UK AND SPANISH BANKS PERFORMANCES BEFORE, DURING AND AFTER THE FINANCIAL CRISIS: CONSUMER BEHAVIOR AND ATTITUDES TO PERSONAL RISK

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Abstract

This paper analyzes and compares the UK and Spanish banks performances before, during and after the financial crisis with a focus on the trend of ATMs, payment cards and accepted devices, ROA and ROE. The study results indicate that UK consumers use their bank cards more often than the Spanish consumers even after the financial crisis. Besides, UK banks´ consumers still preferred to use their debit cards at the Point of Sale. In contrast, Spanish consumers will rather use their credit and/or debit delayed cards. The number of ATM withdrawals and the average value of an ATM withdrawal that indicate the use of ATMs have been most negatively affected by the financial crisis in Spain than in the UK. Moreover, while Spanish banks were still profit making, UK banks were wiping a huge loss on ROA and ROE at the peak of the crisis. Nevertheless, all the way through the 5 year period UK banks almost appear to be back to full health, whereas Spanish banks have gradually started experiencing the intense reverberations of the financial crisis. Indeed, the output results of this study increases banks stakeholders' knowledge by providing insight into some determinants of payment instrument use by either consumers or business that are somehow linked to the bank's financial operational decisions as well as the stability and sustainability of the cross-countries banks performances.

Key words

Bank performances; ATM; Debit Ccard; Credit Card; Return on Asset; Return on Equity

INTRODUCTION

The ultimate financial crisis has caused massive upheaval in the global economy and

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has led many banks worldwide the challenge to overcome great difficulties. Particularly, the European banking market has witnessed record turmoil as it has suffered a period of sizeable change and uncertainty. With the financial institutions that had benefited from record profits in 2007, now the subject of intense public scrutiny and, in many cases, the beneficiaries of taxpayer-funded support (Saiz and Pilorge, 2010). Moreover, bank´s revenue growth continues to be challenging to achieve due to frail economic conditions, low interest rates and regulatory restrictions (Karr, 2012). Besides, banks are trying to manage costs better, deepen relationships with customers and enhance product mix and pricing decisions (Karr, 2012). Furthermore, to alleviate the impact of the global financial crisis on the banking sector, governments are undertaking drastic restructuring programs in the banking sector which involve recapitalization, foreclosures, mergers and acquisitions, and the privatization of some state-controlled banks (Sufian & Habibullah, 2010; Wilson, 2012; Peachey, 2012).

Across Europe, depending on the country the effects of the financial crisis have differed and as a result the consequences of the crisis on banking performance have varied. For example, according to Tremlett and Treanor, (2012), in 2008 at the peak of the global financial crisis, while UK banks were most negatively impacted with a big loss of net profit (about € 50bn), Spanish banks as a whole were still enjoying some return on investment. At the time, Spaniards were told they had the world's best central bank-one that had banned Spanish banks from buying dubious US mortgage derivatives. Nevertheless, four years after the markets have been alarmed at an intervention by the Spanish government to shore up the country's banks (Loo & Lewis, 2012; Monk, 2012). Noticeably, the need for intervention comes four years after the UK was bailing out its banks loaded with toxic subprime debt.

In addition, each European jurisdiction has been impacted differently by the financial crisis. For example, according to Saiz and Pilorge, (2010) more than half of UK consumers reported a heightened loss of trust in banks compared with those of European countries. The authors further argued that UK customers have opted to have just one product with their main bank, while Spanish customers are most likely to hold between five and six products with their banks. According to Karr, (2012), banks are taking steps to improve their performance capabilities in light of general economic change, market conditions and new management needs. Consequently, the ATM and bank card industry are undergoing significant change (Zinman, 2005). Apparently, as a consequence of the financial crisis, new regulatory strictures are affecting the underlying economics of businesses such as credit card issuing and processing. According to Hayashi et al, (2003); Zinman, (2005); Bikker & Bos (2008), and Saiz & Pilorge (2010), some of the most dramatic changes include:

- o Sharp growth in the Point of Sale (POS);
- o Debit card transactions;

- o Intense competition between online and offline debit cards;
- o Heavy consolidation of regional telecommunication networks and third-party service providers;
- o Growing importance of nonbank ownership of networks;
- o New pricing structures;
- o New strategies etc.

Additionally, households that have recently experienced bad financial outcomes are more likely to substitute credit for debit. Besides, consumers with negative expectations about the future are more likely to use debit rather than credit (Borzekowski et al, 2008). Against these backgrounds, there is an obvious opportunity for taking a step back and assess bank´s performances in both Spain and the UK before, during and after the financial crisis.

Undoubtedly, the UK and Spanish cases form an historical argument that can be used to demonstrate how the implementation of a strategy is as important as strategic visioning to achieve competitive advantage in bank markets (Bátiz-Lazo, 2004). In addition, the performance of banks has always been an issue of major interest for various stakeholders such as depositors and regulators as well as customers and investors (Fethi & Pasiouras, 2009). Since, it allows to distinguish the efficient banks from the unproductive ones in addition to obtain valuable insight into some financial dimensions that are by hook or by crook link to the bank's financial operational decisions (Hancock & Humphrey, 1997). Moreover, the extant literature related to banking intake indicates that new channels such as online banking and telephone banking are becoming more and more important. Accordingly, understanding the evolution of the adoption of card payment and other accepted devices and also the banks' net income after the financial turmoil is of paramount importance. Consequently, the main objectives of this study are twofold:

- (i) To analyze and compare the bank performances between UK and Spain with the main focus based on the trend of the ATMs, payment cards and accepted devices; and

- (ii) To use the Chi-Square tests analyze the bank performances differences based on Return on Asset (ROA) and Return on Equity (ROE) in the period 2007-2011.

After this introduction, in the literature review section, we discuss and present the existing literature related to bank performance assessment in general and in particular the chosen bank performance indicators for this study. Then, the methodology used in the study is presented followed by the results of data analysis. This paper ends with the study's general conclusions.

