

Legal and institutional determinants of factoring in SMEs: Empirical analysis across 25 European countries

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Abstract

Weak protection of the rights of financiers intensifies agency problems in SME financing, inhibiting the optimal provision of credit necessary to grow and innovate. We use a survey data set of 4348 SMEs from 25 European countries to analyze whether the use of factoring as a form of SME financing is less dependent on low quality of laws and institutions. We do so analyzing whether the use of factoring by SMEs differs across countries due to differences in the legal protection of creditors. Our findings indicate that firms operating in countries with legal environments that weakly protect the rights of creditors, with political instability or high enforcement costs, are more likely to use factoring. Managers of riskier and opaque companies operating in such inefficient environments can use the results of this study to better understand that there are suitable options to complement bank financing. Managers who seek loans can use the results to diversify their financing structure through the use of factoring. Since factoring can be used as a complement to bank loans or as a substitute for bank financing, it is important that policymakers take our results into account when revising policies concerning access to external financing.

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Introduction

Low quality of laws and institutions intensifies agency problems and asymmetric information in SME financing, inhibiting the optimal provision of credit necessary to grow and innovate. This paper investigates whether factoring financing is able to deal with market imperfections in weak legal and institutional environments more effectively and whether, therefore, it favors external funding for SMEs. To this end, we examine whether the use of factoring financing in SMEs differs across countries due to differences in the legal protection of creditors.

Factoring is a form of asset-based finance based on the value of a borrower's accounts receivable which are sold at discount to the factor company and considered the primary source of repayment. This has two main implications for the association between legal environment and agency problems and, therefore, the flow of capital to SMEs. Firstly, the exchange of ownership implies that in the event of the client's bankruptcy the accounts receivables would not be part of its bankruptcy estate. And secondly, the borrower's informational asymmetries and risk become a secondary concern for factors if the underlying accounts receivable belong to transparent and large companies. These characteristics make factors less dependent on the extent of investor protection in a given country and more willing to provide financing to risky and opaque SMEs. Agency problems between the factor company and the borrower will not be aggravated if the financial transaction takes place in a country with low quality laws and weak enforcement mechanisms that protect the rights of creditors poorly. This is in contrast to traditional forms of financing for SMEs such as relationship lending, individual equity or venture capital, which are highly dependent on well-defined commercial laws and efficient legal systems to resolve agency conflicts. As a consequence, our hypothesis is that SMEs operating in countries with weak protection of creditor rights are more likely to use factoring.

In addition to its competitive advantages in dealing with agency problems in weak legal environments, factoring is supported by a growing and sound industry. According to the EU Federation for Factoring and Commercial Finance, factoring industry turnover represented 9.9% of EU GDP in 2014. Factors Chain International reports that the global factoring market grew by 6.3%

in 2014 —reaching a volume of €2.348 billion— while the industry has also maintained an annual growth rate of 11% over the last 20 years. Europe, which is the largest factoring market worldwide, was the region with the strongest growth, having achieved the highest growth since 2011 with an increase of 8%. Within Europe, the fastest growing markets were two developing countries, Lithuania and Malta, where the factoring volume increased by 101% and 66%, respectively. These figures reinforce the importance of this funding solution in supporting SMEs, economic activity, wider growth and wealth creation.

The empirical literature on corporate finance has shown that financial decisions in smaller firms are highly dependent on country attributes, such as the legal environment, that serve as a proxy for the extent of agency problems and asymmetric information (Demirgüç-Kunt and Maksimovic, 1998; Giannetti, 2003; Beck et al., 2005; 2006; 2008). These studies have generally focused on traditional lending and, therefore, fail to capture the effects of legal differences on alternative sources of financing for SMEs, such as factoring. On the other hand, cross-country comparisons of factoring financing have used aggregate data (Klapper, 2006; and Borgia et al., 2010) and, therefore, have not been able to address the question of how firm attributes affect the factoring decision while controlling for the legal and institutional environment.

We use a survey data-set of 4348 small and medium-sized firms from 15 developed and 10 emerging European countries under four different legal origins: French-civil-law, German-civil-law, Scandinavian-civil-law and Common-law. This ensures the existence of large differences in the quality of laws and institutions across countries in our sample (La Porta et al., 1998; 2008; Dharwadkar, 2000). Our evidence indicates that the use of factoring for small and medium-sized firms varies across European countries. We begin our analysis by showing how firms in countries under French-civil-law make a higher use of factoring than firms in countries under English-common-law, German and Scandinavian-civil-law. When going more into depth we also find that the use of factoring is greater in countries with low protection of creditor rights, political instability and

inefficient contract enforcement. Moreover, our results show that firms operating in countries which are growing at high rates are more likely to use factoring.

