is convenient, because many of the expenses involved in authorizing transactions are shared between the two card programs (e.g., communications costs). Combining the card types avoids allocating these shared costs between the programs. On the other hand, this is inconvenient, because both consumers and merchants care about the difference between the two card types, and it would therefore be helpful for issuers to separately track their costs for each card type.

<sup>69</sup>Data provided by Visa Portugal.

TABLE 15 | NON-INTEREST REVENUE FOR VISA PORTUGAL ISSUERS

REVENUES (EUR MILLIONS)					
	INTERCHANGE	ANNUAL FEES	SERVICE CHARGES	OTHER	TOTAL
DEBIT CARDS	49.0	27.4	6.2	-	82.7
CREDIT CARDS	81.5	42.6	91.9	-	216.0
OTHER	-	-	-	37.7	37.7
TOTAL	130.5	70.0	98.1	37.7	336.4
% OF TOTAL	38.8%	20.8%	29.2%	11.2%	100%

TABLE 16 | VISA PORTUGAL ISSUER COSTS (DEBIT AND CREDIT COMBINED), 2011

COST CATEGORY	COST (€ MILLIONS)	PERCENT OF TOTAL COST
COMMUNICATIONS COSTS	9.7	2.8
PROCESSING COSTS	48.2	14.1
VERIFICATION COSTS	0.9	0.2
MAINTENANCE COSTS	6.5	1.9
ANTI-FRAUD COSTS	5.0	1.5
FINANCIAL COSTS	44.7	13.1
OTHER OPERATIONAL COSTS	62.1	18.2
COSTS ASSOCIATED WITH USERS' BENEFITS	19.8	5.8
LABOR COSTS	50.4	14.8
OTHER ADMINISTRATIVE COSTS	43.6	12.8
RISK PROVISION FOR CREDIT CARDS	50.6	14.8

Source: Visa Portugal.

charging transaction-based fees. For example, UNICRE charges approximately 1.3 percent of transaction value, inclusive of the interchange fee.<sup>70</sup> Many acquirers, however, are banks that providing MB acquiring services as part of an overall package of services to merchants. The package typically includes a current account and payment card acquiring, and may also include cash management services

and a line of credit. As with any package the bank has flexibility in how it prices elements. For example, it can price some elements low and others high to attract customers. In fact, many Portuguese banks use acquiring to help attract merchants to whom they can then provide a variety of other services.



<sup>70</sup>Calculation based on dividing 2010 commission income (merchant discounts, service charges, and fees) reported by UNICRE in its 2011 annual report by the total acquiring transaction value for 2010 reported for UNICRE by SIBS.



## D. THE CASH ECOSYSTEM IN PORTUGAL

There is a stock of cash in Portugal that is based on the past decisions by the Bank of Portugal to issue euro notes and coins and decisions to retire older notes from circulation. The Bank of Portugal periodically adds to or replenishes this stock by issuing more notes and coins. Banks have a demand for notes and coin to stock their ATM machines and branches. Banks buy notes and coins from the Bank of Portugal in return for interest bearing securities. Like any payment system it has costs too.

Table 17 identifies major costs of operating the cash system, particularly for printing and distributing currency.<sup>71</sup> The Bank of Portugal profits from the difference from the interest on these securities and the cost of operating the cash system. This profit is known as "seigniorage." In 2009, total Eurozone seigniorage revenue fell to € 787 million from € 2.23 billion in 2008, due to falling interest rates.<sup>72</sup> Under the formula specified by the Maastricht Treaty, Portugal's share of ECB seigniorage revenues is about 2 percent.<sup>73</sup> This works out to total seigniorage revenue for Banco de Portugal of € 22.30 million in 2008 and € 15.74 million in 2009.

Banks need to hold cash in order to provide cash over-the-counter at branches and to stock their ATM machines. They typically hire cash-in-transit operators to transport cash securely from the Bank of Portugal to vaults across the

country and then from these vaults to the bank. They hire these same operators to restock ATMs. Internally, the bank usually has a cash management operation that stores cash and also makes sure that it has enough cash for branches and ATMs.

Larger retailers also hire cash-in-transit operators to collect cash periodically at their locations and transport that cash to their banks where it is credited to their accounts. Smaller retailers deposit their cash proceeds themselves.

Almost 88 percent of the cash used in Portugal annually comes from ATM machines. Therefore, the Multibanco ATM network is a critical part of the cash ecosystem. We have estimated that another 12 percent of cash used in Portugal annually comes from withdrawals at branches. As we mentioned earlier, there may be some additional sources of cash used for payments but they are likely to be small. In addition, in Portugal, as in many countries, people use cash, often in the form of large (€100 and €500 notes) as a store of value. These "hoarded notes" are not used for payments and account for a significant portion of the seigniorage earned by the Bank of Portugal.

**TABLE 17 | APPROXIMATE VALUES OF SOME MAJOR COSTS OF CASH, 2009**

	TOTAL EUROZONE COST (€ MILLIONS)	PORTUGAL'S SHARE (€ MILLIONS)
BANKNOTE PRODUCTION	€330	€6.6
BANKNOTE TRANSPORTATION BETWEEN CENTRAL BANKS	€7	€0.1
EURO COIN PRODUCTION	€240	€4.8
TOTAL	€577	€11.5

Note: This table does not include the cost of transporting banknotes from the national central banks to retail banks, nor the cost of transporting coins from national mints to the national central banks and thence to retail banks. Nor does it include the costs of counterfeit detection or the costs of the destruction of old banknotes and coins.

<sup>71</sup>Calculations based on annual coin production quantities from the Eurozone national mints, banknote production quantities from the ECB annual report, the banknote production services budget of the ECB from its annual report, and approximate production costs of notes and coins from the U.S. Bureau of Printing and Engraving and the U.S. Mint. Portugal's share of costs is assumed to be equal to its share of seigniorage revenue under the Maastricht Treaty.

<sup>72</sup>Olivier Vergote, Werner Studener, Ioannis Efthymiadis and Niall Merriman (2010), "Main Drivers of the ECB Financial Accounts and ECB Financial Strength Over the First Eleven Years," European Central Bank, Occasional Paper Series, No. 111, at 6, available at <http://www.ecb.int/pub/pdf/scpops/ecbocp111.pdf>.

<sup>73</sup>CentralBanking.com, "Last Minute Deal on Euro Seigniorage," December 19, 2001, <http://www.centralbanking.com/central-banking/news/1428320/last-minute-deal-euro-seigniorage>.



## OBVIOUSLY THERE ARE SIGNIFICANT COSTS ASSOCIATED WITH OPERATING THE CASH ECOSYSTEM.

Table 18 summarizes the major social costs identified by the Bank of Portugal and the ECB.<sup>74</sup> These are the net costs society pays and do not include payments between members of the cash ecosystem. (These costs do not include the time it takes to withdraw cash at the ATM or bank branch, nor do they include the cost of creating, maintaining, and running the ATM networks.

There are relatively few sources of revenue for supporting these costs. Aside from seigniorage, the Bank of Portugal does not charge for its cash services to society. And even seigniorage is not entirely a net source of revenue to the banking system. Rather, it is primarily a transfer from the holders of cash (both banks and the non-bank public) to the Eurozone national central banks. As a result of a law that went into effect in 2010, banks cannot charge consumers for ATM services.<sup>75</sup> Banks that operate ATMs get revenue from banks that issue ATM cards that are used for transactions. Since most banks both operate ATMs and issue ATM cards they typically do not, on net, receive significant revenues from ATMs. In some circumstances, banks do receive revenue when the public deposits or withdraws cash OTC. This revenue amounts to about € 0.004 per cash transaction.<sup>76</sup>

In fact, it is apparent that cash payment system is heavily subsidized in Portugal. There are significant costs for operating it but few meaningful revenue streams for supporting it. The revenues from seigniorage and OTC cash transaction fees together cover less than half of the staffing costs of OTC cash transactions, and thus come nowhere near covering the combined costs of ATM and OTC cash transactions.

This cash subsidy has two key implications. First, consumers receive a subsidy for using cash. They do not incur any of the variable costs for using this payment instrument since they can take it freely from ATMs.

Second, the “owners” of the system—in this case, in effect, the Bank of Portugal—do not impose any costs of running the system on merchants. Merchants only pay cash-in-transit fees for picking up cash and fees for making cash deposits.

Of course there is “no free lunch”. The banks incur the cost of buying cash from the Bank of Portugal, the cost of transporting cash and stocking ATMs, the cost of making it available over the counter, and the cost of managing cash. These costs have to be recovered by banks and are through the overall assessments on current accounts for consumers and businesses and for related services.

TABLE 18 | SOCIAL COSTS OF CASH

TYPE OF COST	COST PER CASH TRANSACTION
<b>BANK COSTS</b>	
STAFF COSTS	€ 0.08
COMMISSION PAID	€ 0.00
SPECIALISTS AND THIRD PARTY SERVICES	€ 0.02
RENTALS AND DEPRECIATION	€ 0.02
OTHER COSTS	€ 0.03
<b>CONSUMER COSTS</b>	
TIME SPENT PER CASH PAYMENT TRANSACTION	83.9 seconds
<b>MERCHANT COSTS</b>	
COSTS EXCLUDING COMMISSIONS PAID TO BANKS	€ 0.27

<sup>75</sup>More precisely, neither the ATM owner nor the issuing bank may charge for the use of the ATM to access these services. Obviously, some of these services will cost the consumer (e.g., the purchase of train tickets or donations to charity). Decreto-Lei n.º 3/2010, Diário da República, 1.ª série – N.º 2–5 de Janeiro de 2010, at 26–27, available at <http://dre.pt/pdf1s/2010/01/00200/0002600027.pdf>.

