

Preparations for the Euro by U.K. SMEs with Trading Links with the Euro Currency Area

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ABSTRACT. This paper examines euro preparations by U.K. SMEs with trading links with the euro currency area. It suggests, notwithstanding the U.K.'s decision not to join the euro in the first wave, that SMEs with euro area trade links are particularly likely to have had to make some adjustments for the introduction of the euro. The paper assesses this level of preparation and seeks to understand if it is contingent upon the characteristics of the business, its geographic location, its business orientation and the type of trade link (e.g. importer/exporter). The paper finds, contrary to previous research, that business characteristics, geographic location and business orientation are, on the whole, of limited value in explaining euro preparation. What, instead, seems more significant is the type of link with the euro area: importers, exporters and those with subsidiary businesses in the euro area appear more likely to have made preparations for the euro than U.K. SMEs that are part of a euro supply-chain or are a subsidiary of a euro area business.

Introduction

Both prior and subsequent to the launch of the euro on the 1st January 1999, much of the debate about the euro in the U.K. has been focused upon the macro-economic consequences of joining the euro (HM Treasury, 1997), its likely regional effects (Martin, 2000) and whether or not the euro currency area is an optimal currency area (De

Grauwe and Vanhaverbeke, 1993). This has tended to underplay the fact that the euro currency area represents the U.K.'s most significant trading partner accounting for 53.8% of its imports and 58.7% of its total exports (trade in goods) (Bardgett, 2000).

Hence, regardless of the future challenges that the euro presents the U.K., the introduction of the euro provides businesses with current and on-going issues. These issues are likely to fall on businesses that trade with the euro currency area (HM Treasury, 1998a). Available evidence, however, has been largely limited to the preparations made by large businesses for the euro (Carr, 1999). Moreover, whilst there are no shortage of surveys which have assessed the awareness and attitudes of U.K. SMEs to the euro (*Financial Times*, 1999; FEE, 2000; British Chambers of Commerce, 2000), there remains a lack of in-depth research which examines the characteristics of those U.K. SMEs that are likely to make euro preparations.

This paper, therefore, does not principally seek to provide further evidence on the level of euro preparation by U.K. SMEs. Instead, it seeks to examine the characteristics of U.K. SMEs that are more than likely to have made preparations for the euro – *prima facie*, those SMEs that have an existing trade link with the euro currency area (HM Treasury, 1998a). By delineating their characteristics, geographic location, business orientation and type of euro link (importer, exporter, part of a euro supply-chain, a subsidiary of a euro area company or a U.K. company with a euro area subsidiary), it may then provide us with insights into the types of businesses that are preparing for the euro and, thereby, indicate the likely future direction of business use of the single currency.

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The paper is organised as follows: in the following section, the costs and benefits of the euro for the U.K. are presented; the derivation of appropriate hypotheses and a presentation of the methodology of the research follow and, subsequently, the hypotheses are tested, principally through the use of an ordered probit model (Greene, 2000). The paper concludes with a discussion of the findings.

Background to the introduction of the euro: The case of the U.K.

The introduction of the euro represents the third, and final, stage of European Economic and Monetary Union (EMU). The project, which was implicit in earlier versions (the "snake" and the exchange rate mechanism), was conceived out of the technical report of the Delors Committee (1989) and formally agreed in the Maastricht Treaty (1991). Since that time, there have been persistent doubts about the likely membership of the euro currency area. However, at its inception, 11 countries, which met the Maastricht criteria,¹ elected to join the currency area² and, subsequently, irrevocably fixed their exchange rates in relation to the euro; committed to the introduction of euro notes and coins in January 2002 with, for most countries, the end date of legal tender for legacy currencies being 28 February 2002. In the interim, the euro may be used for inter-bank transactions and for public debt management. Private individuals are also able to operate euro-denominated bank accounts.

In the U.K., which, like Denmark,³ chose not to join the euro currency area, the euro continues to excite proponents and opponents of the single currency (Currie, 1997). In terms of the costs, concerns have been expressed, for instance, about the degree of economic convergence required by the U.K. to ensure that it is not prone to asymmetric shocks that cannot be rectified by exchange rate depreciation or the use of monetary policy. Doubts have also been raised, following on from the early insights of Mundell (1961), McKinnon (1963) and Kenen (1969), about the optimality of the euro currency area. The consensus is that the EU area is less well integrated than the U.S. (Eichengreen, 1990; Bayoumi and Eichengreen, 1993; and Bayoumi and Prasad, 1996). This,

however, does not necessarily mean that the EU is more likely to suffer asymmetric shocks either due to increased specialisation following the completion of EMU (Krugman, 1991, 1993) or because of structural deficiencies in the euro area. Indeed, Bayoumi and Eichengreen (1993) and Karras (1994) have indicated that amongst the "core" EU countries (e.g. the Netherlands, Benelux, France, Germany) that external shocks are likely to lead to symmetric adjustments. Other evidence has, though, suggested that the wider EU countries are more open to asymmetric shocks (De Grauwe and Vanhaverbeke, 1993).