Our study makes several important contributions to academics, managers and policy makers. First, our paper adds to the body of literature which examines the financing of SMEs and how the feasibility of different financial products in a country depends on the nation's legal and institutional environment. Moreover, up to the best of our knowledge we are the first paper analyzing the effect of legal and institutional characteristics on the use of factoring for a sample of small and medium-sized enterprises. Second, our results can help firm managers to understand that factoring is, compared to traditional forms of SME financing, better suited to overcoming a firm's agency problems in business environments with weak legal and institutional environments. From a policy perspective, the importance of our results stems from the possibility that the legal and institutional environments may intensify the agency and information problems in SME financing and inhibit the optimal provision of credit. We provide evidence that suggests that SMEs facing significant financial restrictions might use factoring as a complementary source of financing.

The rest of the paper is organized as follows. First we analyze existing literature and provides the motivation for the study. After that we present the data and methodology, followed by the results. Finally, we present the summary and conclusions.

Theory and Hypotheses Development

Under the Agency Theory paradigm in Jensen and Meckling, (1976), a strong legal system that protects the rights of creditors and enforces debt contracts becomes essential to reduce agency problems and assure the flow of external capital to firms. This is particularly true for small and medium-sized firms (SMEs), where informational asymmetries facilitate wealth expropriation of outside investors by corporate insiders (Giannetti, 2003). We therefore contend that the legal environment plays an important role in determining the extent of agency problems in SMEs and their access to debt financing. Our argument is that traditional financing techniques that mitigate agency

problems in a strong legal context might not necessarily be effective in countries with weak protection of creditor rights. Therefore, if a lending technology such as factoring is less affected by agency problems i.e., less dependent on the quality of laws and enforcement mechanisms, it might be used as a suitable financing tool for SME firms in weak legal systems. We test our hypothesis by analyzing the variation in the use of factoring by SMEs across 25 European countries and whether this is influenced by differences in the legal protection of creditors.

This paper contributes to the general debate about the financing of SMEs and the financial constraints that they face due to severe agency problems. As small firms are reported to contribute disproportionately to innovation and economic growth, policy makers around Europe have become increasingly concerned about the success of their SMEs. To enhance SME financing and foster economic growth, policymakers around Europe have established government support programs such as loan guarantee schemes, interest subsidies, non-refundable aid on capital (Meuleman and Maeseneire, 2012), and direct government created venture capital funds (Cumming, 2007).

Venture capital and corporate venture capital is specially tailored to young innovative firms (Gompers and Lerner, 2001; Dushnitsky and Lenox, 2005a, b), providing them with the financial resources they lack due to capital market imperfections (Andrieu and Groh, 2012). Entrepreneurial firms do not have sufficient assets to offer as collateral and nor do they have the track record necessary to establish their reputation; therefore, the effects of informational market failures are more severe (Amit et al., 1998). Concerns over agency problems in SME financing issues are likely to be aggravated when funding applications are based upon an intended R&D investment. Volatile and intangible returns, information problems and banks' inability to adequately assess innovative projects cause SMEs to have poor access to capital for innovation (Carpenter and Petersen, 2002, Freel, 2007).

However, most European countries are not attractive for private investments in venture capital due to reduced investor protection, which leads to illiquidity and efficiency in capital market (Groh et al., 2010). As a consequence, the development of private VC markets in Europe has been dramatically lower than the development experienced in the US, with the recent financial crisis

further weakening the EU's VC fundraising ability in subsequent years (Grilli and Murtinu, 2014). The need for an efficient EU VC market has, in the recent past, triggered a series of policy initiatives at the EU level that has resulted in a higher presence of governmental VC funds than in the US (Leleux and Surlemont, 2003).

Gaps in financial resources may also be addressed through changes in the firm's ownership structure by incorporating new owners to the company. Ownership enlargement positively affects the firm's newfound access to financial resources, but also gives rise to new principal-principal conflicts that generate agency costs and negatively impact the firm's performance (Colombo et al., 2014). These so-called horizontal agency problems are created by non-manager individual shareholders, who have limited information about a firm's managerial decisions and reduced incentives to effectively monitor the actions of the owner-managers. For SMEs operating in French-civil-law countries these problems are likely to be aggravated. SMEs are frequently owned by a small and close group of shareholders (Smith, 2007) and the incumbent shareholders also have the role of managers (Abor and Adjasi, 2007). On the other hand, French-civil-law is characterized by high ownership concentration and low influence of external control mechanisms (Sánchez-Ballesta and García-Meca, 2005), in addition to weak investor protection (La Porta et al., 2002).

In spite of the growing importance of alternative sources of financing, the majority of European SMEs still depend on debt capital, mostly bank loans. Banks are prominent in traditional industries, such as retailing, where expertise is easier to obtain and assets serve better as collateral than in knowledge-based industries (Amit et al., 1998). For those SMEs with limited public information, banks use relationship lending, which is based on private, usually soft, information from the firm, managers and owners gathered through personal interaction and the provision of financial services over the course of the relationship (Hernández-Cánovas and Martínez-Solano, 2010). Credit scoring techniques can also facilitate the evaluation of small firms with limited financial data using the owner's personal credit history (Berger and Udell, 2011).