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LITERATURE REVIEW

Measuring bank performance

In general, Bank performance can be expressed in terms of competition, concentration, efficiency, productivity and profitability (Bikker and Bos, 2008). Previous literature indicates that a financial institution is alleged efficient if its bank statement shows cost-effective and profitability improvements in addition to the growing volume of funds flowing from depositors to borrowers, deepened relationships and a better quality of services to customers (Molyneux & Thornton, 1992; Hayashi et al, 2003; Fethi & Pasiouras, 2009; Saiz & Pilorge, 2010). According to Sufian and Habibullah (2010), there is a relation between the well-being of the banking sector and the country's economy growth. Since, the banking sector is the backbone of the economy and plays an important financial intermediary role by keeping the savings of the public and finances the development of business and trade. Therefore, banks´ health is very critical to the health of the general economy at large. This is evidenced by previous studies such as Molyneux and Thornton (1992) that examine the determinants of bank performances across eighteen European countries between 1986 and 1989 and found a statistically significant positive correlation between concentration and bank return. Besides, their study results showed a significant positive relationship between the return on equity, the level of interest rates in each country and the government ownership.

Furthermore, Kosmidou et al, (2005) analyzed the determinants of profitability of the UK domestic commercial banks from 1995 to 2002 and showed that the capital strength represented by the equity to assets ratio is the main determinant of banks' profits. Their study further showed that both cost-to-income ratio and bank size impact negatively on bank profits. In the same vein, Pasiouras and Kosmidou (2007) examined the performance of domestic and foreign commercial banks in the fifteen EU countries during the period 1995–2001. The results of their study indicate that profitability of both domestic and foreign banks is affected not only by bank specific characteristics, but also by the financial market structure and macroeconomic conditions. More recently, Sufian and Habibullah, (2010) examine the impact of financial crises on bank´s performance in Indonesia during the period 1990–2005 and concluded that Indonesian banks seem to have been skimping on their resources, particularly, during the pre-crisis and crisis periods. Besides, their study shows income diversification and capitalization are positively related to bank profitability while size and overhead costs exert negative impacts.

Furthermore, Johnes et al, (2012) examined the efficiency of Islamic and conventional banks´ performance during the period 2004-2009 and concluded that Islamic banks were found to be less cost efficient but more efficient than conventional banks in revenue and profit. Besides, they argued that the average efficiency in Islamic banks is lower than conventional banks. Likewise, Fethi and Pasiouras, (2009) presented a

comprehensive review of some exiting bank performance assessment, by discussing a total of 179 studies published between 1998 and 2008. They recognized that a number of approaches including: applications of data envelopment analysis (DEA) in the estimation of bank efficiency and productivity growth. Moreover, the financial ratios analysis (FRA), operational research (OR) and Artificial Intelligence (AI) techniques were used to assess banks´ performance.

Commonly, banks have their own performance measurements improvement agendas tied to their unique needs and strategies. For some banks, these are continuations of prior efforts and for others they are new initiatives (Karr, 2012). Yet, banks are complex organizations which produce an assortment of outputs from a variety of inputs. Accordingly, Johnes et al, (2012) argued that one approach cannot capture the complete picture of the performance of such an organization over the breadth of its activities. Besides, there is no clear criterion for selecting a bank´s performance assessment method that is appropriate for all interested parties (Fethi & Pasiouras, 2009). Nonetheless, this study acknowledges that the assumption of underlying financial ratios that banks are more likely to be keen on include: cost minimization, profit maximization and revenue maximization. Given that they are the most pressing bank objectives to achieve because the shareholders of a bank are entitled to its profits (Bikker & Bos, 2008). Consequently, financial ratios such as ROE and ROA were chosen as a method of comparative analysis in this study. Since, they are important factors for banks comparison in general and in particular in the context of UK and Spanish.

Undoubtedly, financial ratios such as ROE and ROA are very popular tools because they are effortless to compute and interpret (Fethi & Pasiouras, 2009). They can enable inter-bank comparisons as well as easing the comparisons between banks and the benchmark which is commonly the average of the industry sector (Molyneux & Thornton, 1992). In addition, with the financial ratios ROE and ROA, bank performance evaluation is examined from various perspectives including costs, revenue and profit, which in turn are of prime importance to bank stakeholders especially after the global financial crisis.

Importance of Automated Teller Machine (ATM)

Indisputably, the introduction of automated banking has established numerous opportunities for business professionals to enhance current marketing and accounting practice (Al-Hawari & Ward, 2006). According to the archival research by Batiz-Lazo (2009), the first ATM was originally a British innovation and was manufactured by e.g. Chubb and De La Rue who developed cash dispensers' technology. Throughout the years, the British manufacturers were overtaken by U.S. manufacturers (e.g. NCR) and German (e.g. Siemens-Wincor). From a business

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history stance, the author argued that the introduction of ATMs was profitable for banks as well as customers. Given that Information Technology in banking (epitomized by ATMs) led to reduced operating costs, coupled with increased output (number of transactions) that resulted in greater efficiency. Besides, ATMs characterized a shift in bank strategy, namely how applications of computer technology moved from being potential sources of competitive advantage to being a minimum requirement for effective competition in retail finance (Milne, 2006). According to Chen and Zhu (2004), the IT added value activity in the banking industry helps to effectively generate funds from customers in the forms of deposits. Given that ATMs, bank cards and Point of Sale (POS), which constitute a significant portion of IT, are often regarded as weapons used by banks to capture or protect deposit market shares (Snellman, 2006).

Observably, the use of ATM services has become prevalent worldwide. Since, ATMs can be located in various geographical dispersed areas and mainly in places of interest which are nonbank locations such as: stores, petrol stations, shopping centres, train stations, airports, etc. In general, customers can use ATMs for several types of routine transactions such as bill payments, transfers, deposits or withdrawals at their convenience with no limitation on working hours (Yaya et al, 2013). Subsequently, ATMs might reduce the need to expand branch banking facilities by serving as inexpensive substitutes for new branch buildings. According to Santos and Peffer (1993) study, early adopters of ATMs gained competitive advantage because of lower variable on production costs and increase of customer value. Besides, because of extra fee charges customers may consider ATMs availability as a reason for choosing a bank (McAndrews, 2003; White, 2004). Hence, ATM availability and improvement of service offer might help banks to put forth to more customers and provide better service and enhance customers' loyalty (Yaya et al, 2011).