From the U.K. perspective, it may be that joining the euro could also be disadvantageous due to the lack of factor mobility and the inflexibility of wage and prices in the euro currency area (Currie, 1997). Equally, there have been concerns about the credibility and effectiveness of institutional arrangements such as the European Central Bank (Currie, 1992). Apart from losing control of monetary policy, perhaps the greatest concern for the U.K. is that the euro is the harbinger of greater political integration: "long lasting monetary unions among sovereign nations have never been observed before without strong political integration" (OECD, 1999, p. 9).

On the other hand, the U.K. could, potentially, have much to gain from joining the euro currency area. The European Commission (1990) suggested that the principal gains are likely to be in terms of micro-economic efficiency. Hence, the euro, like the US dollar currency area, allows for the elimination of nominal exchange rate variability and uncertainty; savings in currency conversion and other transaction costs; and a sharpening of price transparency. The impact of these gains is that prices are likely to converge due to pressure from consumers and suppliers (Ahlberg et al., 1999) and that financial costs will be reduced due to a reduction in hedging costs and lower interest rates. The euro is also likely to lead to freer trade as it will encourage cross-border trade (European Commission, 1998).

The euro may also provide two primary macro-economic benefits. First, if monetary policy is effectively co-ordinated, then it may be possible to establish price stability. Second, given that the euro currency area is now the world's second largest currency area (after the United States) and

has 16% of world GDP and a population of 290 million, then there is the potential for seignorage gains if the euro becomes a reserve currency (European Commission, 1990). Beyond this, and following the completion of the European Single Market in 1992, the euro could have a dynamic effect by further liberalising the free movement of goods, services, financial capital and people (Johnson, 1996), and, thereby, promoting increased trade and investment (Levitt, 1998).

Whether or not the U.K. joins the euro currency area, it remains the case, given its trading links, that some adjustments will have to be made by businesses that trade directly or indirectly with the euro currency area. It is likely, however, that preparations by these key groups of U.K. SMEs are likely to be limited. Two principal reasons are suggested for this. First, given the doubts about the likelihood of U.K. membership of the euro, it may be that U.K. SMEs believe that there is little point in preparing until a firm decision about entry is made. Second, as indicated, euro notes and coins will not become available until 2002; SMEs may, therefore, decide to "wait and see".

Dowd and Greenaway (1993), though, have suggested that individuals may adopt a new currency because they perceive network benefits in its use. For example, although the value of the Polish Zloty may be limited on the international markets, individuals in Poland and its borders may still choose to use it because they gain network benefits from its use. This may be particularly true of interregional traders who perceive that the new currency may act as a substitute currency for their activities.

The available evidence, however, tends to suggest that there is little preparation for the use of the euro as a substitute currency for Sterling or existing EU currencies such as the Deutschmark or the French Franc (Mizen and Pentecost, 1994). Amongst U.K. SMEs, evidence from three large scale surveys of the U.K. SMEs by the U.K. Treasury (HM Treasury, 1998b, c and 1999) have indicated that whilst awareness of the euro is high amongst SMEs with some form of relationship with the euro currency area, actual preparations remain low. The British Chamber of Commerce (2000) has, though, indicated that about 16% of U.K. enterprises had completed the majority of their preparations for the euro whilst it was also

found that 66% of enterprises that import or export had made some preparations.

Hypotheses derivation

However, whatever the level of euro preparations by U.K. SMEs with trade links with the euro, this paper seeks to identify the factors that influence such preparation. One such set of factors is firm level characteristics. For example, it may be thought that larger businesses, particularly if they are incorporated, would be more likely to make euro preparations because they may enjoy greater economies of scale. Similarly, sectoral issues may also impact upon the level of euro preparations. Until euro notes and coins are introduced, it may be that service sector SMEs will perceive fewer advantages than manufacturing businesses in preparing for the euro. However, the importance of firm characteristics are immaturely understood in relation to the euro and, as such, the following null hypothesis is offered:

H1: The business characteristics of SMEs with trade links with the euro area have no bearing on the level of euro preparation.

Another factor that may impact upon euro preparation is the geographic location of a business. SMEs based in Northern Ireland may, for example, be anticipated to make greater levels of preparation because they share a land border with a euro currency member (Republic of Ireland). SMEs in the South East of England and in London may also be thought to be more likely to prepare for the euro because of the economic dynamism of this part of the U.K. and its proximity to mainland Europe. Again, however, whilst geographic location may have some impact, this relationship is poorly understood. This leads to the second hypothesis:

H2: The geographic location of SMEs with trade links with the euro area has no influence on the level of euro preparation.