Regardless of the lending technology used, the most common method to expand the borrowing capacity is to pledge collateral, which has disciplinary and signaling roles that help to mitigate agency problems. Collateral is a widely observed contractual term (Berger et al., 2011a, b), which is even more relevant than loan rates in explaining variations in business loans (Lown and Morgan, 2006). Moreover, the consolidation process of the banking system following the recent financial crisis and the Basel II-III Capital Accords would seem to predict that, in the future, informationally opaque firms will have to rely on collateral to an even greater extent (Inderst and Mueller, 2007). However, collateralization also requires well-defined commercial law that clearly specifies security interests, and efficient lien registration systems that clearly define when liens are filed, and an efficient bankruptcy system that preserves priority and minimizes time in bankruptcy (Bakker et al., 2004). In this line, Qian and Strahan (2007) find that legal efficacy of collateral is associated with increased use of collateral.

Being a form of asset-based finance, factoring is based on the value of the borrower's accounts receivable, that is, the payments owed by the customers of the borrower. But the factor buys the client's accounts receivable and obtains full ownership. Therefore, factoring contracts do not involve a credit relationship but rather the transaction contains a sale and a purchase. This exchange of property implies that in the event of the client's bankruptcy the accounts receivables would not be part of its bankruptcy estate and, therefore, not affected by inefficiencies in bankruptcy law and its enforcement.

When providing working capital financing, banks ask for collateral in the form of short-term assets such as accounts receivable and inventory, and equipment as a secondary source of repayment. Factoring on the contrary, as an asset-based lending, requires that collateral be considered as the primary source of repayment. If the underlying accounts are the obligations of relatively transparent firms, such as larger enterprises or foreign receivables from firms in countries with a stronger information infrastructure, the borrower's agency problems are a minor concern to finance (Bakker

et al., 2004). Therefore, protection of creditor rights and enforcement mechanisms become less important for factors.

From the above arguments we state that factoring is, compared to alternative sources of financing for SMEs, less affected by agency problems and the inefficiencies of the legal system regarding the protection of investors. In addition, the European factoring industry continues to display strong growth despite the generally low levels of economic growth across the EU, reaching an all-time record of €1.463 billion in 2014 after an annual growth of 8%. This makes Europe the largest factoring market in the world. Therefore, we hypothesize that factoring is more likely to be used by SMEs in countries with weak protection of creditor rights and soft enforcement mechanisms.

Data and Method

Data

To create our initial sample we use several data sources. First, country-specific variables are obtained from Djankov et al. (2007), the United Nations Statistics Division and the World Bank. Second, firm-specific variables are obtained from the Survey on SME Access to Finance carried out by the European Commission between 2005 and 2006.¹ From the 4583 interviews available in the survey, we drop 125 firms in the financial sector due to the special characteristics of their financial statements and the regulated environment they are operating in. From the remaining sample, we select 4348 observations which contain information about the use of factoring.

Method

To assess the impact of country-specific characteristics on the use of factoring for European SMEs, we estimate logistic regressions in the following form:

¹. The information about the fifteen Old Member States was obtained in September 2005, while the information about the ten New Member States was collected between April and May 2006.

$$F_i = \Phi [\alpha_0 + \beta_1 LE_i + \beta_2 IE_i + \beta_3 FSC_i + \varepsilon_i] \quad (1)$$

Where i represents the i th firm in the sample; F_i is the use of factoring for firm i ; LE_i is a vector of legal environment variables; IE_i is a vector of institutional environment variables; FSC_i represents the set of firm-specific control variables and ε_i is the residual.

The Dependent Variable. To create the dependent variable we utilize the survey's question in which managers are asked if the firm uses factoring to finance its activities. Using the answers we built a dummy variable, *factoring*, which takes the value one when factoring has been used by the firm and zero otherwise.

Table 1 gives an overview of the use of factoring by country ranked in descending order. The average ranks from 54.86 percent in Spain to 6.55 percent in Germany, indicating the existence of large variations in the use of factoring by firms across European countries.

The Independent Variables. This section describes the explanatory variables used in our empirical study. Table 2 provides detailed definitions of all the variables, while table 3 reports the correlations.

Legal Environment Variables. In this section we define the variables that we include in our model to proxy for a country's legal system in terms of the protection of the rights of creditors. According to our hypothesis, agency problems are likely to be aggravated in countries with weak protection of creditor rights, inhibiting the normal flow of financing to SMEs and probably increasing the use of factoring as a complementary source of financing.

According to La Porta et al. (1998), variations in creditor rights protection and contract enforcement across European countries in our sample are originated by their legal origins. Countries under English-common-law give creditors the highest protection while countries under German and

Scandinavian-civil-law heritage have the most efficient and strongest legal system to enforce financial contracts. Countries under French-civil-law offer the poorest creditor protection regarding both the quality of law and the efficiency of enforcing mechanisms. It has also been shown that countries under civil-law heritage have greater legal procedural formalism and take longer to enforce some types of financial contracts (Djankov et al., 2003).