Furthermore, some studies have investigated the influence of ATMs on the pricing structure and fees, cost savings and technology adoption in addition to the use ATMs as an example of banks diffusion and the ATMs adoption network effect (Santos & Peffer, 1993; Saloner & Shepard, 1992; Hawari & Ward 2006). According to Al-Hawari & Ward (2006), ATMs service quality indirectly and positively influence on bank financial performance via the mediators of customer satisfaction and retention which in turn contributed towards improved financial performance of banks. On the other hand, Santos and Peffer (1993) showed that ATM adoption increased bank´s employee efficiency and market share gains.

In addition, Saloner and Shepard (1992), based on banks´ adoption of ATMs over 1972-1979 in the United States, showed that network effect is important for the ATM adoption. Given that the adoption delay decline in the number of branches (a proxy for the expected ATM network size in equilibrium) and the value of deposits (a

proxy for the number of users and hence for production scale economies) (Hancock & Humphrey, 1997). Nevertheless, such a proxy would not be suitable nowadays given that many ATMs are sited in premises other than banks. Likewise, Milne, (2006) study compared payments arrangements in the UK, Norway, Sweden, and Finland. The study also discusses the impact of network effects on incentives to adopt new payments technology and concluded that the network effect is important in the ATMs adoption.

Furthermore, Snellman (2006) investigated the dependence between ATM network market structure and the number of ATMs and concluded that the monopolisation of ATM networks leads to a decreased number of ATMs and hence a lower service level. On the other hand, Olatokun and Igbinedion (2009) investigated the constructs of advantage, complexity, compatibility, and trial-ability and concluded that they were all found to have a significant impact on the customers´ attitude towards the ATMs, which in turn had a significant impact on the intention to use them.

Consumers´ choice of payment device

In the last three decades, the payment system has experienced a period of rapid changes that have gone beyond the traditional ways of using ATMs and POS debit. Banks in general are actively promoting the issue and the use of ATM cards and credit cards as well as debit cards and smart cards. According to Hayashi et al, (2003) there has been substantial innovative activity generating new products and services that use the ATM/debit card infrastructure. Especially, with the intense development of both contact and contactless cards as well as the electronic wallet.

Ultimately, new applications that allow debit cards to be used to make payments on the Internet and to convert paper cheques into electronic payments at the point of sale have being developed and are now been used by customers (White, 2004; Snellman, 2006). Additionally, new players such as supermarkets, insurance companies and football clubs have been allowed to compete in the retail financial market offering financial services such as credit cards, debit delayed cards, unit trusts, etc. (Kosmidou et al, 2005).

According to Borzekowski et al, (2008), ATM cash withdrawals are now declining, while the number of credit card transactions is growing only slightly. As a result, the debit card has surpassed credit and is becoming the dominant form of payment for many consumers in the US. Since, it accounts for nearly 12% of all retail noncash payments and represents a fivefold increase in just five years (Hayashi et al, 2003). Furthermore, Gerdes and Walton (2002) study indicates that debit cards in the USA were used for over $15.5 billion in the POS transactions totaling $700 billion in the year 2002. These figures represent about 35% of electronic payment transaction volume. In addition, their study shows the debit's ascension has been sudden, with

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47% of households using it by 2001, up from 18% in 1995.

In general, bank industry observers are now predicting continuous strong growth for debit cards, while forecasting relatively weak growth in credit card charge volume. Nonetheless, with the ultimate economic turmoil, the question still remains of what is customer preference of a specific mode of payment (debit or credit or cheque or e-money) at the POS. Given that the ultimate market research and conventional wisdom suggest that debit cards which draw directly on checking account balance offer no benefits to the neoclassical consumers (Zinman, 2005). In contrast, White (1976) study that analyses the effects of credit cards on households' demand for money argued that increased use of credit cards can be expected to reduce the amount of money needed for transactions. However, credit card payment services are not cheap given that about 5% or more of the value of an average consumer's purchase is eaten up in payment costs (Hancock & Humphrey, 1997). Furthermore, Humphrey et al, (1996) empirically studied the use of cash and five non-cash payment instruments (cheque, paper giro, electronic giro, credit card and debit card). Based on the data from 14 countries and between the years 1987-1993, the authors concluded that countries are actually adopting the increasing use of electronic payment methods even when the mix of payment instruments differs considerably across countries. Evidently, despite the risks of any individual's consumer choice may be small, the varieties of mode of payment and cash withdrawal choices have greatly enriched the possibility of increase competition in the financial services. For example, the POS or ATM network market structure may change depending on consumers' choice. Hence, payment choices might pose great challenges to the banks as the environment in which they operated changed rapidly. Obviously, that rapid change might hardly affect the bank performance in general and especially during and after the financial crisis.

SAMPLE AND DATA COLLECTION

The empirical analysis presented in this study is based on the real data customer usage compiled from UK and Spanish Banks. Data was collected from the European Central Bank (ECB), Bank of England and Banco de España data warehouse. In case there was any confusion on the understanding or the reading of any set of data, an e-mail was sent to the statistical department of the specific entity requesting additional information, orientation and/or further clarification. The data were collected for the time period 2007-2011. This was an encouraging time period over which to carry out this study. Since, the chosen time period allows us to gain insights into the effects of the economic turmoil and the instability of the banks performances before, during and after the financial crisis. Obviously, most of European banks follow the same standardized procedures in publishing financial data. Yet, data from the Bank of England accounting year balance sheet was given in British pounds sterling (£). Nevertheless, all the variables used in this study were computed on the basis of the

year average exchange rate of the pound sterling (£) vis-à-vis the Euro (€) documented in the European Central Bank yearly report.