Euro preparation may also be influenced by the business orientation of the SME. For example, SMEs that are growing or seeking to expand their operations into existing or new markets may see advantages in preparing for the euro. The euro also

potentially expands the finance options available to an individual SME. As such, they may see opportunities to seek new investment. The euro equally affords SMEs the prospect of easier sourcing of alternative suppliers through the increased price transparency afforded by the euro. Such orientations may influence euro preparation but, given that many of these remain largely untested, the following null hypothesis is suggested:

H3: The business orientation of U.K. SMEs with trade links with the euro area has no influence on the level of euro preparation.

A final set of factors that may impact upon the level of euro preparation is the nature of the association that an SME has with the euro area. Such an association is likely to be dependent upon the organisational structure of the SME and their type of economic activity with the euro currency area. Some SMEs, for example, may own a subsidiary in the euro area or be, themselves, owned by a euro area business. Other SMEs that are neither subsidiaries nor parent businesses may be part of a supply-chain that deals with euro area businesses. Furthermore, it may be that some SMEs import from or export to the euro area. Finally, it may be that some U.K. SMEs, although they neither import nor export to the euro area, consider that they face competition from businesses that are based in the euro area.

Hypothesising the likely impact that the type of trade link has on the level of euro preparation is difficult. This is because it is unknown what impact the institutional timetable set down for euro adoption will have on euro preparation. SMEs with some organisational link (e.g. parent or subsidiary) with the euro currency area, for example, may be thought to see advantages in fully adopting the euro or, alternatively, in gradually preparing for the euro. Similarly, SMEs without any organisational link (e.g. importers or exporters) may either see little need to respond to the euro or – because they see network advantages in the euro – fully prepare for the euro. Further complicating these issues is the fact that some of these trade links will be correlated. For example, SMEs that are part of a euro area supply-chain are also likely to import from, or export to, the euro area. Similarly, SMEs that export to the euro

area may also likely to import from the euro area. As such, the following null hypothesis is offered:

H4: There is no difference in the level of euro preparation between U.K. SMEs who import, export, are in a euro supply chain, are a subsidiary, have a subsidiary or those who face competition from business in the euro area.

Methodology

Measuring preparedness

One of the problems with assessing the level of euro preparedness is identifying a suitable metric. Partly, this is because the U.K. is outside the euro currency area. As such, U.K. SMEs are under no obligation to meet the institutional timetable set down for the single currency's introduction. U.K. SMEs, then, may be slower or even, perhaps, quicker to adopt the use of the euro dependent upon the perceived network benefits of the single currency. The adoption of the euro is also likely to be sensitive to the particular characteristics of the SME as SMEs in sectors such as retailing or tourism may only have minimal preparations to consider because euro notes and coins will not come into circulation until 2002.

Such considerations make it difficult to rely upon the use of the euro for transactions as a suitable metric as it is likely to underestimate the number of SMEs actually preparing for the euro. There are similar problems if we consider lower threshold measures such as opening a euro bank account, invoicing in euros or receiving customer payments in euros. Notwithstanding the fact that there are likely to be differing preparation requirements, it is also clear from Mintzberg and Waters (1985) that many SMEs do not follow orthodox business planning. Thus, they may not follow an "objective" order of euro preparation.

This makes assessment of the level of euro preparation difficult. To try to obviate this, a self-assessed measure of euro preparation was developed: SMEs were asked if they considered themselves to be totally prepared, partially prepared, starting to prepare or not prepared at all. The advantage of such an approach is that it allows U.K. SMEs to make a judgement, con-

tingent on their business, about their level of euro preparation.

Data collection

A second difficulty faced in assessing euro preparation is identifying an appropriate sample of U.K. SMEs that have trade links with the euro currency area. Clearly, if sampling is conducted amongst the whole population of U.K. SMEs we are not only likely to underestimate preparation but also fail to estimate appropriately how developed euro preparation is amongst those U.K. SMEs that trade with the euro currency area. Deriving an appropriate sample of U.K. SMEs with such links is difficult. Cooper and Nyborg (1998), for example, have maintained that the number of U.K. SMEs that export is unknown. Moreover, even if the number of U.K. importers/exporters could be arrived at, there still remains the problem of the absence of a reliable or robust sectoral integration measure that accounts for supply-chain links and ownership indicators.

In the absence of such measures, a database was used comprising the names and addresses of 98,692 businesses that, in the six months prior to the introduction of the euro, had contacted HM Treasury for their factsheets on the euro.⁴ The database also contained data on the employment level of individual firms.

It was impossible to know, at that stage, if these SMEs had some form of trade link with the euro currency area. It was also entirely possible that the database was biased towards SMEs that were broadly supportive of EMU. A third consideration was that these SMEs were not a representative sample of U.K. SMEs in the sense that they were not only aware of the euro but had also contacted HM Treasury possibly to understand better the likely implications of the euro. Lastly, it was clear that the employment characteristics of the dataset were not representative of the U.K. enterprise population. The U.K. enterprise population is largely made up of self-employed individuals (63.2%) (DTI, 2000) whilst the dataset was predominantly made up of enterprises who self-reported that they had 1–9 employees (47.1%). Furthermore, in terms of geographic location, it was also clear that certain geographic locations such as the South East of England were under-

represented: 10.4% of the businesses on the dataset were based in the South East whilst the DTI (2000) estimates that the South East contributes 17% of U.K. enterprises.