Differences in the legal and institutional framework have a clear impact on the financial behavior of SMEs in the European Union. Beck et al. (2008) report that firms in countries with weaker property rights, such as those operating in French-civil-law economies, are more likely to rely on potentially less efficient financing from development banks, the government, or informal sources. And countries where commercial law is ambiguous and incomplete and enforcement is problematic, block the creation of new businesses, undermine existing ones, and deter foreign investment (EBRD, 2013). In addition, commercial laws and their enforcement affect the ability of banks to deploy specific contractual elements such as covenants, maturity, collateral, and personal commitments (Berger and Udell, 2006).

In our sample we use the same legal origin classification as in Djankov et al. (2007). Belgium, France, Greece, Italy, Lithuania, the Netherlands, Portugal, and Spain are under French-civil-law. Ireland and United Kingdom are under English-common-law. Austria, Czech Republic, Germany, Hungary, Latvia, Poland, Slovakia and Slovenia are under German-civil-law. Denmark, Finland and Sweden are under Scandinavian-civil-law.² If we believe that factoring has a comparative advantage in dealing with SMEs agency problems in weak legal environments we should find increased use of factoring in French-civil-law countries.

Examination of table 1 seems to support our hypothesis, with firms in countries under French-civil-law being more likely to use factoring than firms in countries under German and Scandinavian-civil-law heritage. Table 1 reveals that the use of factoring is more common among SMEs operating in Spain, the Netherlands and France than among SMEs in Germany, Denmark and Austria.

². Cyprus, Estonia, Luxemburg and Malta are undefined and leave out of the analysis.

Therefore, it seems that legal origin indeed explains some of the observed differences in the use of factoring across European SMEs. However, we also find firms with a relatively high use of factoring in countries under German-civil-law such as Czech Republic and Slovenia, and firms with a reduced use of factoring in countries under French-civil-law, as in Lithuania and Portugal.

To shed additional light on the association between legal environment and the use of factoring, we take into account that the effective protection of creditors in a country depends on both the quality of law and the enforcement of law (or rule of law). The quality of law refers to the inclusion of regulations into commercial laws aimed at protecting the rights of creditors, while the enforcement of law is related to the strength of the legal system in enforcing contracts and applying the law. We measure a country's quality of law using the variable *creditor rights* that is computed as an index that ranges from 0 to 4. Lower values indicate softer laws which indicate poorer creditor rights protection (see La Porta et al., 1998). A close look at table 1 shows the existence of heterogeneity in creditor protection within legal origins in Europe, with countries under French-civil-law (Common-law) heritage giving better (worse) than expected protection to the rights of creditors. For example, the Netherlands, a French-civil-law country, scores 3 in creditor rights protection while Ireland, a Common-law country, achieves a value of 1. Across German and Scandinavian-civil-law countries we also observe large variations in creditor rights protection with values ranging from 1 in Poland and Sweden to 3 in Germany and Denmark.

We use two variables to account for differences in the enforcement of law across countries. The *enforce debt* variable measures the costs incurred by lenders during the resolution of disputes through court procedures for debt recovery divided by the debt value. Higher scores represent environments with weaker contract enforcement. The *political stability* variable measures the likelihood that a country's government is abolished by violent and unconstitutional actions. It ranges from -2.5 to +2.5, where higher values represent more political stability. As expected, table 1 shows that Scandinavian-civil-law countries have the most efficient enforcing mechanisms in terms of cheap enforcement of debt and political stability.

According to our hypothesis, we expect that the use of factoring is higher for firms in environments with weak and inefficient protection of creditors. Therefore, the signs on the coefficients of the variables *creditor rights* and *political stability* should be negative and for the *enforce debt* variable it should be positive.

Finally we control for the strength of the legal system introducing the variable *legal index* that measures the degree to which laws facilitate lending. It ranges from 0 to 10, with higher scores indicating that laws are better designed to expand access to financing. We could expect either a positive or a negative sign. Strong legal systems facilitate lending and reduce the need to sell accounts receivable. However, improved legal environments reduce the cost of collection activities and ease the transfer of ownership of accounts receivable from firms to the factors, triggering the use of factoring.

Institutional Environment Variables. In addition to the above considerations regarding the protection of creditors, there also could be other institutional factors that may help to explain the observed differences in the use of factoring across European countries.

For example, a sound and growing economy offers more investment opportunities to firms. These firms may use factoring to finance the enlargement of their business activities. We measure the growth of the economy with the variable *GDP growth*, which is computed as the increase in GDP in current prices in US dollars between 2002 and 2003. Evidence in previous literature shows that the size of the factoring industry is larger in countries with greater economic development and higher rates of growth (Klapper, 2006). Therefore, based on the above arguments and the existing evidence we should expect a positive association between the variable *GDP growth* and the likelihood of using factoring.

Banks may provide factoring as a complement to their financial services, thus the overall financial development may prompt the use of factoring. However, for firms operating in countries with a less developed banking sector factoring may arise as a substitute for bank financing. We

measure the development of the banking sector using the variable *private credit* which is calculated as claims on the private sector by the deposit money banks to GDP in 2003. According to the above arguments and the ambiguous evidence in the literature (Bakker et al., 2004), we can expect either a positive or negative sign on the *private credit* variable.