Data analysis methods

In order to compare and analyzed the performances of UK and Spanish banks before, during and after the period of global economic turmoil, this study adopted the chi-square tests of independence and goodness-of-fit based on the actual functioning of banks outputs account. We first set the null hypotheses $H0_k$, which states that, for each kth bank performance with $k \in$ {1, 2, 3, 4, 5, 6, and 7}; there is no significant difference between UK and Spanish banks. With k related to bank performance issues such as the trend of ATMs, payment cards and accepted devices as well as ROA and ROE between the periods 2007-2011.Thereafter, we computed the chi-square values for each bank performance as follows:

$$\chi^2 = \sum_i \sum_j \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

(1)

In formula (1), for each kth bank performance (e.g., k=1 for the "ATMs with a cash withdrawal function"), the null hypothesis was assessed based on the overall outputs under that performance (e.g., for k=1, $i \in$ {2007, 2008, 2009, 2010, 2011} and $j \in$ {1, 2}). Moreover, O_{ij} represents the observed data output and E_{ij} represents the expected output corresponding to the ith bank performance option (e.g., i= 2007) and the jth represents the country (j=1 for UK and j=2 for Spain). Initially, drawing on the banks yearly report we recorded all the observed outputs O_{ij} on a basic two-dimensional array of cells. Thereafter, to determine the expected output (E_{ij}), we worked through NxM contingency tables to manually compute it based on formula (2) below.

$$E_{ij} = \frac{(\sum_i O_{ij})(\sum_j O_{ij})}{\sum_{ij} O_{ij}}$$

(2)

In this formula, O_{ij} corresponds to the ith yearly option and the jth country category and characterizes the genuine end of the year bank outputs (e.g., k=1 for the "ATMs with a cash withdrawal function", O_{ij} = 63476 correspond to i=2007 and j= UK). More importantly, for each banks performance output (O_{ij}) in each kth banks' performance we did not set any expected results (E_{ij}). Still, we assumed the total independence of each row and column. In addition, "N" characterized the total number of (i) different options and "M" represented the number of (j) different categories. Additionally, we computed the degrees of freedom for each of the seven banks' performances based on Df = (N-1)*(M-1). Thereafter, the p-values were estimated based on the outcome of those results. Finally, the overall results were summarized and presented in Table 1.

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TABLE 1. CHI-SQUARE BASED ON BANKS' PERFORMANCES OUTPUT DATA

Banks' performances	Years	UK[*]	Spain[*]	
	i	O_{i1}	O_{i2}	k
ATMs with a cash withdrawal function				1
	2007	63476	60588	
	2008	63916	61714	
	2009	62192	61374	
$Df =4; \chi^2 = 188.415; P= 0.000$	2010	63137	59263	
	2011	64369	57243	
Numbers of ATMs per millions of inhabitants				2
	2007	1040.83	1350.19	
	2008	1041.01	1353.57	
	2009	1006.47	1336.27	
$Df =4; \chi^2 = 2.865; P= 0.580$	2010	1014.05	1286.29	
	2011	1026.05	1241.04	
The number of ATM cash withdrawals				3
	2007	2834.00	970.31	
	2008	2876.00	976.93	
	2009	2916.00	949.69	
$Df =4; \chi^2 = 2.17; P= 0.704$	2010	2786.00	947.70	
	2011	2874.00	927.52	
Cards with debit function				4
	2007	71624000	31467441	
	2008	76271000	31574916	
	2009	79270000	30744621	
$Df =4; \chi^2 = 1680517.673; P= 0.000$	2010	84642000	28616895	
	2011	86325000	27078950	
Cards with credit and/or delayed debit function				5
	2007	67311000	43491863	
	2008	66163000	44820244	
	2009	58604000	43773586	
$Df =4; \chi^2 = 665547.53; P= 0.000$	2010	55601000	42963881	
	2011	54483000	41890560	
Return on Assets				6
	2007	3.0	8.6	
	2008	-5.1	5.8	
	2009	-4.9	4.2	
$Df =2; \chi^2 =48.467 ; P= 0.000$	2010	-2.6	3.2	
	2011	-0.1	-4.2	
Return on Equity				7
	2007	2.0	12.3	
	2008	-6.4	7.8	
	2009	-5.4	5.1	
$Df =2; \chi^2 = 55.84; P= 0.000$	2010	-2.8	3.6	
	2011	-0.2	-3.9	
* The data in the table represents the yearly banks outputs account with O_{i1} and O_{i2} are the observed outputs data of the ith option representing the year of the output data for UK (j=1) and Spain (j=2) respectively.				

RESULTS

Trend of ATMs Terminals

The first cash dispensers ATMs were installed in the UK in the nineteen sixties and in Spain a decade after. According to the data from the ECB, the number of ATMs has been sharply increasing throughout each year after the nineteen nineties in both countries. However, the question of interest was to know if the number of terminals was still trendy and if there was any significant difference between UK and Spain after the financial crisis. The overall results showed in Table 1 indicate that there is a significant difference between both countries related to the trend of ATMs with cash withdrawal function (Df =4; $\chi 2$ = 188.415; P= 0.000).

The detailed analysis indicates that there were more ATMs with a cash withdrawal function in the UK (64,369) than in Spain (57,243) in the period 2007-2011. However, while the numbers of ATMs in the UK increased by about 1% in 2011 compare to the year 2007, the Spanish banks experienced a sharp decrease of about 6% in the same period. Observably, up to the year 2008 (early stage of the financial crisis) both countries were still expanding their ATM network. Thereafter, both countries adopted an utterly divergent approach to respond to the adverse effects of the global financial turmoil. For example, from 2009 on going, while the number of ATMs increases by about 2% yearly in the UK, the Spanish counterpart number of ATMs decreases by about 3%. One of the main reasons is that before the 90´s Spanish banks were dominated by savings and credit cooperatives with their operations zone imposed and limited to specific regions or provinces. After the barrier was lifted, except two savings banks that have branches all over the country, most of them were still traditionally cramped to a specific region or province.