To attempt to control for these issues, a random stratified sample of 1,884 U.K. SMEs was constructed. The stratification was based upon employment size and geographic location to overcome the unrepresentativeness of the dataset. SMEs from the nine English regions and from Scotland, Wales and Northern Ireland were selected following the Government's standard planning regions. Within the individual regions, the sample was further stratified according to employment size categories (1–9, 10–19, 20–49, 50–99 and 100–249).

The subsequent postal survey was sent out in Spring 1999. 455 (24.2%) valid replies were received. Preliminary analysis of the data revealed that 32 (7%) of the replies were from businesses that had no direct or indirect link with the euro currency area.⁵ These were subsequently excluded leaving 423 responses. Chi-square tests revealed no evidence of geographical (χ^2 : 14.307, d.f. 11, *p*. value 0.216) or employment size (χ^2 : 3.070, d.f. 4, *p*. value 0.546) bias between these responses and the sample of 1,884.

Moreover, to control for the possibility that there may be an over-representation of respondents with pro-EMU sympathies, a separate postal questionnaire was sent to 300 non-respondents on a random stratified basis. 115 (38.3%) returns were received. The principal reasons for non-response were: respondents did not have the time to fill in the questionnaire (46.1%); did not believe in completing questionnaires (33.9%) or were too busy with other issues (8.8%). Only 7% of respondents did not fill in the questionnaire because they did not trade with the EU whilst a further 4.3% suggested that their reason for not completing the questionnaire was because they disagreed with the euro.

Data description

Table I provides a brief description of the variables, their expected signs and summary statistics. Looking first at the expected signs, we can see that the size of a business (LOGSIZE) is anticipated to be positively associated with euro preparation

TABLE I
Description of variables

Variable name	Definition	Expected sign	Mean	Std. dev.	N.
<i>Dependent variable</i>					
LEVEL	3 = Totally Prepared, 2 = Partially Prepared, 1 = Starting to Prepare, 0 = Have not started to prepare		1.94	0.93	423
<i>Independent variables</i>					
<i>Firm level characteristics</i>					
LOGSIZE	Number of Employees	+	3.19	1.40	416
LOGAGE	Age of Business (Years)	?	2.86	1.18	411
FIRM	1 = Limited company, 0 otherwise	?	0.79	0.41	409
MANU	1 = Manufacturing SME, 0 otherwise	+	0.38	0.49	423
<i>Geographic location</i>					
NTHIRE	1 = Located in Northern Ireland, 0 otherwise	+	0.08	0.27	415
SCOT	1 = Located in Scotland, 0 otherwise	–	0.13	0.34	415
NTHWEST	1 = Located in North West England, 0 otherwise	–	0.06	0.23	415
NTHEAST	1 = Located in North East England, 0 otherwise	–	0.08	0.27	415
YORKS	1 = Located in Yorkshire and Humberside, 0 otherwise	–	0.06	0.24	415
EASTMIDS	1 = Located in East Midlands, 0 otherwise	–	0.08	0.27	415
(Control Variable)					
WESTMIDS	1 = Located in West Midlands, 0 otherwise	–	0.13	0.34	415
WALES	1 = Located in Wales, 0 otherwise	–	0.05	0.21	415
EASTERN	1 = Located in Eastern region of England, 0 otherwise	+	0.09	0.29	415
STHWEST	1 = Located in South West of England, 0 otherwise	–	0.07	0.25	415
STHEAST	1 = Located in South East of England, 0 otherwise	+	0.08	0.27	415
LONDON	1 = Located in London, 0 otherwise	+	0.10	0.30	415
<i>Performance characteristics</i>					
LOTCOMP	1 = The business has lots of competitors, 0 otherwise	+	0.49	0.50	423
INC_COMP	1 = Business is facing increased competition, 0 otherwise	+	0.72	0.45	418
EXPAND	1 = Business is looking to expand, 0 otherwise	+	0.73	0.44	418
DIVERSFY	1 = Business is looking to diversify its product/service range, 0 otherwise	+	0.68	0.47	418
ALT_SUPP	1 = Business is seeking alternative suppliers, 0 otherwise	+	0.64	0.48	418
NEWVEST	1 = The business is seeking new investment, 0 otherwise	+	0.35	0.48	418
ACQUIRE	1 = The business is seeking to acquire another firm or firms, 0 otherwise	+	0.31	0.46	418
<i>Links with the EU</i>					
SELLEU	1 = Sell goods/services in the EU, 0 otherwise	?	0.83	0.37	422
PURCHEU	1 = Buy goods/services in the EU, 0 otherwise	?	0.81	0.39	415
SUBSID	1 = Business has a subsidiary company in the EU, 0 otherwise		0.11	0.31	419
PARENT	1 = Business has a parent company in the EU, 0 otherwise	?	0.12	0.32	423
SUPPLYEU	1 = Business is part of an EU supply-chain EU, 0 otherwise	?	0.74	0.44	419
COMPEU	1 = Compete with other businesses in the EU, 0 otherwise (Control Variable)	?	0.81	0.40	418