Formal information sharing mechanisms help to increase bank lending and reduce credit rationing (Jappelli and Pagano, 2001; Love and Mylenko, 2003), while factors also need business credit bureaus to obtain information about the obligors' accounts receivable in order to reduce the risk associated with default payments (Klapper, 2006). However, Bakker et al. (2004) mention that large factors may enjoy economies of scale in developing their own databases on account payment performance, allowing them to expand their services in countries with underdeveloped information infrastructures. Therefore, we can expect either a positive or a negative association between the availability of credit information and the use of factoring. As a proxy for the development of the information infrastructure in a country we include the variable *credit information*. This variable measures rules and practices affecting the coverage, scope and accessibility of credit information available through either a public credit registry or a private credit bureau in 2003. *Credit information* variable is computed as an index that ranges from 0 to 6, with higher values indicating the availability of more credit information to facilitate lending decision.

Firm-Specific Characteristics. Several firm-specific variables have been included to control for firm heterogeneity in our sample. Firstly, we control for the existence of differences in firm-level financial characteristics by creating the dummy variables *constrained*, *bank financing*, *working capital* and *family*. The variable *constrained* equals one when the firm states that an easier access to means of financing is required in order to assure its development, and zero otherwise. *Bank financing* equals one if the firm has used bank debt which include short and long-term loans and bank overdrafts, and zero otherwise. The variable *working capital* equals one if the firm had recently made a request for a loan of less than 25,000 Euros, or intended to do so within 6 months, to meet financing

needs in working capital and zero otherwise. Evidence provided by Summers and Wilson (2000) and Soufani (2002a), shows that firms experiencing financial constraints and using more bank debt are more likely to use factoring. Regarding family managed firms, differences in risk taking behavior and management sophistication may influence their financing decisions. Summers and Wilson (2000) find that firms which are owner-managed are more likely to factor their accounts receivables, whereas Poutziouris and Wang (2004) provide statistics that point out to a lower use of factoring among family companies compared to non-family companies. We define the dummy variable *family* that equals one when the firm is exclusively family-owned and zero otherwise. Therefore, we might expect a positive sign for the variables *constrained*, *bank financing*, and *working capital* and either a positive or negative sign for the dummy *family*.

We create three dummy variables to classify firms into micro, small or medium-sized in terms of the number of employees working in the firm.³ *Size1* takes on the value one when the firm has less than 10 employees and zero otherwise, *size2* is equal to one when the number of employees is between 10 and 49 and zero otherwise, and *size3* takes on the value one when the number of employees is between 50 and 249 and zero otherwise. According to Soufani (2001, 2002a) the smallest firms are not very attractive for factors since they cannot diversify the credit risk due to low levels of business activity. However, evidence provided by Summers and Wilson (2000) indicates that factoring is greater in small and growing firms because of the agency problems and credit rationing that those firms have to deal with. As for larger firms, Smith and Schnucker (1994) states that they may have economies of scale in managing their accounts receivable, which make them less likely to use factoring. Therefore, we might expect either a positive or negative association between the use of factoring and firm size.

We define three dummy variables to reflect the age of the firm. *Age1* takes on the value one when the firm has been in operation 2 years or less and zero otherwise, *age2* takes on the value one when the firm has been in operation between 2 and 10 years and zero otherwise, and *age3* takes on

³. We use the criteria of firm size defined by the European Union in the Commission Recommendation of 6th May 2003 (2003/361/CE).

the value one when the firm has been in operation more than 10 years and zero otherwise. The evidence provided by Soufani (2002a, 2002b) shows that older firms are less likely to use factoring because they might have a consolidate position in the market with stronger relationships with their bank(s). In addition to that, he also finds that younger firms have more difficulties to get bank financing because they do not have the assets required to collateralize a loan. Therefore, we expect that the likelihood of using factoring is higher for younger firms.

Using the classification given by the survey regarding the main activity of the companies, we define seven industry dummies. Each dummy variable takes on the value one when the firm belongs to one of the following sectors: extraction or production of raw materials, construction or civil engineering, production or manufacturing of goods, trade and distribution, transport, business services and, other services to consumers; and zero otherwise. Including the dummy variables allows us to control for the differences across industries in transparency and tangibility of assets (Berger and Black, 2011), or the existence of specialized investments and customized products lines (Smith and Schnucker, 1994). In the interest of brevity, the industry dummies are not shown in the tables and their results are not discussed.

Results

Descriptive and Univariate Statistics

According to our general prediction there should be a negative association between the use of factoring and the quality and the enforcement of creditor rights. Analysis of table 1 confirms this association in Spain and France for example, but in other countries such as Lithuania and Poland we observe the opposite relationship. In table 1, all these four countries have weak legal systems in terms of low creditor rights protection (ranging from 0 to 2) and high enforcement costs (between 0.141 and 0.087). However table 1 shows that the use of factoring is much more common for SMEs operating in Spain (54.86 percent) and France (33.56 percent) than in Lithuania (8.16 percent) and Poland (9.12 percent).