Moreover, in response to the financial crisis, the Spanish government took bold steps such as to persuade Spanish banks in general and in particular savings banks and credit cooperatives to merge in order to yield Spanish financial holdings that could adequately compete with foreign banks. According to Snellman (2006), there have been three ATM networks in Spain since 1970. In contrast, the UK had only one network since 1999. Evidently, it is more likely that the monopolization of ATM network market structure in the UK may lead to a smaller number of ATMs. On the other hand, the high ratio ATMs in Spain may be the consequence of the various incompatible ATM networks.

Given that both country's population size are different, it was necessary to scale and compared the numbers of ATMs per millions of inhabitants. The results presented in Table 1 show that throughout the 5 year period there was no significant difference in term of ATMs trend per millions of inhabitants (Df =4; $\chi 2$ = 2.865; P= 0.580). Still, after Portugal and Belgium, Spain is the third country in Europe with the highest

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number of ATMs per million inhabitants with about 1350 ATMs per million inhabitants. That figure is about 23% higher than in the UK. The results also show that after the financial crisis the worst drop in the number of ATMs in the UK (3%) was in 2009. Nevertheless, the number of ATMs appears to steadily increase yearly thereafter (Figure 1).

Conversely, Spain's number of ATMs has been endlessly decreasing since 2009. All in all, the number of ATMs per million inhabitants compared to 2007, before the financial crisis has decreased by 1% in the UK and 8% in Spain in 2011 and the UK number was still about 18% lower than the Spanish. These findings are consistent with Peachey, (2012) who argued that many of the Spanish smaller and weaker banks have had to merge or have been rescued by larger ones. The author also argued that the number of branches has been cut by 15%, and 11% of the jobs in the industry have gone.
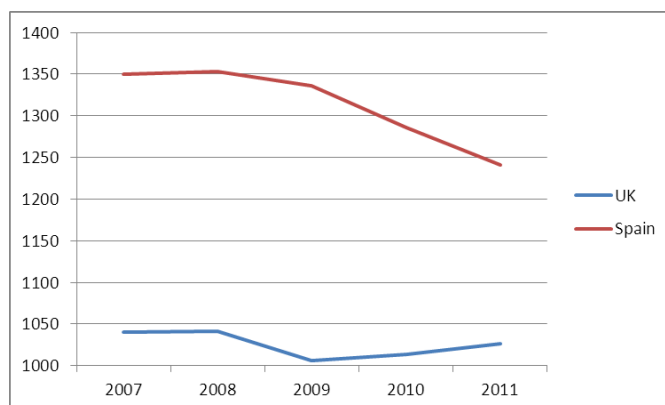

FIG. 1 NUMBER OF ATMs PER MILLION INHABITANTS

Furthermore, solely the number of ATMs per million inhabitants cannot be considered to indicate the availability of ATM services. Given that the proportion may be lofty because of many incompatible ATMs. Besides, even though the number of ATMs per million inhabitants is low, some of the ATMs are incompatible. Therefore, we analyzed the number of ATM cash withdrawals as well as computed the average value of an ATM withdrawal that indicates the usage of ATMs. The overall results presented in Table 1 show that throughout the five year period there was no significant difference between the two countries in term of ATM withdrawal (Df =4; $\chi2$ = 2.17; P= 0.704). Nevertheless, in the period 2007-2011 the total number of UK cash withdrawals with cards issued in the country was three times the Spanish number. The total in 2007 was about € 2,834 million/year representing an average of € 45,000 per ATM in the UK and the equivalent of €907 million representing about € 16,000 per ATM in Spain.

In addition, before and after the financial crisis the average ATM cash withdrawal remains steady in both countries with some slight increase in the UK (4%) and a slight decrease in Spain (3%) in the year 2009. Nevertheless, the increase in the number of ATMs withdrawals per capita has been quite stable in the UK

(about €46). In contrast, the number ATM withdrawals per capita declined almost as fast as the drop in the number of ATM per capita after the financial crisis in Spain (see Figure 2). For example in 2011, the ratio of ATM withdrawals per capita in Spain was about €20 representing a drop of 8% compared to the 2007 figure. Accordingly, the number of ATM withdrawals and the average value of an ATM withdrawal that indicate the use of ATMs have been most affected negatively by the financial crisis in Spain than in the UK. Overall, these findings are consistent with the study of Snellman (2006), who asserted that the number of ATM withdrawals and the average value of an ATM withdrawal have been quite stable in most European countries, Canada and the U.S. during the gratifying global economy.
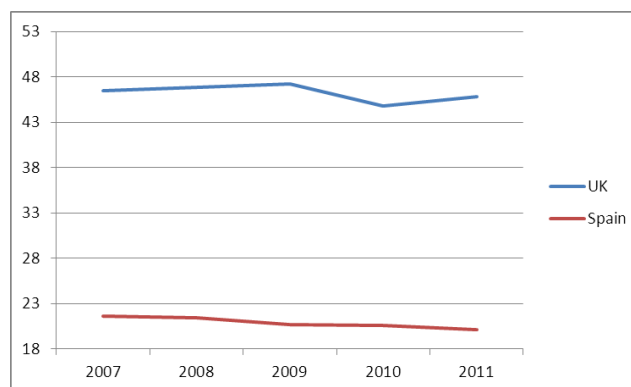

FIG. 2 ATMs WITHDRAWALS PER CAPITA

Trend of payment card functions and accepting devices: Debit vs. Credit

The overall results presented in Table 1 indicate that there were significant differences between UK and Spanish banks in terms of cards with debit function (Df =4; $\chi2$ = 1680517.673; P<0.001) and cards with credit and/or delayed debit function (Df =4; $\chi2$ = 665547.53; P<0.001). In the year 2008, the overall numbers of cards with cash function in circulation in both countries (UK= 168 million and Spain = 77 million) grew about 2% from the previous year. Thereafter, while the number of cards in circulation in the UK was stable there was a sharp decline in Spain by about 7 million in 2011. Besides, the trends of the overall numbers of cards with payment function[1] after the financial crisis in both countries were extremely different. For

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[1] **Cards with a debit function:** Cards which enable the holder to have purchases directly charged to funds on his/her account at a bank (may sometimes be combined with another function, such as that of a cash card or cheque guarantee card).