(LEVEL). Previous research (HM Treasury, 1999; European Commission, 2000; British Chambers of Commerce, 2000) has argued that the preparation level is related to the size of a business. Other research, not directly focused upon the euro has also suggested a similar relationship. Smallbone et al. (1999, 1996) has also indicated that smaller sized SMEs were less able to deal with the introduction of the Single Market in 1992 than larger sized businesses. This is further supported by studies of the characteristics of exporters. These have tended to suggest, partly because of economies of scale arguments, that there is a correlation between level of exporting and size (Bonaccorsi, 1992).

It is often also anticipated that the age of a business (LOGAGE) influences the behaviour of SMEs (Storey, 1994) with younger SMEs more likely to grow than their older counterparts (Cosh and Hughes, 1998). Evidence of such a relationship is not available in terms of euro preparations. Indeed, previous research, again derived from the exporting literature, shows there is no simple relationship between the age of the business and exporting activity (Ursic and Czinkota, 1984; Kirpalani and MacIntosh, 1980; Welch and Wiedersheim-Paul, 1980). Hence, given this evidence, it is suggested that the expected relationship between LOGAGE and LEVEL is equivocal.

Limited companies (FIRM) may, however, be expected to be more likely to prepare for the euro. Hakim (1989) and Johnson (1989), for example, found that the growth performance of limited companies was higher than that of non-incorporated businesses. Such a finding may also extend to euro preparation but, again, in the absence of previous research, the expected sign is equivocal. In terms of sector, though, both HM Treasury (1998b, c, 1999) and the British Chambers of Commerce (2000) have found that manufacturing enterprises were the most likely to prepare for the euro. It may, therefore, be anticipated that MANU will be positively signed.

Table I also identifies a number of geographic location dummy variables based upon the 12 standard planning regions. Again, following HM Treasury (1998b, c), it may be expected that SMEs located in Northern Ireland (NTHIRE) are more likely, all other things being equal, to prepare for

the euro because they have a land border with a euro currency area (Republic of Ireland). A similar argument may also be used for SMEs in the South East of England (LONDON, STHEAST, and EASTERN) since they have a relative geographic proximity to the euro currency area. Additionally, SMEs in the South East of England, relative to more peripheral regions (SCOT, WALES, NTHEAST, NTHWEST, EASTMIDS, WESTMIDS and STHWEST), may be more likely to have made preparations for the euro because such regions have been long associated with economic dynamism (Storey, 1982; Keeble, 1998, 2000).

A third set of factors hypothesised to be related to euro preparation are a set of seven business orientation variables. Two of these relate to the competitive environment faced by the SMEs (LOTCOMP and INC_COMP). Following Covin and Slevin (1991, 1989) it may be expected that businesses prepare for the euro because they perceive a hostile environment (LOTCOMP) or an increasing intensity of competition (INC_COMP). Alternatively, it may be that SMEs operating in a niche sector with few competitors may feel that they have to prepare for the euro.

Euro preparation may also be impacted by the wish to grow their business (EXPAND). HM Treasury (1998a) has also suggested that some SMEs may perceive that the increased price transparency and the possible reduction in transaction costs that the euro affords, may lead some SMEs to prepare for the euro because they are seeking to make adjustments to their product/service range (DIVERSFY), to make cross-border acquisitions (ACQUIRE) or to seek to alter their suppliers (ALT_SUPP). Similarly, the euro holds out the opportunity of potentially cheaper finance arrangements. Euro preparations may, therefore, be influenced by the possibility of new investment (NEWVEST).

A final set of factors that may influence the level of euro preparation, is the type of link that an SME has with the euro area. It is, again, difficult to be precise about the expected direction of the relationship with euro preparation. Nevertheless, it may be anticipated that SMEs who either own a subsidiary (PARENT) or are, themselves, a subsidiary (SUBSID) may have made more preparations for the euro. The available

evidence to support this, however, is confined to studies of the preparation activities of multinational enterprises (e.g. Carr, 1999). It may also be anticipated that euro preparation is dependent not on ownership but on the type of activity. For example, an SME may prepare for the euro because it is part of a supply-chain (SUPPLYEU) that trades with the euro currency area. Furthermore, SMEs preparations may be dictated by whether or not they import (IMPORT) and export (EXPORT). Again, although there is some theoretical support for the idea that there may be network benefits (Dowd and Greenaway, 1993), there is little empirical guidance to suggest the direction of these relationships.