This suggests that other institutional factors, besides the legal environment, might influence the demand and the supply of factoring. For example, in table 4 we observe that Lithuania has one of the worst information infrastructures (3), Poland has the lowest GDP growth (0.094), and both countries have the smallest banking systems in our sample (0.18 and 0.27 respectively). Therefore, firms operating in underdeveloped economies might have a reduced use of factoring despite having a weak legal environment.

Next in table 5, we look at the use of factoring by firm specific characteristics ranked in descending order. Panel A, shows that the largest firms in our sample (the medium-sized group) have the highest use of factoring (27.17 percent), while in panel B we find that firms operating in the production and the trade industry (26.39 percent and 22.63 percent respectively) are the most dependable on factoring financing. This confirms that we also need to control for firm heterogeneity in our sample when analyzing differences in the use of factoring across countries.

Regression Analyses

In table 6, model 1, we first analyze the existence of cross-country differences in the use of factoring by regressing the variable factoring on the four legal origin dummies and the firm-specific control variables.⁴ We leave out the dummy for English-common-law which we use as our base category. Our results indicate that the likelihood of using factoring is the lowest for firms in Scandinavian-civil-law (10.19 percent) and German-civil-law countries (12.27 percent), and the highest for firms in French-civil-law countries (30.80 percent), with firms in English-common-law countries (23.36 percent) being in the middle.⁵ The coefficients on the legal origin dummies are significant at the one and five percent levels. These results confirm our expectation that SMEs in

⁴ When analyzing the dummy variables, the base category is always the group of firms whose average use of factoring is the closest to the sample average: firms under English-common-law for the legal origin dummies, the small firms for the size dummies, the oldest firms for the age dummies, and the extraction industry for the industry dummies.

⁵ When computing the likelihood of using factoring for each legal origin, the remaining variables are set equal to their average.

countries with poor protection of creditor rights are more likely to use factoring, probably as a way to complement reduced availability of bank financing.

Regarding to firm-specific control variables, table 6, model 1 shows a negative sign for the coefficient of the variable *size1*, indicating that the likelihood of using factoring is the lowest for micro firms. This result confirms the argument in Soufani (2001, 2002a) indicating that the smallest firms are not very attractive for factors since they cannot diversify the credit risk due to low levels of business activity. Our results also show that financially constrained SMEs are more likely to use factoring. The coefficient of the variable *constrained* is positive and statistically significant at the 1 percent level.

Now that we have established the existence of cross-country differences in the use of factoring, we drop the legal origin variables and include our set of legal environment variables (table 6, model 2). Consistent with our expectations, we find a negative sign on the coefficients of the variables *creditor rights* and *political stability*, and a positive coefficient for *enforce debt*. As we predicted, the likelihood of using factoring increases with weaker protection of creditor rights. The variable legal index presents a positive sign. This indicates that better legal systems facilitates the transfer of ownership of accounts receivables and reduce the cost of collection activities, promoting the use of factoring. If we reduce the overall efficiency of legal system by moving the four legal environment variables one standard deviation away from their mean, the likelihood of using factoring of an average firm increases from 18.39 percent to 33.20 percent.

In model 3, we add our set of institutional variables to assess the influence on the use of factoring. The variable *GDP growth* is significant at the one percent level, and positively associated with the use of factoring. This result confirms the argument in Klapper (2006) that the use of factoring increases in economies with high growth rates. The positive and statistically significant coefficient of the variable *private credit* shows that the likelihood of using factoring is higher in economies with larger banking sectors. Therefore, factoring seems to be offered by banks as a complement to their

other existing financial services. Regarding the legal environment variables, results remain qualitative the same.

Since the variable *creditor rights* might have a non-linear effect on the use of factoring, in model 4, we substitute it by five dummy variables, (*creditor rights*_{0, 1, 2, 3, 4}). Each dummy takes on the value one if the firm belongs to one of the five levels of creditor rights protection granted by the legal systems in our sample and zero otherwise. We leave out *creditor rights*₄ as our base category, which represents the group of firms operating in the countries with the highest quality of law. Results show a positive and significant sign for the coefficient of the variables *creditor rights*₀ and *creditor rights*₃. This is in line with our previous result and confirms that the likelihood of using factoring increases for firms operating in countries with weaker protection of creditor rights.

In models 5 and 6, we add the variables *bank financing* and *working capital* to control for differences in the use of bank debt and the demand of working capital financing respectively across firms in our sample. We obtain a positive coefficient on both variables, which are statistically significant at the 1 percent. This indicates that firms using bank financing are also more likely to factor their accounts receivable. Therefore, factoring and bank debt seem to be complementary sources of financing. After including the variable bank financing in model 5, the dummy variable *family* becomes statistically significant at the 10 percent level. Its negative coefficient indicates that firms which are exclusively family-owned are less likely to use factoring.