<sup>76</sup>Banco de Portugal (2013), “Os Custos Sociais dos Instrumentos de Pagamento de Retalho em Portugal,” Table 12.

## E. RETAILERS

Retailers are buyers of several kinds of services that facilitate their receiving various forms of payment from consumers in return for the goods and services these retailers provide. They use banks to provide their current account, take their cash deposits, and provide acquiring and processing services. They sometimes work with banks to install ATMs in their stores. Larger retailers use cash-in-transit operators to pick up their notes and coins, count the notes and coins, deposit the notes and coins in their accounts, and supply notes and coins for making change. In all these cases the retailer enters into a contract with the supplier of services.

Larger retailers have considerable bargaining power in entering into these contracts. The largest retailers are grouped into CAE code 47111, which is for supermarkets and hypermarkets.<sup>77</sup> Based on data from SIBS, the total value of card payments in 2012 was €27.97 billion and was distributed to over 139 thousand merchants. The supermarkets and hypermarkets accounted for €7.2 billion or 25.6 percent of all payment volume. The largest four retailers are the Sonae group, Jeronimo Martins, the Auchan Group and Lidl E Companhia. Together, these four merchants accounted for over €5.8 billion in transaction value (of which €5.3 billion was in the hypermarket/supermarket sector), which is over 74% of the total for the supermarket and hypermarket retail group and they accounted for 21.4% of all the transaction value for SIBS for every merchant in the country.<sup>78</sup>

These large retailers typically obtain their payment and banking services from a single supplier—they usually have one bank that supplies most of their payment-related services and one CIT company that provides most of their cash-related services. Banks compete for these contracts and they tend to compete aggressively in part because these contracts result in longer-term relationships and the opportunity to sell complementary services.

As a result of their bargaining power together with being able to commit large volumes these large retailers can negotiate much lower prices for themselves than can smaller retailers. For example, the merchant fees on credit cards for the four merchants with the most credit card sales is more than 30 percent lower than those for merchants outside of the top four.<sup>79</sup>

Retailers choose which types of payments they will accept from consumers. As with any other decision that retailers make an important determinant in this decision is what their customers want. Consumers are more likely to shop at retailers that accommodate their preferences for payment instruments. Consumers use many payment instruments as we discuss below. A typical Portuguese consumer uses cash, checks, debit, and credit cards to pay at retail point of sale. They may decide on one over another at a particular merchant based on what they have available—do they have enough cash? Are they carrying a checkbook? Are they near the limit on the current account? Do they have credit available on their credit cards? They will typically value merchants that provide them with more choice. Merchants that provide less choice would be expected to get fewer sales as fewer consumers will patronize that merchant. Also, a merchant may lose a sale to customer in the store if the customer cannot use their preferred form of payment or the merchant does not take the one form of payment the cardholder is able to use.

Of course accepting payment instruments is not free. Retailers therefore have to weigh the benefits of accepting payments with the cost. Most large retailers in Portugal accept virtually all generally used forms of payment regardless of cost. They take cash and checks as well as all brands of debit, credit, and prepaid cards.<sup>80</sup> As noted above, however, the subsidies to cash tend to make cash appear inexpensive to the merchant.

<sup>77</sup>SIBS data is segmented into CAE codes which specify the industry. In 2012, the CAE code 47111 is associated with Supermarkets and Hypermarkets. This code contains the largest retail organizations.

<sup>78</sup>Calculations based on data provided by SIBS.

<sup>79</sup>Calculation based on data provided by SIBS. This analysis excludes Repsol and Petroleos de Portugal, two large chains of gas stations who are the fourth and fifth largest merchants by credit card sales. These two merchants have low, dedicated interchange fees, so including them in the large merchant group would make this difference even greater.

<sup>80</sup>The cost of these different payment methods varies on a number of factors including the size of the transaction, the risk of theft, counterfeiting, and other fraud, credit risk, and the time required at the POS and for deposit preparation. Daniel D. Garcia Swartz, Robert W. Hahn, and Anne Layne-Farrar (2006), "The Move to a Cashless Society: A Closer Look at Payment Instrument Economics," *Review of Network Economics*, 5(2), 175-198.

## F. CONSUMERS

Consumers choose which payment instruments to have, to carry when they shop, and to use to pay for a particular transaction. Consumers indicate that the key factors they value in a payment instrument are convenience and security<sup>81</sup>. Obviously, inspection of what consumers get reveals that each payment instrument has distinct benefits and drawbacks.

Cash is a convenient payment instrument for consumers because they can get it easily, everyone takes it, and it is relatively quick to transact with it the point of sale. It is also anonymous and helps with transactions that consumers want to keep private for personal reasons and also to avoid taxes. Some studies have also found that cash helps people manage their finances because it is tangible and easy to keep track of. Cash imposes some risks on the consumer. It can be stolen and carrying cash exposes consumers to some modicum of personal risk. Some studies criticize cash because it is dirty. It is also hard to predict how much cash one needs. Consumers typically don't keep track of where they spend cash, as that would require constant note taking.

Electronic methods of payments are also convenient although they are not accepted as widely as cash. Cards are easy to carry and easy to pay with. Consumers face some risk of fraud. Unlike cash consumers are not restricted to what is in their pocket but rather what is in their current account or what limit is for a credit card. Cards provide an easy to read electronic statement that identifies where consumers spend money and how much. Credit cards provide short-term and longer term financing.

For the consumers, at the moment, all payment methods are priced low—both absolutely in the sense that the marginal cost of using a payment is zero, and in the sense that consumers pay a small portion of the overall cost of providing that system. Cash is the cheapest as it is essentially free whether a consumer has a current account or not. Debit cards are also very inexpensive for consumers once they have gotten current accounts. Credit cards are inexpensive for consumers who use them for transactions and do not revolve.

## G. CONCLUDING REMARKS

There are several major conclusions of this chapter that are relevant for our analysis of regulatory interventions to which we turn next.

First, banks provide consumers with all of the payment methods as elements of a bundle of services. Every bank incurs joint costs for providing these services. That makes the economics of providing each service interdependent with the economics of providing all the other services. Even when banks provide services through separate divisions these products are interdependent because one part of the bank may see the cost while another sees the revenue. Ultimately, changes in cost or revenue for any product can affect the prices and service levels for all other products.

Second, interchange fees are a highly significant element of the revenue received by banks for payment cards and a material portion of bank revenue. Based on confidential data we have received from one of the major banks, interchange fees account for around 45 percent of all fees from payment cards and about 9 percent of the net commissions received by the bank.

Third, cash is subsidized by the Bank of Portugal and by legal restrictions, and customs, that result in banks not charging customers anything for getting cash. Merchants and consumers do not face the true cost of cash and therefore have incentives to use it too much.

Fourth, as we have noted throughout, the economics of all of the six stakeholders—or spheres of influence—are interconnected and interdependent. Any change that takes place with regard to one stakeholder—increasing or decreasing its costs or revenues—necessarily has an impact on the other stakeholders (the possible exception being the Bank of Portugal which does not necessarily need to respond as a profit-maximizing business would.)

<sup>81</sup>Caixa General Depositos (2010), "Innovation Questionnaire Follow-Up: Results of the Survey," Questions 4 and 5.



## V. FRAMEWORK FOR EVALUATING REGULATIONS

Sound government policy should promote an efficient payment system. That is critical to the success of the overall economy. The Portuguese government has worked closely with banking sector to create one of the most highly regarded payment systems among developed countries. The Bank of Portugal also operates the cash system in Portugal, in concert with the European Central Bank.

The government has an important responsibility in regulating the retail payment system to ensure its safety and soundness. It also has a critical role in crafting regulatory policy that supports the overall objectives of economic growth and prosperity. The Bank of Portugal has primary regulatory responsibility for the retail payments system. It regulates, oversees, and promotes the smooth operation of payment systems.<sup>82</sup> It collects statistics and enforces various laws regarding the sector.<sup>83</sup> It is assisted in this task by various advisory bodies, including the Interbank Commission for Payment Systems (CISP) and the Payment Systems Forum.

This chapter presents a framework for considering proposed pricing and service regulation of the retail payments system. There are several aspects of the regulation of payments systems that make it different from considering many other kinds of regulation including traditional prudential regulation of banking.

**THE FIRST** involves the high degree of interdependency between different parts of the payment system. It is not possible to regulate one aspect of the retail payments system without having an effect on other aspects of the retail payments system. To evaluate the overall effect of a regulation on social welfare it is also necessary to understand how an intervention affects the welfare of all of the interdependent stakeholders. This chapter examines these interdependencies and provides an economic framework for analyzing them.

**THE SECOND** concerns the possibility that some of the interdependent stakeholders in the retail payments system could lobby for regulations that would shift costs from themselves to other stakeholders in the retail payments system. This relates to the classic rent-seeking theory of regulation. This problem is particularly serious for multi-sided platforms in which consumers on one side could lobby for the platform to shift costs to the other side. The fact that one group of stakeholders lobbies for an intervention that harms another group of stakeholders does not necessarily mean that intervention is bad public policy. However, policymakers should at least examine the overall impact of the intervention on all stakeholders and recognize the motivation on the part of stakeholders.

<sup>82</sup>Banco de Portugal, "Mission and Tasks of the Banco de Portugal," <http://www.bportugal.pt/en-US/OBancoeoEurosisistema/MissaoeFuncoes/Pages/default.aspx>

<sup>83</sup>For a list of laws implemented in part by the Banco de Portugal, see <http://www.bportugal.pt/en-US/SistemasdePagamento/LegislacaoNormas/Pages/default.aspx>.



## A. ECONOMICS OF REGULATORY INTERVENTION

Economists recognize that competitive markets do not always work as well as they should to advance public welfare. In some cases it is possible to design interventions into markets that fix problems with the competitive process and to improve welfare. The basic framework that economists have developed involves the following three critical steps.