Turning now to the summary statistics for the dependent variable, euro preparation (LEVEL) appears relatively far advanced with the mean score being 1.94. Further descriptive analysis indicated that the SMEs were most likely to be partially prepared (42.6%) or totally prepared for the euro (30.5%) rather than starting to prepare (17.5%) or made no preparations (9.5%) for the euro. Such a high level of euro preparation is, perhaps, comparable with the findings of the British Chambers of Commerce (2000). This is for three reasons. First, previous studies (HM Treasury, 1998b, c and 1999) have tended to look at actual rather than perceived euro preparation. As such, therefore, this study cannot ignore the possibility that preparation levels are inflated by our reliance upon perceived rather than actual levels of preparation. Second, preparing for the euro is contingent upon what SMEs may have believed possible at any particular point in time. As the fieldwork for this study was conducted in the spring of 1999, SMEs may have believed, quite appropriately and for sound commercial reasons, that there was little more that they could do prior to the full-scale introduction of the euro in 2002 or whilst the U.K. remained outside the euro currency area. Third, as this is a study of U.K. SMEs with trade links with the euro area, it is likely, other things being equal, that such businesses will see the value of preparing for the euro more than SMEs that do not have any trade link with the euro area.⁶

Table I also shows that the mean LOGSIZE of the SMEs was 3.19. Prior to log transformation, the mean average employee size of SMEs was 51

employees (Std. Dev. 54.79) with a range of between 1 to 250 employees. The untransformed age of SMEs was 32 years (Std. Dev. 38.3) and the age of SMEs ranged from 1 year to 330 years old. Transformed, the mean age was 2.86. Table I also shows that majority of the SMEs were limited companies and that they were from all parts of the U.K. Only 38% of them were, however, manufacturing SMEs.

In terms of business orientation, half indicated that they had lots of competitors (LOTCOMP) whilst nearly three-quarters of them were facing increased competition (INC_COMP). Nonetheless, the majority of the SMEs sought to expand their business operations (EXPAND), diversify their product range (DIVERSFY) or change their suppliers (ALT_SUPP). Only about a third of them sought new investment (NEWVEST) or to acquire another business (ACQUIRE).

Table I also shows that approximately four-fifths of the SMEs exported (SELLEU), imported (PURCHEU), were part of a euro area supply-chain (SUPPLYEU) or competed with other businesses in the EU (COMPEU). It is, therefore, unsurprising, that these variables were correlated with each other. This is evident from Table II which shows the Spearman rank correlations for each of the identified trading links. From this, we can see that SELLEU was found to be positively correlated with SUPPLYEU (0.36) and COMPEU (0.3) and PURCHEU (0.11). PURCHEU is also correlated with COMPEU (0.25) and SUPPLYEU (0.33) whilst PARENT is positively correlated with PURCHEU (0.14) and SUPPLYEU (0.17).

Such correlations, as we saw earlier, are perhaps inevitable. Trade with the euro currency area is likely to be multifaceted: for example, exporters may perceive that there are commercial advantages in balancing their income stream by importing goods/services. Equally, those in euro supply-chains or who are have parent companies in the euro area are also likely either directly (export/import goods or services) or indirectly to trade with the euro area.

Testing the hypotheses

In order to test *H1*, *H2*, *H3* and *H4*, ordered probit analyses were conducted on LEVEL (no preparations = 0; totally prepared = 3).⁷ Four ordered

TABLE II
Spearman rank correlations for type of trading link with the euro area

	SELLEU	PURCHEU	SUPPLYEU	COMPEU	SUBSID
SELLEU					
PURCHEU	0.114**				
SUPPLYEU	0.359***	0.180***			
COMPEU	0.303***	0.248***	0.330***		
SUBSID	0.053	0.004	0.084	0.113*	
PARENT	0.026	0.143***	0.165***	0.013	-0.129***

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.1 level.

probit models are presented (Table III). The first model examines the influence of firm characteristics of euro preparation. The second model, holding these factors constant, considers the influence of geography. Model 3 introduces the various business orientation measures to the analysis whilst, controlling for the other factors, Model 4 examines the influence of trading link on euro preparation.

H1: The business characteristics of SMEs with trade links with the euro area have no bearing on the level of euro preparation.

Table III shows, in terms of Model 1, that LOGSIZE, LOGAGE, FIRM and MANU are all marginally positive but at a statistically insignificant level. These results hold across all four models and would indicate, therefore, that the age, size, sector and legal form of the SMEs have little bearing on the perceived level of euro preparation. As such, *H1* cannot be rejected. Such a finding is somewhat surprising. We would have expected, in line with previous empirical research (HM Treasury, 1998b, c and 1999), to find that size and sectoral effects are apparent. The fact that they are not may, of course, be explained by the fact that LEVEL measures *perceived* rather than *actual* levels of euro preparation. Such a suggestion, however, hinges on the expectation of the relative awareness of the euro amongst smaller sized SMEs and non-manufacturing SMEs. As we saw earlier, each of the SMEs in the sample was supplied with HM Treasury's (1998a) factsheets. These outline, in detail, the types of preparation required to trade using the euro. The implication, therefore, is that, because the sample is likely to be euro aware, that there may be grounds for holding to the view that the level of euro prepa-

ration is largely independent of the characteristics of the SME.