Summary and Conclusion

Following the contractual view of the firm in Jensen and Meckling (1976), corporate finance sees the protection of the rights of financiers as essential to mitigating agency problems in SME financing and assuring the flow of capital. However, the financial literature states that not all financial contracts are equally affected by the inefficiencies in the legal system and, therefore, where some investors step back others might be willing to offer financing. Factors, for example, are less affected by SME agency problems and information asymmetries and less dependent on the quality of law and

institutions to protect their rights against management expropriation. Therefore, the hypothesis we test in this paper is whether SMEs operating in countries with poor laws and soft enforcement mechanisms are more likely to use factoring. We do so using a sample of 4348 firms from 25 European countries and analyzing whether the use of factoring by SMEs differs across countries due to differences in the legal protection of creditors. To the best of our knowledge we are the first paper to analyze the effects of legal and institutional characteristics on the use of factoring for a sample of small and medium-sized enterprises.

Our results show that country-specific factors have an influence on the use of factoring by SMEs. An important finding is that the country's legal origin is a key element, with those firms operating in French-civil-law countries having the highest likelihood of using factoring. This suggests that factoring is more likely to be used in weaker legal environments where creditors are not effectively protected. More specifically, we find that firms in countries with low protection of creditor rights, political instability and high enforcement costs are more likely to use factoring. One explanation is that in such environments bank financing could be more restricted and factoring might be a complementary source of financing for SMEs. We also provide insight into the institutional factors that could foster the use of factoring by SMEs. We find that firms operating in growing economies are more likely to use factoring.

Although some progress has been made on security interests, in some European countries there is still room for improvement in key areas such as the scope of the assets that can be secured, registration and filing, priority, and enforcement. For example, in 2003 the European Bank for Reconstruction and Development (EBRD) launched the New Legal Indicator Survey, which focuses on secured transactions in EU 8 transition economies.⁶ The survey shows that there has been considerable progress in bringing commercial laws on secured transactions up to international standards. The problems arise when security has to be granted over movable property such as receivables and inventory due to the requirement for specific descriptions of each asset included as

⁶ The surveyed countries are: Czech Republic, Slovak Republic, Estonia, Hungary, Latvia, Lithuania, Poland and Slovenia.

collateral. These restrictions hamper the use of financing techniques that involve granting security over groups of assets.

However, having a strong commercial law, lien registration, and bankruptcy law will have a limited effect on credit availability if they are not correctly enforced. A recent EBRD report assessing bankruptcy laws in transition economies gave the Czech Republic and three of the other EU 8 a “medium” rating (EBRD, 2003b). Three of the remaining EU 8 received a “low” rating (Hungary, Latvia, Slovenia) and one (Lithuania) was considered “very low”. These issues are not unique to European transition economies, since developed EU countries also have shortcomings in enforcement mechanism. For example, the World Bank reported in 2003 that the cost to enforce a contract (as a percentage of per capita income) is 5.9 in the EU 15 compared to 0.5 in the United States. Such weaknesses influence not only the resolution of bankruptcies and the enforcement of loan contracts but also the construction of contracts, which affects the choice of lending technologies.

The evidence presented in this paper has clear implications for firms, financial institutions, and policy makers. Financial institutions have a responsibility and financial interest in facilitating the flow of capital to borrowers (including small and medium-sized enterprises). Our results make it possible to see that the feasibility with which different financing technologies may be deployed in a country and, therefore, the provision of funds, depends on country-specific characteristics. Low quality of laws and institutions reduces the protection of creditor rights and intensifies agency problems in SME financing, inhibiting the optimal provision of financing necessary to grow and innovate. Owners of riskier and opaque companies who seek loans can use the results of this study to better understand that there are suitable options to complement bank credits. Owners can use the results to diversify their capital structure through the use of factoring. The flow of capital from providers to users of capital is required for a healthy and dynamic economy. Given that the European financial system is largely dominated by banks, which are currently failing to provide the loans required by SMEs, it is important that policymakers take our results into account when revising policies concerning access to external financing.

Future research could examine the direct relationship between factoring and bank financing and whether that association depends on the country where the firm operates. Researchers could also extend the empirical analyses in this paper to other alternative sources of financing such as leasing.

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Table 1
Overview of the Use of Factoring and the legal variables by country

Country	Factoring (%)	Legal origin	Enforce debt	Political stability	Creditor rights	Legal index	N
Spain	54.86	French	0.141	-0.04	2	5	288
The Netherlands	43.52	French	0.17	1.14	3	9	193
France	33.56	French	0.117	0.18	0	3	292
Czech Republic	32.18	German	0.096	0.85	3	6	202
Luxembourg	31.58			1.44			95
Estonia	29		0.106	0.86			100
Cyprus	27.38			0.47			84
Slovenia	25.22	German	0.163	1.15	3	6	115
Italy	23.91	French	0.176	0.41	2	3	297
Ireland	22.45	English	0.211	1.33	1	8	98
United Kingdom	20.28	English	0.157	0.25	4	10	286
Malta	20			1.54			75
Slovakia	18.69	German	0.15	0.91	2	9	107
Greece	16.49	French	0.127	0.47	1	1	97
Belgium	14.51	French	0.062	0.84	2	7	193
Sweden	11.79	Scandinavian	0.059	1.32	1	6	229
Portugal	11.22	French	0.175	1.27	1	5	98
Latvia	10.43	German	0.11	0.97	3	8	115
Finland	10.13	Scandinavian	0.072	1.66	1	6	79
Hungary	9.59	German	0.081	1.11	1	5	219
Poland	9.12	German	0.087	0.54	1	2	318
Lithuania	8.16	French	0.141	1.01	2	4	98
Austria	7.53	German	0.098	0.95	3	5	186
Denmark	7.22	Scandinavian	0.066	1.17	3	7	194
Germany	6.55	German	0.105	0.55	3	8	290
Total	20.91						4348