Cards with a delayed debit function: Cards enabling the holder to charge his/her account up to an authorized limit. These cards allow holders to make purchases, but do not offer extended credit, the full amount of the debt incurred having to be settled at the end of a specified period.

Cards with a credit function: Cards indicating that the holder has been granted a line of credit. They enable him/her to make purchases and/or draw cash up to a prearranged ceiling. The credit granted may be settled in full by the end of a specific period, or may be settled in part, with the balance taken as extended credit.

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example in 2007 the number of credit cards and debit cards in circulation in the UK were almost equal (see Figure 3). In 2011 there was almost 35% more debit than credit cards in circulation.
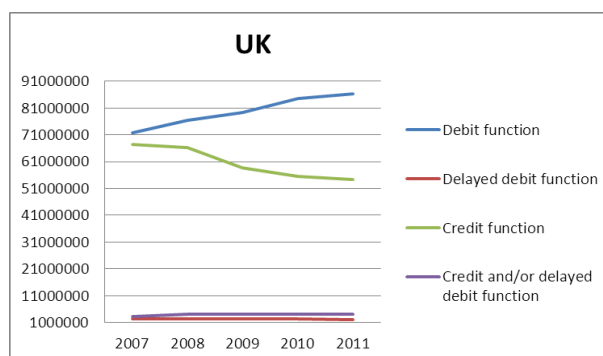

FIG. 3 CARDS AND PAYMENT DEVICE IN THE UK

On the other hand, the credit and/or debit with delayed cards function appears to be the ruling cards in circulation in Spain. Still, the number of cards with payment function as a whole in Spain has experienced a sharp decline after the financial crisis (Figure 4). Overall, the number of card payment transactions per capita in 2011 was about 52 in Spain and 158 in the UK representing a growth of 17% and 25 % respectively compare to 2007. In addition, the number of transactions per card was 79 in Spain and 107 in the UK representing an increase of about 20% in both countries in the same period. These results show that bank customers in the UK use their bank cards more often than the Spanish even after the financial crisis.
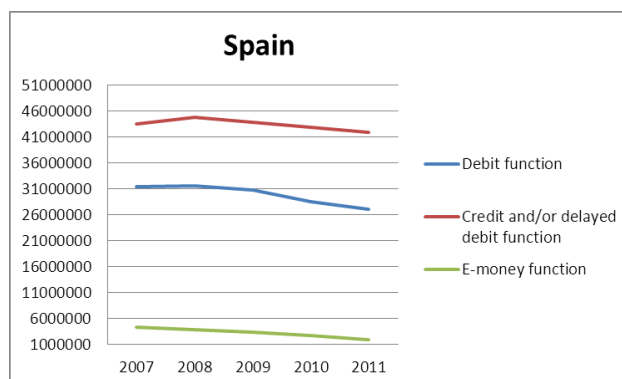

FIG. 4 CARDS AND PAYMENT DEVICE IN SPAIN

Also, we analyzed the overall transaction value of the card payments because card payments are used as substitutes for cash payments. We first checked the overall value of the total card transactions. The results show that while the value of card transactions was increasing in Spain (from 96 to 98 billion Euros) in the period 2007-2009 the UK was beaten hard by the financial crisis with a reduction from 553 to 473 billion Euros. Thereafter, by the end of 2011, both countries managed pretty well

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Cards with an e-money function: Reloadable multipurpose prepaid cards which can be used at the sites of several service providers for a wide range of purposes and which have the potential to be used on a national or an international scale, but may sometimes be restricted to a certain area

with an increase of total transactions value (20% in the UK and 10% in Spain). Moreover, the value of the overall transaction per type of payment instrument shows the debit cards displayed a stronger performance than credit cards in the UK with about 70% of total payment done by debit cards. Inversely, about 58% of the total value of card payment were done by credit and/or delayed debit cards in Spain. This paper argued that the growing preference for debit cards over credit cards in the UK reflected the ongoing magnitude of the financial crisis. Observably, antagonistic economic conditions destined that UK consumers continued to tighten their budgets and work towards reducing their debts. Moreover, banks and other financial institutions meanwhile appear to remain very cautious when it comes to issuing credit cards and setting credit limits. Furthermore, the banks prerequisite to stabilize their own funds, restore their profit margins and cover their different costs has pressed most UK banks to increase the credit cards charge fees. One of the consequences is that the credit card products now appear to be less attractive to consumers.

On the other hand, the amount of overall card payments in Spain continues to decline after 2008. The continuous decline of the card payment was may be due to the Spanish unfavorable economic conditions that were driven by: excessive austerity measures, weaker GDP growth and alarming problems with the Spanish banks solvency. Moreover, Spanish consumers' preference for cards with the pay later functions such as credit and/or delayed debit cards was the consequences of the poor prospects of economic recovery that hardly inflict efforts to Spanish households and companies to reduce spending. In addition, it was also a consequence of excessive austerity measures, a disproportionate unemployment rate, lower salary and unsustainable income. The overall findings are consistent with (Borzekowski et al, 2008) who argue that consumers may have an underlying preference for spending from a payment method that draws on a liquid account. The author further argued that for some consumers, credit cards may serve to smooth consumption following adverse financial events.

Return on Assets (ROA) and Return on Equity (ROE) performances

Return on Equity, ROE, and Return on Assets, ROA, can be defined as annualized net income divided by equity and by total assets, respectively (Stiroh and Rumble, 2006). To comprehend how well UK and Spanish banks were performing before and after the financial crisis, we started by checking both countries banks' income statement, the report of income and expenses that affect the bank's profitability (see Table 1 and 2). Evidently, Table 2 summarizes the trend of the total income that comes from banks' ongoing operations in the period 2007-2011. Table 2 shows that the total operating income was €162 and €65 billion for the UK and Spain respectively in 2007. The year after, while Spanish banks were relishing a 2%

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increase in total income, UK banks were experiencing a severe loss of income (about 35%). Nonetheless, by the end 2009, UK banks built up significant buffers to absorb the loss of total income such as: reduction of operating expenses and the recovery process that will yield an improvement by about 30% every subsequent year. In contrast, the Spanish total income has continued to increase in 2009, thereafter, there was a loss of at least 5% each year.