### FIRST, IDENTIFYING THE “MARKET FAILURE”

that is impeding the competitive process from maximizing social welfare. There is a market failure when the competitive process yields an outcome that is not the best one from the standpoint of social welfare. Competition usually does a good job of maximizing long-term economic efficiency. But sometimes it does not. Common examples of market failures are negative externalities such as pollution, imperfections in the provision of information that result in market participants not making the best decisions for themselves, imperfect property rights that limit the ability of entrepreneurs to secure compensation for innovation and risk taking, and monopoly power that does not yield countervailing static or dynamic efficiencies.

### SECOND, DETERMINING THE BEST INTERVENTION FOR CORRECTING THAT MARKET FAILURE.

In practice, it may not be possible to find a “first-best” intervention that simply negates the market failure. In those cases it is necessary to consider “second-best” interventions that may create their own negative economic distortions. For example, most developed countries have patent systems that give inventors a monopoly over their

invention for 20 years. That intervention in the market balances the social benefit from creating an incentive to innovative (the reason for the monopoly) and the social cost of monopoly pricing (the reason for the time limitation).

### THIRD, ASSESSING THE COSTS AND BENEFITS OF THE REGULATORY INTERVENTION.

Particularly when the government has to employ a “second-best” intervention the costs of that intervention could outweigh the benefits including the cost of associated distortions and administrative costs. Although it may be possible to secure improvements in efficiency in theory it may not be able to make this better in practice after taking into account additional known distortions, the risk of unintended consequences, and the costs of administering regulations.

### FOURTH, ASSESSING THE UNINTENDED AND INDIRECT CONSEQUENCES OF REGULATORY INTERVENTION.

Intervening in a complex economic system can result in consequences that are hard to predict and are not intended. The risk of these unintended consequences needs to be factored into the costs and benefit calculation. Banking and payments regulations that appear to have worked well include anti-money laundering restrictions that limit the use of the payment system for criminal activity, truth-in-lending laws to prevent deceptive practices, and rules for clearing and settling transactions.



## B. REGULATION OF BANKING AND PAYMENTS

Prudential regulation of banking and payments provides a good example of these principals for government intervention. Portugal, like most countries, has safety and soundness regulations for banking. There is a sound economic reason for that. There are interdependencies between banks as a result of these institutions borrowing from and lending to each other. The failure of one bank can result in the failure of many other banks. That can ultimately cause the collapse of the financial system. The market failure is that an individual bank does not have the incentive to take into account all of the costs their risk-taking behavior imposes on the rest of the financial system. Capital requirements and other prudential regulations reduce the likelihood of bank becoming insolvent and causing harm to other banking and the financial system.

As we know from the many financial crises that countries have over time, including the most recent one, these regulations do not necessarily eliminate the market failure. That is because it is not possible to design an intervention that, on the one hand, would eliminate the possibility of a market failure in banking and, on the other hand, would allow a viable banking system to support the economy. For example, in choosing capital requirements, regulators have to weigh the benefit of the requirements in reducing the risk of bank failure (and resulting systemic risk) against the cost of reducing lending to the economy and thereby reducing economic growth and job creation.

There are safety and soundness issues for the payments system as well. For example, the government has a significant interest in making sure that the payment system is not vulnerable to collapse as a result of a financial crisis, terrorism, acts of nature, and other factors. That is not the focus of this chapter. Here we focus on interventions that concern the prices and services for payments providers. Unlike safety and soundness issues, we will see that almost all price and service regulation poses a significant risk of shifting costs from one set of stakeholders to another set of stakeholders and, because of the highly interdependent

nature of the payment system, having costly unintended consequences. Again, that does not mean that those regulations are necessarily bad public policy, only that policymakers should be mindful of the costs as well as the benefits of regulations and of the incentives for opportunistic rent-seeking.

At the outset it is important to point out that the modern consensus is that price regulation generally does more harm than good. Governments around the world have largely abandoned price regulation of companies and industries in favor of market forces. Starting in the 1980s, this has occurred in sectors as diverse as telecommunications, electricity, and transportation. European governments have moved away from price regulation. The abandonment of price regulation came about as a result of mounting evidence—some of it provided in scholarly work by economists—that such regulation has historically resulted in market distortions, low investment, slow innovation, and other unintended consequences.<sup>84</sup> As a public policy tool one would therefore expect that price regulation would be used quite judiciously if at all.

<sup>84</sup>Filippo Belloc, Antonio Nicita, and Pier Luigi Parcu (2011), "Deregulating Telecommunications in Europe: Timing, Path-Dependency, and Institutional Complementarities," EUI Working Paper RSCAS 2011/47; Richard Green (2006), "Electricity Liberalization in Europe – How Competitive Will It Be?" *Energy Policy*, 34(16), 2532–2541; Joseph Berechman and Jaap de Wit (1996), "An Analysis of the Effects of European Aviation Deregulation on an Airline's Network Structure and Choice of a Primary West European Hub Airport," *Journal of Transport Economics and Policy*, 30(3), 251–274; Francine Lafontaine and Laura Malaguzzi Valeri (2009), "The Deregulation of International Trucking in the European Union: Form and Effect," *Journal of Regulatory Economics*, 35(1), 19–44; Paolo Beria, Emile Quinet, Gines de Rus, and Carola Schulz (2010), "A Comparison of Rail Liberalization Levels across Four European Countries," MPRA Paper No. 29142.

## C. KEY ECONOMIC ASPECTS FOR EVALUATING PAYMENTS REGULATION

Three aspects of payments systems are critical for evaluating the effect of regulations.

### 1. Multi-Sided Platforms.

The first is that payment systems involve multisided platforms. Payment systems connect senders and receivers of money. In the case of retail payments, senders are typically consumers and receivers are typically merchants. Two points are noteworthy.

- › Multisided platforms often anchor complex ecosystems involving many stakeholders. That is the case with payments. The platforms are the network and shared infrastructure providers. These platforms anchor an ecosystem that consists of banks, which in turn service consumers and merchants, as well as other players.
- › As is well known in the literature on multisided platforms, the platforms must determine a “pricing structure” that determines the extent to which each “side” of the platform contributes to the cost of running the platform and generating profits. Payment card systems typically recover most of the cost of running the transaction-related portion of the system from the receiver side.<sup>85</sup>

### 2. Complex business ecosystems.

Multisided platforms involve fairly intricate interrelationships between several types of businesses. The industrial organization of these platforms varies across the different types of payments.

- › The Bank of Portugal runs the cash ecosystem. It exchanges notes and coins with the banks. Although the Bank of Portugal derives seigniorage income it does not operate the cash system as a profit-maximizing business would. Banks then “issue” cash to consumers and “acquire” cash from businesses receive from consumers.
- › The general-purpose payment card platforms involve four-party networks. These networks directly serve bank issuers of cards to consumers and bank acquirers of card payments from merchants.

- › Finally, SIBS operates the automatic clearing house for direct debit and credit transfer between banks who then debit or credit their customers’ accounts.

As we describe in the next part of this section each of the participants in the value chain connecting the consumer and the merchants incurs costs and obtains revenue. Interventions at any level result in “knock-on” effects and in particular result in the “pass-through” of changes in costs and revenue to customers. Ultimately, these pass-through effects result in a rebalancing of the extent to which costs and profits are recovered from consumers and merchants.

### 3. Complex bundled product and servicing offerings.

The most important bundle for consumers is the current account, which typically includes many payment services some of which have separate price schedules. Merchants also get a bundle of products and services, which includes a current account, often acquiring services, possibly a line of credit, and sometimes cash pickup. Given that these are bundles of complementary services regulatory interventions that affect one service component are likely to have impacts on the prices for the other components.

This important point follows from basic economics but the intuition is straightforward. Consider a restaurant. It provides a bundle that includes the ambience of the restaurant, the table setting, food that can be ordered a la carte, and wine. It recovers the costs of running the restaurant and earning a profit by charging for different elements of this bundle. If the government imposed price caps on wine, the restaurant would earn less profit from serving wine and would have to raise the prices on other elements. While it is hard to predict whether the restaurant would raise the prices on the first or second courses or on dessert, or on particular dishes, or on everything, is hard to predict. But it is certain that restaurants would have to raise prices, and increase their margins on something they offer, to make up for the loss of profits on wine.

<sup>85</sup>David S. Evans and Abel Mateus (2011), “How Changes in Payment Card Interchange Fees Affect Consumers Fees and Merchant Prices: An Economic Analysis with Applications to the European Union,” in David S. Evans, ed., *Interchange Fees: The Economics and Regulation of What Merchants Pay for Cards* (Boston: Competition Policy International, 2011). [hereinafter “Evans and Mateus (2011)”].

## D. ECONOMICS OF PASS-THROUGH

The analysis of the welfare consequences of regulatory interventions in payments depends on the extent to which different stakeholders “pass on” benefits they receive or costs they incur to other stakeholders with whom they are doing business. This turns out to be important because there are a number of stakeholders who are linked together in a chain.

A typical chain is “consumer to merchant to acquirer to network to issuer to consumer”. At each level in the chain money changes hands resulting in one party incurring costs and another party receiving revenue.

A regulatory intervention involving price or service typically reduces the costs for one party and increases the revenue for the other party. Those changes have knock-on effects. If one party receives a higher price for a transaction it will earn an increase in margin on that transaction. Over the long run the party can decide to keep that increased margin all for itself (so it drops entirely to the bottom line of its profit-and-loss statement), pass all of that margin back to its customers (so it does not retain anything for itself in terms of increased profits), or keep some for itself and pass some of it on (so it shares some portion of the benefit with its customers).