H2: The geographic location of SMEs with trade links with the euro area has no influence on the level of euro preparation.

Model 2 considers the influence of geographic location. Compared to EASTMIDS, we can see from Table III that there are no statistically significant variables. In models 3 and 4, we can see, however, that SMEs in the STHWEST are significantly less likely to have made euro preparation. What is also interesting about the geographic variables in Models 2 to 4 is the direction of the coefficients. Earlier, it was suggested that NTHIRE, LONDON, EASTERN and the STHEAST were more likely to prepare than more peripheral areas of the U.K. such as SCOT, WALES or the NTHEAST. In terms of EASTMIDS, this is not borne out: LONDON has a uniform negative coefficient whilst the STHEAST (except model 2) and NTHIRE (except model 3) also have negatively sloped coefficients. Indeed, although not statistically significant, it would appear from Table III that only the NTHWEST, WESTMIDS and the EASTERN regions attract positive coefficients. In essence, therefore, it is only possible to partially reject *H2* as there is little comprehensive evidence to suggest that euro preparations are skewed either towards those regions that are geographically approximate to the euro area (e.g. NTHIRE) or according to differences in economic dynamism.

H3: The business orientation of U.K. SMEs with trade links with the euro area has no influence on the level of euro preparation.

In model 3 we can see, once firm characteristics and geographic location are held constant, that the

TABLE III
Ordered probit models (dependent = LEVEL) of factors impacting on euro preparations

	Model 1		Model 2		Model 3		Model 4	
	Coef.	z-stat	Coef.	z-stat	Coef.	z-stat	Coef.	z-stat
<i>Firm level characteristics</i>								
LOGSIZE	0.052	0.271	0.045	0.946	0.050	1.015	0.011	0.207
LOGAGE	0.047	0.367	0.043	0.798	0.055	0.992	0.057	1.01
FIRM	0.184	0.176	0.153	1.086	0.142	0.987	0.090	0.597
MANU	0.097	0.421	0.151	1.16	0.149	1.121	-0.006	-0.046
<i>Geographic location</i>								
NTHIRE			-0.007	-0.026	0.062	0.223	-0.166	-0.583
SCOT			-0.137	-0.558	-0.086	-0.348	-0.097	-0.385
NTHEAST			-0.245	-0.795	-0.335	-1.077	-0.501	-1.589
NTHWEST			0.093	0.334	0.081	0.288	0.014	0.05
YORKS			-0.207	-0.697	-0.182	-0.608	-0.246	-0.801
WESTMIDS			0.250	1.01	0.259	1.034	0.088	0.344
WALES			-0.104	-0.322	-0.240	-0.727	-0.340	-1.018
EASTERN			0.221	0.819	0.230	0.846	0.167	0.603
STHWEST			-0.459	-1.573	-0.497	-1.692*	-0.626	-2.101**
STHEAST			0.016	0.057	-0.051	-0.183	-0.044	-0.155
LONDON			-0.208	-0.794	-0.230	-0.871	-0.443	-1.637
<i>Performance characteristics</i>								
LOTCOMP					-0.216	-1.87*	-0.263	-2.225**
INC_COMP					0.202	1.514	0.247	1.818*
EXPAND					0.199	1.48	0.275	1.99**
DIVERSFY					-0.181	-1.423	-0.136	-1.047
ALT_SUPP					-0.280	-2.222**	-0.281	-2.184**
NEWVEST					-0.110	-0.912	-0.118	-0.958
ACQUIRE					-0.034	-0.266	-0.005	-0.038
<i>Links with the EU</i>								
SELLEU							0.876	5.012***
PURCHEU							0.470	3.181***
SUBSID							-0.156	-0.815
PARENT							0.393	2.138**
SUPPLYEU							-0.025	-0.166
N.	402		394		392		390	
Log likelihood	-498.5		-480.9		-471.0		-446.1	
Chi-square	10.01		22.8		38.6		83.6	
Sig.	0.038		0.088		0.016		0.000	
Pseudo R ²	0.01		0.023		0.039		0.086	

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.1 level.

competitive environment does seem to impact upon euro preparation. Preparation, though, is less likely amongst those SMEs that have lots of competitors (LOTCOMP) as, in both models 3 and 4, it is clear that LOTCOMP has a negative and statistically significant association with

LEVEL. This would indicate, therefore, that euro preparation is more likely amongst those SMEs that are in particular niche markets. Set against this, model 4 further suggests that an increase in competitive intensity (INC_COMP) and a desire to EXPAND are positively and significantly

associated with LEVEL. However, aside from ALT_SUPP which is negatively sloped and statistically significant, it would appear that the reasons SMEs are preparing for the euro is not because they perceive it will allow them to diversify their products/services (DIVESRFY), provide new investment opportunities (NEWVEST) or allow them to acquire new businesses (ACQUIRE). Overall, therefore, it is possible to reject H3.