Moreover, as banks face pressure and challenges on top line growth, various cost reduction tactics were employed to increase bottom line profitability. For example, the report on the operating expenses presented in Table 2 shows that the UK banks have drastically reduced their staff operating expenses by 20 %. The UK has also reduced other operating expenses by 15%. All these reductions yielded a reduction in total expenses by about 17% in the period 2007-2009. By the end of 2011 the figure was still lower than in 2007. On the other hand, Spanish banks operating expenses rose in 2008 as they invested in future growth through infrastructure and people by 5% each. Thereafter, although there was some slight reduction every succeeding year, their operating expenses in 2011 was still 2% higher than in 2007.

Table 2 also shows in the year 2007 there was a net profit of € 25 and € 10 billion for the Spanish and UK banks respectively. Thereafter, although there has been some reduction in the net income of approximately 25% annually, Spanish banks were still big profit makers with for example around €10 billion in 2010. Surprisingly, against all odds in 2011 Spanish banks reported a negative net income of € 14 billion representing a decrease of 240% compared to the previous year. Similarly, in 2008, UK banks were brutally affected by the financial crisis with their final year report showing a negative net income of about € 49 billion. Thereafter, the results showed some rebound in profitability by at least 45 % annually. Undoubtedly, this fast recovery exceeded our expectations especially in the year 2011 that shows a report with a net income 95% higher than in the previous year. Evidently, the excessive loss of net income in 2007 was probably due to the higher degree of concentration of the UK banking system. Besides, it can be associated with the unique design of the British banks operating almost exclusively on the shareholder value principles. In contrast to the UK banking system, the stakeholder value business approach is often brought into being in other European countries such as Spain (Kosmidou et al, 2005).

TABLE 2. BANKS NET INCOME

	Total Income		Operating expenses				Profit before tax		Retained Profit	
			Staff costs		Other operating expenses					
Year	UK	SP	UK	SP	UK	SP	UK	SP	UK	SP
2007	162885	65776	48425	17269	55307	28381	59152	29625	10266	25341
2008	105438	67483	38591	18133	57321	29884	9525	20967	-49054	18809
2009	136060	68882	38301	17964	46713	29759	51043	15258	-22230	13634
2010	149572	64601	41206	17911	52454	29847	55912	10585	-12823	10280
2011	147788	58400	39616	17224	58799	28995	49370	-16760	-665	-14201

Note: the UK data information were calculated based on the average exchange rate of the GBP Vis á Vis the Euro: (2007) 0.684 (2008) 0.796 (2009) 0.891 (2010) 0.858 (2011) 0.868

TABLE 2. CONTINUED: BANKS PERFORMANCES ROA AND ROE

	Net		Total Assets		ROA		Total		ROE	
Year	UK	SP	UK	SP	UK	SP	UK	SP	UK	SP
2007	10266	25341	3445560	2946499	3.0	8.6	509579	206284	2.01	12.28
2008	-49054	18809	9583128	3223716	-5.1	5.8	761594	242426	-6.44	7.76
2009	-22230	13634	4581488	3238236	-4.9	4.2	409219	269798	-5.43	5.05
2010	-12823	10280	4944575	3251535	-2.6	3.2	455675	282515	-2.81	3.64
2011	-665	-14201	6237169	3400435	-0.1	-4.2	430668	363348	-0.15	-3.91

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Although net income gives us an idea of how well a bank is doing, it suffers from one major downside. It does not adjust to the bank's size. Thus, net income makes it hard to really compare how well one bank is doing compared to another. One of the basic measures of bank profitability that corrects for the size of the bank is the return on assets (ROA). ROA is a useful measure because it indicates how well a bank's assets are being used to generate profits. The overall results depicted in Table 1 and 2 and in Figure 5 show that in the five year period there is significant difference based on ROA (Df =2; $\chi2$ =48.467 ; P< 0.001) between UK and Spain . The detailed analysis shows that in 2007, Spanish and UK banks received respectively 3 and 9 cents per Euro invested in assets.

After the financial crisis, both countries have had different success in maintaining or improving their bank performance. For example, in 2008 while Spanish banks were still receiving a 5% per Euro invested, UK banks were experiencing a 5% loss on ROA. Thereafter, UK banks showed resilient performance through the financial crisis with their best year performance showing about 95% recovery on ROA in 2011 compared to the year before. In the same year, the Spanish bank´s performance was facing a hollow downfall on ROA with a loss of about 4 % per Euro invested. This figure was about 232% less than the year before. The results of this study are consistent with Sufian and Habibullah, (2010) who also find that the Asian financial crisis exerts a negative and significant impact on the profitability of Indonesian banks. Since, Indonesian banks have been relatively more profitable during the pre-crisis compared to the crisis and the post-crisis periods.
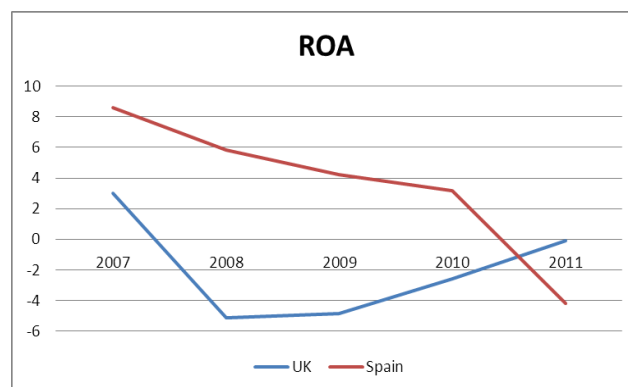