There is an interaction between pass through and the pricing of bundles point above. When a business incurs an additional cost for a component of a bundle it could increase the price of that component to fully or partly compensate for that. It could also increase the price of other complementary elements of the bundle. Economic theory and experience indicates that companies could do either or a combination of these. So, for example, if the price of wine increased restaurants could pass on some of that higher cost in the form of higher prices for wine, or they could increase the price of some other parts of the meal, or they could do both.

Economists have studied pass through from a theoretical and empirical standpoint.

There is an extensive theoretical and empirical literature in

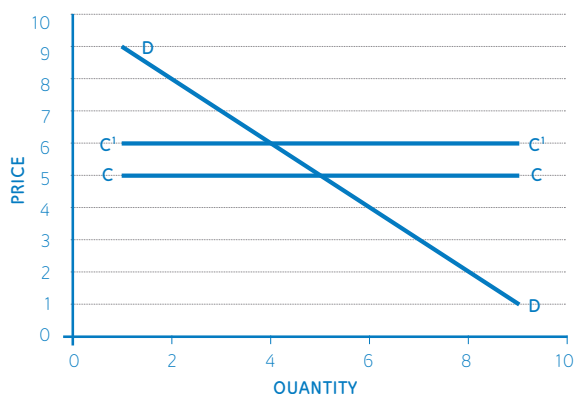
economics, however, that provides insights into how much retailers and banks are likely to pass on if they behave like other industries that have experienced reductions in costs. Beginning students of economics often learn a simple and elegant result. When there is perfect competition among firms and there are constant unit costs of production 100 percent of a change in costs will be passed on to consumers in the form of higher or lower prices. The situation is shown in Figure 11. DD reflects the demand schedule facing consumers. CC is the constant average and marginal cost of production; CC also reflects the industry supply curve since firms will be willing to supply as much output as the market wants at that price which covers costs. The competitive price and output level is at the intersection of CC and DD. If CC increases by \$1.00 to C'C' then it is apparent from the diagram that the price increases by €1.00 as well. If, for example, the government imposed a €1.00 tax on each unit of output that the producer had to pay, the price to consumers would simply rise by this \$1.00. It is easy to verify that the result does not depend on the shape of the demand schedule; replacing the linear schedule in the diagram with any proper nonlinear demand schedule would give the same result.

Economics does not provide such a specific conclusion about the pass-through of costs when markets deviate from perfect competition with constant returns to scale. The percent of the cost change that is passed through to consumers in price changes depends on details such as the market structure, extent of product differentiation, the competitive interactions among the firms, and the precise shape of the demand schedule around the profit-maximizing price and output level before the cost change.<sup>86</sup> To take a simple example, if there was perfect competition but the supply curve was upward sloping as a result of decreasing returns to scale, only a portion of the cost reduction would be passed on to consumers in the form of lower prices.

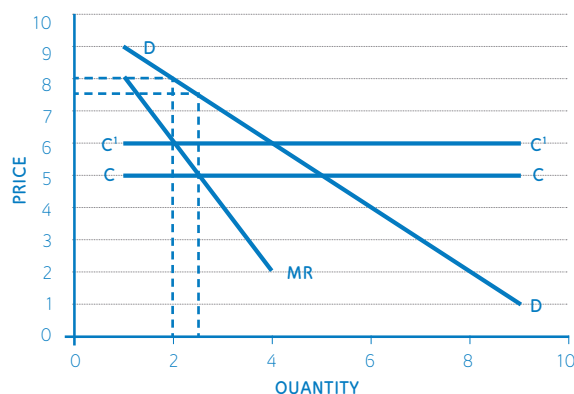
As a general matter, we would expect that when firms are not in a competitive industry with constant returns to scale they would only pass on a portion of a cost change to consumers—and thereby share both the pain and gain

<sup>86</sup>E. Glen Weyl and Michal Fabinger (2012), “Pass-Through as an Economic Tool,” Working Paper, available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1324426](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1324426) [hereinafter “Weyl and Fabinger (2012)”].

**FIGURE 11 | EFFECT OF A COST INCREASE IN A PERFECTLY COMPETITIVE INDUSTRY WITH CONSTANT RETURNS TO SCALE**



**FIGURE 12 | EFFECT OF A COST INCREASE FOR A FIRM WITH SIGNIFICANT MARKET POWER**



of cost changes with consumers. We can motivate this result by considering the situation for a firm that faces a downward sloping demand curve and therefore has some market power to set its own price. Consider the situation in which the government imposes a €1.00 tax on each unit of output sold by the firm. Figure 12 shows how this affects the setting of the profit-maximizing price. At least in the case of linear demand the firm will increase its price by less than €1.00.<sup>87</sup> The firm passes through only a portion of the cost increase to consumers and absorbs a portion through reduced profit. There is a similar result when the firm has a cost decrease. Consider the case in which the tax falls by €1.00. The firm will lower its price to consumers.

The implication of the theoretical work is that once we depart from the case of perfect competition and constant returns to scale it is not possible to predict the degree of pass through from theory alone. Pass through is an empirical question.

A number of economists have studied empirically the extent to which cost changes have affected final prices. Many of these studies have looked at situations in which the government imposed a tax that producers had to pay, or the extent to which changes in foreign exchange rates effect have on import prices and the prices of domestic goods. Overall these studies find that the pass-through rate varies in real-world markets from 22-74 percent in the long run with a median of approximately 50 percent

in the long run.<sup>88</sup>

There is a pass-through literature specific to banks, which is obviously relevant to the issues we are addressing here. Most of these studies look at the extent of timing of pass-through of changes in market interest rates to changes in bank lending and deposit rates. These studies typically find heterogeneous pass-through rates, with long-run pass-through rates in developed countries (particularly the U.S.) usually not statistically distinguishable from 100 percent.<sup>89</sup> While interest rate pass-through may not be the same as the pass-through of other costs, this literature suggests that pass-through may be higher in banking than in other sectors.

These studies have focused on long-run price changes as a result of cost changes. Economists have also studied the degree to which prices are sticky—how long does it take for firms to changes their prices in response to cost shocks. These studies, have found that merchants do not adjust prices quickly.<sup>90</sup> These studies typically find that prices stay constant for about a year or more.

Most of the work on pass through by economists has focused on traditional markets such as manufacturing that have linear supply chains. The interesting feature of platform businesses is that changes in costs and revenues on one side of a platform have consequences for consumers on the other side of the platform. We show this next for payment systems.

<sup>87</sup>As Weyl and Fabinger (2012), id, observe the impact of a cost change on final prices depends critically on the precise shape of the demand schedule around the equilibrium from which prices are changing in addition to the nature of competition and costs. While economists write down linear demand schedules for convenience there is no reason to believe that schedules are linear in the real world. If the demand schedule is non-linear then, depending on the curvature around the equilibrium, a cost increase could result in varying degrees of pass-through including possibly more than 100 percent (what is known as cost amplification).

<sup>88</sup>See Evans and Mateus (2011), at 45-46.

<sup>89</sup>One survey notes that "The estimates for the pass-through in the U.S. seem to be higher than in the euro area, and most of the studies seem to suggest that the pass-through to U.S. retail rates is nearly complete in the long-run." Claudia Kwapi and Johann Scharler (2006), "Limited Pass-Through from Policy to Retail Interest Rates: Empirical Evidence and Macroeconomic Implications," Monetary Policy and the Economy, 2006(4), 26-36. See also Gabe de Bondt (2005), "Retail Bank Interest Rate Pass-Through: New Evidence at the Euro Area Level," German Economic Review, 6(1), 37-78; Christopher Kok Sorensen (2006), "Bank Interest Rate Pass-Through in the Euro Area: A Cross Country Comparison," Working Paper; Leonarredo Gamacorta (2008), "How Do Banks Set Interest Rates?" European Economic Review, 52(5), 792-819; Nikoloz Gigineishvili (2011), "Determinant of Interest Rate Pass-Through: Do Macroeconomic Conditions and Financial Market Structure Matter?" Working Paper.

<sup>90</sup>See Evans and Mateus (2011), at 47-48.

## E. REVIEW OF PAYMENT SYSTEMS INTERVENTIONS

The basic economics of payment system interventions is straightforward as a matter of theory. Since many of the interventions have resulted in a reduction in the interchange fee paid by the merchant's acquirer to the cardholder's issuer it is useful to take that as an example. Suppose regulation imposes a price cap on the interchange fee that the merchant acquirer must pay to the card issuer. That decreases the costs incurred by the acquirer and decreases the revenue received by the issuer. Both the acquirer and issuer need to consider what to do as a result of this change in their revenue streams. The acquirer needs to decide how much if any of their cost savings to pass on to the merchant. The merchant in turn needs to decide how much if any of their cost savings to pass on to the consumer. The bank needs to decide how much if any of its revenue losses to try to make up from the consumer. Thus, for a € 1 reduction in the interchange fee paid the acquirer and the merchant will split the € 1 reduction between them and the merchant and the consumer will split the portion of the merchant's reduction between them; for a € 1 decrease in the interchange fee received the bank and the cardholder will split the € 1 decrease between them.

The winners and losers from pass-through are clear with one exception. The acquirer and merchant "wins" from the reduction in interchange fees although the size of their wins depend on how much they pass on and they could just break even. The issuer and the cardholder "lose" from the reduction in interchange fees although, again, the size of their losses depends on how much the bank absorbs as reduction in profit and how much the bank passes on to consumers to reduce its lost revenue. The impact on consumers generally is uncertain because they could gain from lower prices charged to them by merchants but lose from higher fees from their card issuers. We show below that the evidence overwhelmingly indicates that consumers lose more from higher bank fees than they gain from lower merchant pricing.