H4: There is no difference in the level of euro preparation between U.K. SMEs who import, export, are in a euro supply chain, are a subsidiary, have a subsidiary or those who face competition from business in the euro area.

The final set of factors – type of trade link – are introduced in Model 4. Compared to COMPEU, it may be anticipated that those SMEs that are a subsidiary of an euro area firm (SUBSID), had a subsidiary in the euro area (PARENT), or who are part of a EU supply chain (SUPPLYEU) would be more likely to prepare for the euro. There is seemingly little evidence to support this. For example, in terms of SUPPLYEU, it would appear that such businesses are less likely – albeit at a statistically insignificant level – to prepare for the euro. This also holds for PARENT. In contrast, however, we can see from model 4 that SMEs that have a subsidiary (SUBSID) were significantly more likely to make preparations. This also applies to importers (PURCHEU) and exporters (SELLEU). On this basis, H4 may be rejected.

Conclusions

This paper has tested four sets of factors that were hypothesised to have an impact upon euro preparations amongst U.K. SMEs with trade links with the euro currency area. The first hypothesis suggested that firm level characteristics would have some bearing on euro preparation. The results, however, suggested that business size, age, legal form and sector had little impact upon euro preparation. This is a surprising finding since – presuming that SMEs are heterogeneous – it may have been anticipated that larger, incorporated businesses were more likely to prepare for the euro.

The finding that there were no marked geo-

graphical disparities in euro preparation (H2) was also surprising. Indeed, the paper has shown that there are few grounds for believing that euro preparation by SMEs mirrors the regional economic disparities evident in the U.K. SMEs located in London, for example, were as likely to be unprepared for the euro as SMEs in more economically peripheral regions of the U.K. Similarly, despite having a land border with the euro currency area, Northern Irish SMEs were found not to be comparatively well prepared for the euro.

In terms of the third hypothesis, we have seen from the variety of business orientations posited that euro preparation was likely more to be prevalent amongst SMEs who are seeking to expand, those that are faced with relatively fewer competitors or those that have an increased level of competitive intensity. Other factors such as the potential for altering suppliers and new investment opportunities were not seen as being particularly important. This may indicate that such potential advantages are only likely to be realised in the longer term as SMEs become more accustomed to dealing in the single currency.

The paper's principal contribution, however, is to provide empirical evidence to support Dowd and Greenaway's (1993) contention that there are instances where inter-regional traders will adopt a substitute currency such as the euro (H4). This may have been expected in the euro currency area as it is clear that the European Union have adopted an institutional rather than a market based approach to the introduction of the single currency. The U.K. is outside this institutional arrangement but, nevertheless, it would appear that the inter-regional traders have made preparations for the euro's introduction. This has been particularly pronounced amongst importers, exporters and those with subsidiaries in the euro currency area. It is difficult to know why these types of inter-regional traders are more likely to have prepared for the euro than those who are part of a euro area supply-chain or who are a subsidiary of a euro area company. It may, for example, reflect the slowness of institutional rather than market based signals or the policies and practices of larger businesses. Nonetheless, as U.K. SMEs are themselves responding to the euro rather than waiting for the effects of the single currency to cascade down to them, this may have important implications for

those that perceive that the U.K.'s decision to enter the euro currency area is entirely dependent upon passing the five economic tests (HM Treasury, 1997) or the result of any referendum.

Notes

¹ The Maastricht convergence criteria were: government debt should not be more than 60% of GDP; the government deficit should not be more than 3% of GDP; inflation should not overshoot the performance of the 3 lowest inflation countries by more than 1.5%; long-term interest rates should not be more than 2% higher than the three lowest inflation countries; and the currency should operate within the ERM margins for 2 years without devaluing.

² These countries were: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain. Greece subsequently joined the euro currency area on the 1st January 2001.

³ Greece did not meet the initial Maastricht criteria whilst Sweden had not participated in the ERM.

⁴ These factsheets formed part of HM Treasury's (1998a) campaign to increase awareness of the likely business implications of the introduction of the euro.

⁵ To ascertain this, respondents were asked if they were imported, exported, were a subsidiary of a euro currency area business, had a subsidiary in the euro currency area, were part of a supply chain or competed with euro currency area businesses.

⁶ Indeed, if the non-euro area linked SMEs are reintroduced to the sample (32 businesses), we find – when a Chi-square test of association was conducted between LEVEL and whether or not SMEs had a trade link with the euro area – a high level of statistical significance (p . 0.001) (χ^2 : 50.07; 3 d.f.).

⁷ The ordered probit equation is estimated using $\Pr(\text{LEVEL ranking}_j = i) = \Pr(k_{i-1} < B_k x_{kj} + u_j < k_i)$ where u_j is assumed to be normally distributed and B_k represents the coefficients and x_{kj} the cut points and i is the number of possible outcomes given that k_0 is taken as – infinity sign and k_1 is taken as + infinity sign.

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