FIG. 5 TREND ON ROA IN THE PERIOD 2007-2011

Even though ROA provides useful information about bank profitability, it is not what the bank's owners (equity holders) care most about. In general, bank's owners are often more concerned about how much the bank is earning on their equity investment which is an amount that is measured by the return on equity (ROE). In in the case of ROA, the study results presented in Table 1 and 2 and Figure 6 also show significant difference between both countries on ROE (Df =2; $\chi2$ = 55.84; P< 0.000). The detailed analysis indicates that Spanish and UK equity holders received 2 and 12 cents respectively per Euro invested in 2007.
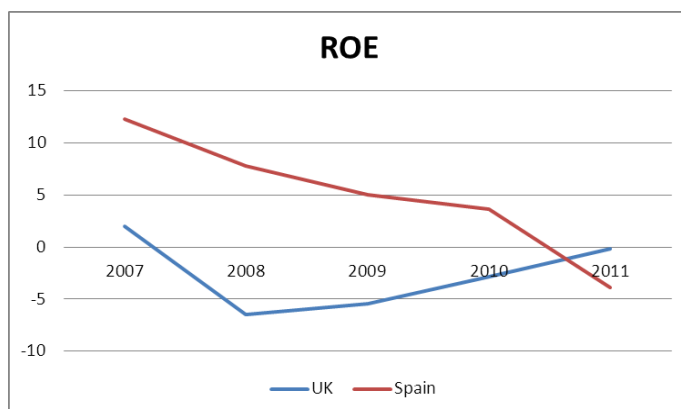
FIG. 6 TREND ON ROE IN THE PERIOD 2007-2011

Thereafter, the ROE follows more or less the same pattern of the profit and loss as ROA. Specifically, after the financial crisis (in 2011), equity holders lost 1 and 4 cents per Euro invested in the UK and Spain respectively. Obviously, the overall results show an improvement in the bank's profitability was partly driven by the harsh costs reductions rather than revenue growth which throughout the year generally remained almost stable in both countries. These findings are consistent with KPMG LLP, (2010) who analyzed the performances of four main UK banks during the first half of 2010 and argued that the results showed across-the-board rebound in profitability determined by sharp impairment reductions rather than the revenue growth. The authors also argued that shares in two banks with significant state ownership continue to flounder around 90% down on their pre credit crunch levels. According to Wilson (2012), UK banks were only underperformed by Italian lenders in 2011, producing an average return on shareholders' equity of less than 4% in 2010. This figure was very low compared to the world's most profitable banking market (Indonesia) that produce 26% return on shareholders' equity (Sufian and Habibullah, 2010).

On the other hand, Loo and Lewis (2012) surveyed 500 banks across Europe in 2012 and their study results show Spanish banks were the least satisfied with their banks´ current performance. Furthermore, Monk (2012) intimated that Spanish banks were told to set aside €30 billion to cover potential losses from bad mortgage loans that were made during the credit boom. Given that the bank values had risen 200% ten years before the financial crisis. The author further argued that in the first semester of 2012, Spanish banks still cannot be sure of the true extent of the losses they face. Consequently, share prices have plunged. These findings are also consistent with Tremlett and Treanor, (2012) who argued that it is now clear that the Spanish banks bubble was imploding even as it was being praised for its handling of the 2008 crisis. The authors further argued that some € 16 bn of public sector funds was used to prop up Spanish banks. Besides, more than € 50 bn was needed in 2012 and the following years as banks recognized losses on a wave of property loans. Finally,

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before the credit crunch, Spanish banks had been thriving thanks to the rapid expansion of the property sector. However, its collapse caused a plunge in the value of the assets the loans were based on. Meaning borrowers had trouble making repayments.

CONCLUSIONS

In general, all developed countries have essentially the same set of payment instruments available to them. Nevertheless, the intensity of use is often quite different. Especially, with the world financial crisis that have brought a great bump to the countries financial systems. Besides, the serious economic recession that has resulted in an intense adverse environment for the financial sector and hence in lower levels of banking activity. Yet, the existing literature points toward that the development of retail payments and the usage of payment instruments is a factor of paramount importance for banks and consumers. Since, customer choice of a mode of payment at a POS has implications for modelling and regulating the industrial organization of payments networks. Moreover, a growing theoretical literature indicates that the relative efficiency of alternative pricing practices, merchant acceptance rules, and governance arrangements depends critically on the elasticity of consumer demand for payment services (Zinman, 2005; Bikker & Bos 2008; Saiz & Pilorge, 2010). Drawing on that, this study aims were to analyze and compare between the UK and Spain the trend of some choice of payment instruments as well as the bank performances based on ROE and ROA.

The overall results based on the number of transactions per card, number of card payment transactions per capita and the value of cards transaction indicates that UK consumers use their bank cards more often than the Spanish consumers even after the financial crisis. Besides, UK consumers prefer to use their debit cards at the POS in contrast to Spanish consumers that would rather use their credit or debit delayed cards after the financial crisis. Moreover, although the Spanish number of ATMs has been endlessly decreasing after the crisis, their number of ATM per million inhabitants' remains about 18% higher than the UK in 2011. In addition, the number of ATM withdrawals and the average value of an ATM withdrawal that indicate the use of ATMs have been most affected negatively by the financial crisis in Spain than in the UK.

Furthermore, like most of the countries worldwide, the UK and Spain have experienced negative effects of the impact of the global financial crisis on their bank ROA and ROE performances. However, the effects of the impact of the global financial crisis in both countries have been highly uneven. The overall results indicate that while Spanish banks were still making profit, UK banks were wiping a huge loss on ROA and ROE at the peak of the crisis. Still, all the way through the 5 year period UK banks almost appear to be back to full health, while Spanish banks have gradually started experiencing the intense reverberations of the

financial crisis. The overall results also show both countries adopted an utterly divergent approach to respond to the adverse effects of the global financial turmoil.

Obviously, the output results of this study clarify whether there is a single general pattern of the trends of the UK and Spanish payment systems (suggesting that current differences in payment use across both countries indicates that they are at different stages along a common path) or whether there are truly unique evolutionary paths and why this is so. This question is of some importance to both developing and emerging market economies as they attempt to establish and modernize their payment systems to provide the infrastructure necessary for sustained growth within a market-based economy (Hancock & Humphrey, 1997). Still, it is very important to note that the data used in this study were drawn from the central banks that mirror bank performances as a whole. Evidently, the performance of existing individual banks in each country may be extremely varied. For example, before, during and after the financial crisis some banks were making huge profits while others make huge losses or are still recovering.

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