Studies of Australia, Spain and the United States have documented that reductions in interchange fees have resulted partly in banks taking lower profits but also recovering some of their losses through increased fees and reductions in product features. Meanwhile it appears likely that merchants have kept much of the cost savings they receive for themselves. Several countries have imposed price caps on interchange fees for debit cards, credit cards, or both. We review the evidence in these countries below and summarize them in Table 19.

### 1. AUSTRALIA

The Reserve Bank of Australia imposed price caps on credit-card interchange fees in 2003. As a result interchange fees declined from 95 basis points to 55 basis points. The discussion above indicates that one factor that affects the likely pass through rate is the degree of competition in an industry. In Australia, both banking and retailing were relatively concentrated. As of the time the regulations were put in place, the top 4 credit-card issuers accounted for 85 percent of credit-card transactions.<sup>91</sup> These issuers competed with each other for cardholders. The extent of merchant pass through depends on the degree of competition in individual retail markets such as grocery, department stores, electronics, and so forth. Within each of those retail categories Australia was relatively concentrated. The top 3 grocery stores have a combined market share of 85 percent; the top 5 department stores have a combined market share of 99 percent; the top 3 electronic stores have a combined market share of 48 percent.<sup>92</sup>

Chang, Evans and Garcia Swartz found that Australian card issuers passed on 30–40 percent of the reduced credit card interchange fee revenues to cardholders in about the first year after the reduction.<sup>93</sup> In particular, card issuers increased annual fees. Although the statistical analysis

<sup>91</sup>See <http://www.rb.gov.au/payments-system/resources/statistics/rps.xls> for the number of credit card accounts. See "Banking Fees in Australia," Reserve Bank of Australia, May 2008, available at <http://www.rb.gov.au/publications/bulletin/2008/may/3.html>; and "Banking Fees in Australia," Reserve Bank of Australia, May 2006, available at <http://www.rb.gov.au/publications/bulletin/2006/may/2.html>.

<sup>92</sup>Australian Government Productivity Commission (2011), "Economic Structure and Performance of the Australian Retail Industry," Productivity Commission Inquiry Report No. 56.

<sup>93</sup>Howard Chang, David Evans, and Daniel D. Garcia Swartz (2005), "The Effect of Regulatory Intervention in Two-Sided Markets: An Assessment of Interchange-Fee Capping in Australia," Review of Network Economics, 4:4, pp. 328 – 358. See also Robert Stillman, William Bishop, Kyla Malcolm, and Nicole Hildebrandt (2008), "Regulatory Intervention in the Payment Card Industry by the Reserve Bank of Australia: Analysis of the Evidence," available at [http://www.crai.com/ecp/assets/Regulatory\\_Intervention.pdf](http://www.crai.com/ecp/assets/Regulatory_Intervention.pdf).

TABLE 19 | STUDIES OF THE EFFECTS OF INTERCHANGE FEE REGULATIONS

COUNTRY	STUDY	GENERAL FINDINGS
AUSTRALIA	Howard Chang, David Evans, and Daniel D. Garcia Swartz (2005), "The Effect of Regulatory Intervention in Two-Sided Markets: An Assessment of Interchange-Fee Capping in Australia," <i>Review of Network Economics</i> , 4:4, pp. 328 – 358.	Australian card issuers passed on 30–40 percent of the reduced credit card interchange fee revenues to cardholders in about the first year, particularly in the form of increased annual fees. Subsequent examination suggests that banks eventually passed on all of the increased fees. It is unlikely that merchants passed enough of their cost savings on in the form of lower prices to consumers given the high degree of concentration of Australian retail categories and there is no evidence they did.
SPAIN	Iranzo Juan, Fernández Pascual, Matías Gustavo and Delgado Manuel (2012), "The Effects of the Mandatory Decrease of Interchange Fees in Spain," MPRA Paper No. 43097.	The reduction in interchange of €3.329 billion led to an increase of more than 50 percent in annual fees, costing consumers €2.350 billion. Fees for overdrafts and debt claims increased, and rewards and promotions were reduced. The intervention slowed the pace of displacement of costly cash by more efficient electronic means of payment. It is unlikely and there is no evidence that merchants passed on enough savings to offset these increases.
UNITED STATES	David S. Evans, Robert E. Litan, and Richard Schmalensee, "Economic Analysis of the Effects of the Federal Reserve Board's Proposed Debit Card Interchange Fee Regulations on Consumers and Small Businesses", David S. Evans, ed., <i>Interchange Fees: The Economics and Regulation of What Merchants Pay for Cards</i> (Boston: Competition Policy International, 2011).	Reduced debit interchange will cause merchants to gain and issuers to lose, with some of these gains and losses being passed on to consumers. Over the first two years of the reduction, large merchants will gain a windfall between \$17.2 billion to \$19.9 billion. Consumers and small businesses will lose more on the bank side than they will gain from the merchant side, with a net consumer loss between \$16.2 billion and \$18.7 billion. The numbers in this paper are based on the reduction of debit interchange in the Federal Reserve's original proposal (to either 12 cents per debit transaction or 7 cents per transaction). If we adjust their results to reflect the actual reduction (to 24 cents per transaction) the numbers are as follows: a gain to large merchants of \$10.7 billion, and a net loss to consumers and small businesses of \$10.1 billion.

focused on the short-run effects it is useful to note what happened to card fees in the long run. By 2006 the average fee per account was about AU\$40 higher than in had been in 2002 (prior to reforms). That was about the same as the decline in interchange fee per account that had resulted in the reforms so it is possible that the reduction in interchange fees was passed on fully to consumers in the form of higher fees.

Merchant acquirers passed on virtually all of their savings to merchants.<sup>94</sup> There is, however, no hard evidence on whether merchant prices declined. The RBA claimed that merchants in Australia passed most of the cost savings from reductions in credit card interchange fees on to consumers.<sup>95</sup> They based that conclusion on two false premises: that retailing in Australia is a competitive industry and that economic theory shows that competitive industries pass on most or all of cost savings. In fact, as we discuss below, economic theory finds that full pass-through occurs only under very special conditions: there must be perfect competition with constant unit costs. Otherwise, economic theory does not provide robust predictions.<sup>96</sup> The size of the pass-through rate is an empirical question that requires a fact-intensive examination. As we saw above, one relevant, although not dispositive, set of facts is the actual degree of competition since full pass through is plausible for industries that are highly competitive. As we saw, Australian retailing is, in fact, quite concentrated in the individual segments in which prices are actually determined.

## 2. SPAIN

On 2 December 2005, a government-enforced Agreement to reduce Interchange levels for a five-year period (2006–2010) was signed by the main Spanish merchant associations and card schemes. The effects of this agreement were studied by Juan, Pascual, Gustavo and Manuel (2012). They found that the reduction in interchange harmed consumers by raising cardholder fees and reducing card benefits. More specifically, they found that the agreement caused a reduction in interchange of €3.329 billion, which led to an increase of more than 50 percent in annual fees, costing consumers €2.350 billion over five years. They also found increases in fees for overdrafts and debt claims, along with reductions in rewards and promotions. They found no evidence that merchants passed on their savings to consumers in the form of lower prices. They found that the intervention slowed the pace of displacement of costly cash by more efficient electronic means of payment, making it much harder to control the black-market economy, fraud and corruption, which in turn will affect government revenues. Since the agreement, the average transaction value for payments by card fell from €52.1 in 2005 to €44.3 in 2010, while the average ATM transaction rose from €91.2 to €117.2.

<sup>96</sup>Evans and Mateus (2011), at 12–18.



### 3. UNITED STATES

As a result of the Durbin Amendment to the Dodd-Frank Act, the US Federal Reserve Board placed a cap on the amount of interchange fee revenues that banks<sup>97</sup> with assets of at least \$10 billion<sup>98</sup> could receive when consumers use their debit cards to pay merchants. Interchange fee revenues per average transaction fell from roughly 44 cents to roughly 24 cents. In 2012, the first full year following the implementation of the Durbin Amendment, banks that issued debit cards will have received an estimated \$7.5 billion less revenue in 2012 than they would have but for the regulations.<sup>99</sup> That amount will increase over time as the volume of debit card transactions rises.

Evans, Litan, and Schmalensee estimate the impact of the debit card interchange fee reductions on consumer and small business users of debit products.<sup>100</sup> They found that these users would lose more from increased bank fees than they would gain from reduced merchant prices. Their best estimate for the first two years of the fee reduction is that these consumers will suffer a net loss of \$16.2 billion to \$18.7 billion, while large retailers will receive windfall gains of \$17.2 billion to \$19.86 billion. Their study was based on debit card interchange fee reductions initially proposed by the Federal Reserve Board. If we update their results to reflect the higher caps ultimately imposed, the estimate of net consumer harm falls to \$10.1 billion and the estimate of the large retailer windfall falls to \$10.7 billion.

Although it is not possible to observe material changes at merchants as a result of the reduction in interchange fees the impact on bank fees is quite obvious. In its 2012 Checking Survey, Bankrate.com found that almost every category of checking account fee had increased over 2011 levels. The percentage of free checking accounts declined from 45 percent to 39 percent. The average monthly maintenance fee for non-interest checking accounts rose 25 percent. The average minimum balance required to avoid fees rose 23 percent. The average fee charged by banks to their customers for using an out-of-network ATM rose 11 percent, in addition to a 4 percent increase in the fee charged by ATM owners.

### 4. PORTUGAL

Following the European Commission's (EC) interim reports on the retail banking industry in 2006, Portuguese issuers and acquirers meet some of the EC's concerns by reducing domestic interchange fees and removing bilateral domestic interchange fees that favored UNICRE.<sup>101</sup> The card schemes in Portugal reduced their interchange fees between 2004 and 2007 (Multibanco by 18 basis points, and Visa by 81 basis points for credit cards and 25 basis points for debit cards), in part to alleviate regulatory concerns. No one has conducted the sort of systematic study of these reductions along the lines of the studies we have discussed. However, our interviews with financial institutions found that, as in these other countries, Portuguese banks increased various fees and reduced cardholder services. There is no evidence that Portuguese merchants have passed on these savings in the form of lower prices.

<sup>97</sup>We use the term "banks" to refer to banks, savings and loans associations, and credit unions. All of these banks typically issue debit cards as part of demand depository accounts they offer consumers and small business customers.

<sup>98</sup>Banks with assets of less than \$10 billion were exempt from the debit interchange fee provisions of the Durbin Amendment. Debit Card Interchange Fees and Routing, 12 C.F.R. § 235.5 (2012). For the remainder of this paper "covered banks" refers to those banks with at least \$10 billion of assets that are covered by the Durbin Amendment.

<sup>99</sup>To arrive at this estimate, we start with the Nielson Report's forecast for purchases on U.S. debit cards in 2012: \$2,107.4 billion in volume on 52.86 billion transactions. Nielson Report, Issue 961 (December 2010), at 7. Next, we estimate the share of these amounts that will be attributable to covered issuers. We match the Nielson Report's list of the top 100 U.S. debit card issuers to call report data from the FDIC and the NCUA. The Nielson Report, Issue 965 (February 2011), at 8; The Nielson Report, Issue 970 (April 2011), at 10-11; The Nielson Report, Issue 972 (May 2011), at 10-11; Federal Deposit Insurance Corporation, Statistics on Depository Institutions, available at <http://www2.fdic.gov/SDI/>; National Credit Union Administration, 5300 Call Report Quarterly Data, available at <http://www.ncua.gov/DataApps/QCallRptData/Pages/CallRptData.aspx>. The Nielson Report data includes the purchase volume and purchase transactions for each issuer, while the call report data includes the total assets for each institution. From this data, we can assign issuers with assets of at least \$10 billion to the covered group, and the remainder of the issuers to the exempt group. Totalling the 2010 debit card purchase volume and transactions of the covered issuers in the top 100 gives \$1,045.804 billion in volume on 26.121 billion transactions. This equals 75 percent of the \$2,107.4 billion in U.S. debit purchase volume, and 71 percent of the 36.86 billion U.S. debit purchase transactions. It is possible that some covered issuers fall outside of the top 100, but any such issuers should contribute only negligibly to the totals. We assume that, going forward, covered issuers will continue to account for the same fraction of total U.S. debit purchase volume and transactions. Thus, in 2012, we expect covered issuers to account for \$1,589.8 billion in volume (75 percent of \$2,107.4 billion) and \$37.46 billion in transactions (71 percent of 52.86 billion). Under the counterfactual of no interchange regulation, we would expect interchange rates on these transactions to approximately equal the pre-regulation rates. The Federal Reserve reported average debit interchange rates of \$0.44 per transaction, or 1.14 percent of the transaction amount. Debit Card Interchange Fees and Routing, 75 Fed. Reg. 81722, 81725 (December 28, 2010) (codified at 12 C.F.R. 235). To avoid overstating the change in interchange fees, we assume that rate of \$0.44 per transaction would apply in 2012 in the absence of regulation. Under these assumptions, total debit interchange in 2012 would be \$23.26 billion if interchange were unregulated (52.86 billion transactions \* \$0.44 per transaction). Under the Fed's regulation, total debit interchange in 2012 will be \$15.81 billion (52.86 billion transactions \* \$0.22 per transaction \* 71 percent covered transactions + \$2,107.4 billion volume \* 0.05 percent \* 75 percent covered volume + 52.86 billion transactions \* \$0.44 per transaction \* (100 - 71) percent exempt transactions). This gives a difference of \$7.45 billion (\$23.26 billion - \$15.81 billion).

<sup>100</sup>David S. Evans, Robert E. Litan, and Richard Schmalensee, "Economic Analysis of the Effects of the Federal Reserve Board's Proposed Debit Card Interchange Fee Regulations on Consumers and Small Businesses" Working Paper.

<sup>101</sup>Fumiko Hayashi (2012), "Public Authority Involvement in Payment Card Markets: Various Countries - April 2012 Update," <http://www.kansascityfed.org/publicat/psr/dataset/regulator-dev-interchange-fees.pdf>, European Payment Cards Yearbook 2012-2013 - Portugal, November 2012.

## F. REGULATION AND RENT SEEKING

The regulations discussed above were indirectly the result of merchants lodging complaints with regulatory authorities (the RBA in Australia and the Spanish Competition Authority for Spain) or lobbying a legislature (the Durbin Amendment to the Dodd-Frank Act in the US). There is nothing necessarily unusual or wrong about businesses using tools made available to them by society to secure reductions in cost. In many cases these merchants have expressed dismay over the costs they incur for interchange fees and therefore there is nothing necessarily unusual about their having chosen to seek reductions through appeals to government entities.

However, from the standpoint of sound social and economic policy it is important to recognize two critical and related aspects of this. First, in platform markets efforts by one group of stakeholders to reduce their costs—through price costs for example—necessarily mean that other groups of stakeholders will end up paying higher costs. A forced price decrease on one side leads to a price increase on the other side. The platform may earn lower profits as a result of the price cap but in most cases it will raise prices to the other customer groups that are not covered by the cap. In the case of payments, as we have seen, a price cap on the merchant side results in a price increase on the cardholder side.

Second, the classic economic theory of rent seeking has some lessons about which platform side will engage in successful lobbying to reduce its costs. It is well known that small cohesive groups are better able to organize themselves and lobby than large heterogeneous groups. In many countries a small number of merchants account for a large fraction of payments volume and can readily organize themselves to lobby. Retailers often have associations set up explicitly for lobbying purposes.

In fact, in Portugal, the largest 4 retailers account for over 20 percent of payment card volume. These retailers are the Sonae group, Jeronimo Martins, the Auchan Group, and Lidl E Companhia. In addition, most retailers belong to APED which can lobby on their behalf. In most developed card systems there are many more cardholders

than businesses. These large retailers therefore not only have traditional bargaining power over the payment schemes and other participants in the payment system. They have “political bargaining power” resulting from the ease with which they can organize lobbying efforts through unilateral action, by having several of the largest four join together, or relying on their trade group. Again, we are not suggesting that there is anything wrong with this. It is how business lobbying works in most countries for better or worse. However, in multi-sided platform businesses there are strong incentives to engage in such lobbying to shift costs to the other platform participants.

Meanwhile, consumers who use payments do not have convenient ways to organize themselves in most countries. They are too numerous and individually they do not have incentives to exert effort on issues related to payment systems including joining organizations that might represent them.

The disparity between merchant and consumer bargaining power is apparent in Portugal. More than 3 million Portuguese households have current accounts and therefore probably have an ATM/debit card. We do not have data available on how many individuals account for 50 percent of spending on payment cards but it is likely to be in the tens if not hundreds of thousands.

The combination of these two facts can result in a market failure in platform markets. It is helpful to think about four possible price structures and levels that could emerge in a payments platform market.

1. The private profit maximizing prices that emerge from competition.
2. The social-welfare maximizing prices that an all-knowing and powerful central planner could set.
3. The “merchant-monopsony” price level that would profit-maximize for merchants.
4. The “consumer-monopsony” price level that would be profit-maximizing for consumers.

One would expect that the merchant-monopsony price would result in an interchange fee below the private profit-maximizing price and that the consumer-monopsony price would result in an interchange fee above the private profit-maximizing price. Calvano has provided some simulations that suggest that under plausible assumptions the social-welfare maximizing interchange fee and the private profit-maximizing interchange fee are likely to be “similar”.<sup>102</sup> In other words, even in a model in which the social-welfare maximizing interchange fee is theoretically lower than the private profit-maximizing interchange fee it would not, except under extreme and implausible assumptions, be much lower and certainly not in the range that merchants have argued for (0 to 10 cents per transaction is a rough range).

This reasoning strongly suggests that merchants, not surprisingly, are engaging in lobbying efforts to establish an interchange fee that is as close as possible to the monopsony interchange fee that they could impose if they were a pure buyer cartel. The interchange fees they have been advocating—including zero—essentially push most of the cost of the payment system on to consumers and, based on the US results, and appears to lead to a significant increase in their profits.

The evidence in favor of the hypothesis that merchants in Portugal and elsewhere are engaging in “rent-seeking” behavior to establish monopsony prices and thereby earn additional profits from consumers seems persuasive although further work should probably be done. From a theoretical standpoint, we know that when they are not forced to pass through 100 percent of their gains, which would happen mainly in perfectly competitive industries, merchants have a profit-incentive to shift costs from themselves to consumers. It necessarily increases their profits. From an empirical standpoint, it appears likely from the US experience that merchants were able to capture billions of dollars in non-transitory profit increases. That gain is orders of magnitude larger than any plausible investment they made in lobbying.

The “rent-seeking” hypothesis is more plausible than the only alternative hypothesis that merchants are lobbying for interchange fee reductions simply to benefit their customers. Since they would all benefit from the same reduction merchants would gain no competitive advantage if they reduced interchange fees and then passed all of the savings on to their customers.

## G. ATM FEE REGULATION

As we discussed above, in 2010 a decree-law passed by the Portuguese Council of Ministers went into effect that prohibited banks from charging consumers fees for using ATMs.<sup>103</sup> We mentioned above that Portugal has one of the highest ATMs per capita of any EU country. That resulted from significant investments made by the Portuguese banking industry to install ATM machines at branches and in remote locations. Banks have did not charge for ATM services during this period of rapid deployment in large part because they wanted to encourage consumers to migrate from using more expensive branch banking services to cheaper ATM services.

Now with a widely used ATM network banks do have financial reasons to discontinue or reduce this subsidy to ATM use. However, the ATM decree, in effect, prohibits the financial institutions that operate ATMs in Portugal from charging consumers any fees for virtually any of the services they get from ATMs. There is a price cap of € 0.00 on ATM services. As noted above, no other EU country, as far as we have determined, has imposed such stringent regulation on the pricing of ATM services and banks that own ATMs in many other countries charge foreign fees consumers who do not bank with them.

Currently, financial institutions have only one material

<sup>102</sup>Emilio Calvano, “Note on the Economic Theory of Interchange Fees,” 22 February 2011, available at [http://www.federalreserve.gov/SECRS/2011/March/20110308/R-1404/R-1404\\_030811\\_69122\\_621890579792\\_1.pdf](http://www.federalreserve.gov/SECRS/2011/March/20110308/R-1404/R-1404_030811_69122_621890579792_1.pdf)

<sup>103</sup>Decreto-Lei n.º 3/2010, Diário da República, 1.ª série – N.º 2–5 de Janeiro de 2010, at 26–27, available at <http://drept.pdfis/2010/01/00200/0002600027.pdf>.

source of revenue for ATMs. When consumers withdraw money from their machines using an ATM/debit card issued by another bank the consumer's bank receives a fee from the bank that owns and operates that ATM. Every bank therefore obtains revenues from their ATMs but incur costs—the interbank fees they pay—from their cardholders using other banks' ATMs. Roughly speaking, banks that have relatively more ATM than cardholders obtain positive net revenues and banks that have relatively more cardholders than ATMs incur negative net revenues. However, this is a zero-sum game across all banks in Portugal—one bank's gain is another bank's loss. Overall, banks earn no significant revenue at all from offering ATMs to consumers.

All banks, however, incur costs from placing and servicing ATMs and the transactions that take place from ATMs. They also incur costs from issuing ATM cards. Banks therefore lose money from providing ATMs and the related services and have no revenue stream to cover their investment in the deployment of ATMs. The number of ATMs has declined in Portugal between 2010 and 2011 by 2 percent; although this happened following the passage of the zero price cap law it is possible that the decline is also attributable to factors related to the financial crisis.<sup>104</sup>

Banks must recover these costs from other services since they cannot charge for ATM services directly. Therefore, the law that prohibits banks from charging for ATMs can make it seem as if consumers do not pay for ATM services. The government mandated subsidy to ATM services tends to reduce the marginal cost of cash to consumers thereby making this payment method seem cheaper than it really is. Consumers use cash from ATMs frequently to pay merchants who also do not bear any significant cost for the ATM system.

This artificial stimulation of cash use has other potential consequences. As a result this subsidy discourages the use of modern electronic payment systems and encourages the use of a very old paper-based system. This is a somewhat like subsidizing typewriters and thereby encouraging people to use typewriters instead of computers. Since cash is priced so low in Portugal we would also expect that the country will move much more slowly to new technologies such as mobile payments or contactless cards that tend to displace cash for low valued transactions.

The ATM price caps also result in a subsidy to a payment method that, because of its anonymity, is used to avoid taxes and engage in black-market activities. That ultimately reduces the revenue received by the Portuguese Treasury and increases the taxes born by businesses and people who do not use cash to evade taxes. In this regard, Portugal has taken a different path than other EU member states—such as Sweden, Italy, and France—that are trying to shift payments from cash to electronic methods in order to reduce tax evasion and other black-market activities. As noted earlier, almost 19 percent of Portuguese GDP occurs

in the shadow economy supported by cash—not far from the EU average of 19 percent but considerably higher than the average for the EU-5.

The ATM price cap and subsidy to the ATM system creates other potential distortions as well. It gives merchants an incentive to encourage consumers to use subsidized cash transactions at the point of sale. That imposes a negative externality on banks who incur costs from this transactions but do not earn revenue. For example, Pingo Doce no longer accepts card payments below 20€ and has installed ATMs in all of its stores so that consumers can take out cash to pay.

As noted earlier, it is not possible for consumers and merchants to receive a “free lunch” from the payments system. Unless the Portuguese government decides to subsidize the payments system (beyond what it currently does with cash) banks will need to recover the costs of the ATM system from somewhere. That would mean increasing some of the fees paid by consumers or merchants, including merchant service charges, or reducing services.

This ATM price cap illustrates the general problem with price regulation and the reason why most governments have abandoned this particular method for regulating markets. There are numerous knock-on effects from price regulation. After all the dominos have fallen it is virtually impossible to know who has won and who has lost and what all the unintended consequences are. There is no presumption that price regulation improves welfare and much evidence to the contrary.

<sup>104</sup>European Central Bank, Statistical Data Warehouse.



## H. CONCLUSION

This chapter has assessed regulatory interventions involving the payment system. The economic analysis of market failure described above is consistent with two other principles that are commonly cited in the discussing government regulation.

The first is the principle of “*primum non nocere*” taken from the Hippocratic Oath. Regulators, like physicians, should abstain from doing harm. The complexity of markets generally, especially of payments, shows that it is very easy for well-intended regulations to cause harm. Importantly, behavioral regulations that are targeted towards reducing negative externalities are much more likely to benefit consumers than price regulation which poses grave risks of unintended consequences.

The second is a colloquial American phrase, “If it ain’t broke, don’t fix it.” Humans have a tendency to tinker and want to improve things. The problem is that changing things that are working well has unpredictable consequences and could actually make things work. This report has documented that the Portuguese payment system has worked extremely well. In fact it has become one of the most highly regarded payment systems in the world, one of the best in Europe, and as good if not better than those in the much wealthier and larger EU-5 countries. The pricing structure in which merchants contributed to the system through the interchange fee was an element of this success story. One could argue whether it was an essential ingredient. But the point is that Portugal has found a recipe for success in its payments system. If it isn’t clearly broken, why risk fixing it?

The imposition of price caps makes even less sense for payments than it does for the many other sectors in which price caps have been abandoned because of their drag on economic progress and unintended consequences. Price caps on payment services, and consumer banking services more generally, are like pressing on a balloon. If you press one part of the balloon in (impose a price cap on one service to one customer) then another part of the balloon will expand (increases in prices and reductions in service elsewhere among the interconnected products and customers).

One could argue that the solution for this is even more price caps—that is, imposing price caps on various other fees that banks might raise as a consequence. The flaw in that reasoning is that someone must ultimately cover the cost of the payment system (just like the air in balloon ultimately needed to go somewhere). Moreover, if price caps prevent

banks, and the other participants in the payments business, from earning a fair market return on their investments they will not continue their investments. The payment system would deteriorate and innovation would slow.

The reality, though, is that the cumulative effect of past price caps, combined with tentative agreement between the European Commission and Visa to further reduce Visa’s cross-border and domestic interchange fees to 0.3 percent for credit and 0.2 percent for debit, prevents the Portuguese banking system from profitably provide payments services at their current levels. Under Visa’s agreement with the Commission, that set the scenario for the recent EC proposal, interchange fees in Portugal would fall by €137 million, assuming that these terms would become the new market standard. That comes on top of price caps and institutional arrangements that require the Portuguese banks to subsidize the ATM system and price caps that limit the ability of banks to earn profits on credit cards. As mentioned earlier the Bank of Portugal found that in 2009 the retail payment in Portugal was losing €355 million annually. The further interchange fee revenue loss could increase that deficit by up to 40 percent depending upon how much of the interchange fee revenue loss banks could recover through other fee increases or service reductions.

This situation has two important implications. First, the reductions in interchange fees on top of the other price caps and restrictions imposed on the ability to charge for payments services will force banks to curtail payment services in addition to raising other consumer and merchant fees not subject to price caps. Second, it removes incentives to invest in the Portuguese payments system. That is not just true for banks. It is also true for entrepreneurs and other businesses that are seeking to deploy innovative payment and commerce solutions such as mobile-phone based payments.

Portugal has a first-class payment system primarily as a result of investment decisions made more than a decade ago. Like any asset that requires investments to be maintained and improved it will take time for the effects of reduced investment to be apparent. But one can be confident that, with thumbs on all sides of the balloon making it increasingly difficult to make profits from payments, the system will, like a highway not that is not maintained, deteriorate over time and Portugal will find itself with a second-class payments system.





## VI. CONCLUSIONS

This report has examined how the Portuguese payment system operates, how well it has performed, how price controls would likely affect its stakeholders as well as its future development.

### A. THE PERFORMANCE OF THE PORTUGUESE PAYMENTS SYSTEM

**The report has reached three key conclusions.**

1. Portugal has developed one of the best payment systems in the world

Portugal has one of the most advanced retail payment systems despite being one of less wealthy (19 out of 27) countries in the European Union with a population only a quarter of the size of Spain, which is the smallest of the EU-5. Portugal has a higher banked population than Italy, more ATMs per capita than any other country in the European Union, and a higher number of debit and credit cards per capita than all countries in the European Union other than Luxembourg, Sweden, and the United Kingdom. Its ATM machines are some of the most advanced and provide more services than those in any other country. Relative to the much larger and wealthier EU-5, Portugal has the highest number of ATMs per capita, more cards per capita than four of the EU-5, and fewer unbanked households than much larger Italy.

2. The Portuguese payment system has performed well

over time

Between 2000 and 2011 the per capita increase was 71 percent for ATMs, 59 percent for the number of debit and credit cards, and 188 percent for the number of POS terminals that accept payment cards. Although cash use remains strong partly as a result of the expansion of ATMs, electronic methods of payments have sharply reduced the use of checks in Portugal.

3. The social cost of the Portuguese payment system almost a third lower than comparison countries.

In a comprehensive study, the European Central Bank found that the social cost of payments as a percent of GDP was 31 percent lower than in a group of countries that it believed were the most appropriate comparison (Belgium, Estonia, Slovenia, the United Kingdom and Spain). Note that social cost excludes transfers between different stakeholders, which are not a net cost for society.

### B. REGULATION INTERVENTION AND “DO NO HARM”

The payment system is an important part of the economy. There are many reasons why it should be subject to prudential and some behavioral regulation to prevent negative externalities that could harm consumers. Central Banks and other regulators have contributed significantly to how robust payment systems have operated during times of severe economic stress including the recent financial crisis in European countries. This is true for Portugal as well.

Starting in the 1980s most governments in developed

countries, and many in developing ones, have abandoned price regulation in favor of allowing free markets to determine the correct price signals. That followed the widespread experience that price regulations resulted in market distortions, reduced investment, limited competition, and generally poor results for consumers. It is therefore surprising to see calls for the imposition of price caps involving aspects of the banking payment system. There is no obvious reason why the price regulation involving payments will yield less unsatisfactory results than the regulation of other sectors.

A classic result of the economic literature on regulation is that it often involves “rent-seeking” in which one interest group uses regulation to divert more social wealth to it at the expense of others. There is now significant evidence that this rent-seeking behavior explains why large merchants and retailer trade organizations have lobbied for interchange fee regulation in many parts of the world. By lowering the interchange fees merchants can increase their profits by shifting the costs of payment services to consumers and to payment system providers. The imposition of price caps on debit card interchange fees in the US increased the profits of large merchants by about \$US10 billion in the first two years of the caps; the merchants’ gain came partly at the expense of consumers and partly at the expense of banks.

A key feature of payment systems is that they involved numerous interrelated stakeholders and that payment system providers offer their customers complex bundles of products and services. In this situation price regulation is no different than pressing in on one point of a balloon. That part of the balloon will be depressed but ultimately some other part of the balloon will expand. The cost of payment systems need to be recovered somewhere. As a result payment system providers are forced to raise prices or reduce services somewhere in the system. Price regulation cannot provide a free lunch for the stakeholders overall. To the extent that payment system providers cannot recover their costs they will reduce investment in the payment system over time. That too, has been the experience in other regulated sectors in which price regulation prevent firms from earning competitive rates of return.

## C. PRICE REGULATION THE PAYMENT SYSTEM IN PORTUGAL

There is no obvious basis for imposing price regulation on any aspect of the payment system in Portugal. By all objective standards Portugal has a remarkably good

payment system given the size and wealth of the country as we have shown above. The social cost of providing this payment system is unusually low. Earlier we mentioned the principle of “If it ain’t broke, don’t fix it.” The corollary is true as well: “If it works well, don’t tinker.”

Many of the calls for regulation coming from Brussels and from merchants in Portugal involve the interchange fee for payment cards. It is true that the “interchange fee” is not low relative to other comparison countries. But this fee is not a “cost” of running the payment system. It is a convention for determining how much of the cost of running the payment card system is borne by merchants rather than consumers. This interchange fee has been a central element of the pricing structure for payment cards in Portugal for more than three decades. That pricing structure has been a key ingredient in the ability of the Portuguese payment system to deliver one of the best set of payment services at one of the lowest social costs or EU member states.

Regulators and policymakers should be skeptical about imposing price caps on interchange fees absent persuasive evidence that doing so will enable Portugal to have an even better payment system at an even lower cost. As discussed above, the evidence thus far is more consistent with the hypothesis that interchange fee regulation involves an effort to impose merchant-monopsony prices on payments so as to increase merchant profits at the expense of consumers and payments providers.

Cash is now heavily subsidized in Portugal. Banks have developed one of the densest networks of ATMs in any European country thereby making it easy for consumers to take out cash. Consumers do not incur any fees for taking out cash. The Bank of Portugal also subsidizes the issuance and redemption of cash. These subsidies and price regulations encourage consumers to use cash and merchants to prefer it.

Reductions in interchange fees are likely to push consumers even more towards using cash. The payment card industry has expanded rapidly in Portugal in part because of the revenues available from interchange fees. Banks will invest less in this business going forward, reduce services that encouraged customers to use payment cards, and increase fees. At the same time there is no reason to believe that lower fees to merchants in Portugal will increase card use significantly.

Consumers now pay with cash for about 30 percent of their personal consumption expenditures. If interchange fees regulation shifted more of the cost of payment cards to consumers, and reduced the incentives of the payment system to investment in payments, we would expect that Portuguese consumers and merchants would shift more towards cash. Cash has a number of merits as a payment method. Nevertheless, it would be very odd for public policy to encourage the use of a payment method that

is more than three millennia years old and discourage modern electronic ones including mobile payments. Yet that is where Portugal could end up if banks are forced to subsidize the use of cash-intensive ATMs while at the same time being faced with price caps on the fees that they can charge merchants for electronic payments.

## D. COVERING THE COSTS OF PROVIDING THE PAYMENT SYSTEM

Of course it costs money to provide consumers and merchants with payment services and to invest in maintaining and improving the payments systems and engaging in innovation. These costs are borne in the first instance by the financial institutions including banks, schemes, and infrastructure providers that provide these payment services. Banks have to recover these costs from the consumers and merchants that use the payments systems. SIBS, the card schemes, and other service providers to the banks in turn need to cover their costs from the banks that rely on their systems for providing services to consumers and merchants.

To understand how financial institutions cover these costs it is useful to review how consumers and merchants obtain these services and how financial institutions charge for them. Consumers and merchants obtain payment services as components of various banking services they have. It is common for banks to include many payment services as part of the current account. In some cases there may be separate charges but in other cases the service is included as part of a bundle of services. Portuguese banks, for example, do not—and in fact cannot under Portuguese law as we discuss below—charge consumers for ATM services, including getting cash or paying bills. They also do not charge transaction fees for using their debit or credit cards for making payments. They may waive annual fees for ATM/debit and credit cards for consumers that keep minimum balances in their current account or use their debit cards frequently. Banks also provide various services to merchants as part of their overall relationship. This will typically include a merchant deposit account and card acceptance services, and may also include a line of credit. In some cases, the bank will offer discounted merchant discount fees for accepting cards and processing card payments as part of its bundle. Larger merchants in particular are able to negotiate lower fees for many payment services as a result of their significant bargaining power. But while consumers and merchants receive some services “for free” or at a discounted price banks ultimately must charge these customers enough to cover their costs and make a profit.

To cover the costs of providing payment system services financial institutions face two issues. One concerns the portion of their costs that they recover from merchants and consumers both of whom jointly benefit from many of these services. This is a common issue faced by “multi-sided platforms” that provide services jointly to several interdependent groups of customers. The other concerns precisely how to recover these costs from the provision of a complex bundle of services involving a variety of complementary products. If banks do not charge consumers for ATM services, for example, they have to recover the costs of those services from other current account fees or from annual fees for debit cards or from merchant fees.

The fact that payments systems benefit consumers and merchants, and that both consumers and merchants receive complex bundles of services, have significant implications. The pricing decisions for payment services are inherently interrelated. If the revenue for one service declines, or costs for that service increase, financial institutions have to decide whether to increase the price or reduce the quality of that service or related services. But there is no free lunch. It is true that banks could absorb cost increases or revenue losses by earning less profit. In fact that is partly what happens. Banks, however, like all businesses, have to earn profits and therefore, like all businesses pass along at least part of cost changes or revenues losses to their customers.

Portugal has one of the most highly developed payment systems in the EU and, indeed, in the world. However, its stature is primarily the result of investment decisions made in the 1990s and early 2000s. The pace of innovations in Portugal has slowed for a variety of reasons including the severe financial crisis. Portugal is no longer on the cutting edge of payments. Compared to other EU countries, in particular the EU-5, little progress has been in introducing mobile payments, contactless payments, mobile POS solutions, or other innovations. As noted above, the cash subsidy resulting from the ATM price cap will tend to slow the adoption of these new innovations relative to other EU countries.

Policymakers inside and outside Portugal should exercise caution in imposing price regulation on the payments system. To begin with price regulations have proved problematic in most sectors and diverse countries have moved away from price regulation because of the record of this policy in impeding economic progress and harming consumers.

In the case of payments there are two particular concerns with price regulation. The first is that some regulations such as interchange fees shift the costs of support exchange from merchants to consumers. It is unclear why government policy should shift costs in a way that taxes consumers and conveys benefits to merchants. The second is that with two groups of customers

receiving bundles of services price caps ultimately shift costs between services and customer groups. That can have very hard to predict and can have unintended consequences on prices and services.

The combination of price caps on ATM fees, maximum interest rate regulation, mandates to provide free basic current accounts and check guarantees for €150 or less, elimination of overdraft charges on current accounts, and interchange fees could, by themselves, could turn back the clock on the development of a modern electronic payments system in Portugal. The new market landscape envisaged by the European Commission's proposal to lower domestic interchange fees to 0.3 percent for credit cards and 0.2 percent for debit cards would eliminate a further €137 million source of revenue and, without changes in services or other prices, turn payments into a highly unprofitable activity for the bank. The Bank of Portugal has found that Portuguese banks are providing payment services at a considerable deficit. The further elimination in interchange fees would widen that loss. Those losses must be made up through some combination of higher fees on other services, reductions in services, and reductions in bank profits.

A reduction in investment, and a deterioration of the payment system in Portugal, would be an almost inevitable consequence of this. Portugal therefore risks going from having a first-class payment system to a second-class one. A more immediate concern is that the combination of price caps on Portuguese payment services and the impending reduction in interchange fees resulting from the European Commission's agreement with Visa, that became the baseline for new EC regulation, could put retail banking in Portugal in serious financial distress. That could affect the provision of consumer and business credit with immediate negative impacts on the Portuguese economy.