This table reports the means for the use of factoring and the legal variables by country. Definitions and sources of the variables are provided in table 2.

Table 2
Variables, Descriptions and Data Sources

Variable name	Description and Source
<i>Dependent variable:</i>	
Factoring ^a	An indicator of the use of factoring by firms measured as a dummy variable that takes on the value one when the firm uses factoring and zero otherwise.
<i>Country and industry dummies:</i>	
Industry dummies ^a	An industry classification of the firm obtained from the answer to the survey question: What is the main activity of your company?, which we use to define seven industry dummies. Each variable takes on the value one if the firm belongs to one of the following sectors: extraction or production of raw materials, construction or civil engineering, production and manufacturing of goods, trade and distribution, transport, business services and, other services to consumers; and zero otherwise.
<i>Legal environment variables:</i>	
Legal origin ^b	Four legal origin dummies indicating the legal origin of each country. Each variable takes on the value one if the country belongs to one of the following legal origins: English-common-law, French-civil-law, German-civil-law or Scandinavian-civil-law; and zero otherwise.
Creditor rights ^b	An indicator of the protection of creditor rights measured in 2003. This index is composed by four levels being the number 4 the highest protection of creditor rights. It is calculated by adding 1 for each of the following conditions: (i) the country imposes restrictions, such as creditor's consent or minimum dividends, to file for reorganization; (ii) secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay); (iii) the debtor does not retain the administration of its property pending the resolution of the reorganization; (iv) secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm. We also use this indicator to create 5 dummy variables: creditor rights0, 1, 2, 3 and 4. Each dummy variable takes on the value one if the firm belongs to one of the five levels of creditor rights protection granted by the legal systems in our sample and zero otherwise.
Enforce debt ^c	Enforce debt variable measures the official costs of going through court procedures for debt recovery divided by the debt value in 2003.
Political stability ^d	Political stability and absence of violence measures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism in 2003. This variable is computed as an index that ranges from -2.5 (for very poor performance) to +2.5 (for excellent performance).
Legal index ^c	Legal index measures the degree to which collateral and bankruptcy laws facilitate lending in 2003. It is based on data collected through research of collateral and insolvency laws supported by the responses to the survey on secured transactions laws. It includes 3 aspects related to legal rights in bankruptcy, and 7 aspects found in collateral law. The index ranges from 0 to 10, with higher scores indicating that collateral and bankruptcy laws are better designed to expand access to credit.

Institutional environment variables:

GDP growth ^e	Ratio of growth of GDP expressed in current prices in U.S. dollars in the period 2002-2003.
Private credit ^f	A measure of the financial intermediary development, calculated as claims on the private sector by the deposit money banks to GDP in 2003.
Credit information ^c	Credit information variable measures rules and practices affecting the coverage, scope and accessibility of credit information available through either a public credit registry or a private credit bureau in 2003. This variable is computed as an index that ranges from 0 to 6, with higher values indicating the availability of more credit information.
<i>Firm-specific variables:</i>	
Bank financing ^a	A measure of the firm's access to bank financing, which we proxy defining the dummy variable bank financing that equals one when the firm has used either overdraft, a loan shorter than a 3-year term or a loan longer than a 3-year term, and zero otherwise.
Constrained ^a	A measure of the existence of financial constraints in the firm, which we proxy creating the dummy variable constrained that equals one when the firm needs easier access to financing in order to assure its development and zero otherwise.
Working capital ^a	A measure of the existence of working capital financing needs in the firm. We first start with the following question: "Have you recently made a request for a loan of less than 25,000€ for your company's activity?" If the answer is "Yes" or "No, but you intend doing so within the next 6 months", then we turn to the next question: "What kind of needs could this loan of less than €25,000 meet?" If the answer to this question is "Financing of working capital", then we give a value of 1 to our dummy variable working capital, and zero otherwise.
Family ^a	An indicator of the firm ownership which we use to define the dummy variable family that equals one when the company is exclusively family-owned and zero otherwise.
Size ^a	An indicator of the firm size which we use to define three dummy variables following the European Commission Recommendation of 6th May 2003 (2003/361/CE): size1 takes on the value 1 when the firm has less than 10 employees and zero otherwise, size2 takes on the value one when the number of employees is between 10 and 49 and zero otherwise, and size3 takes on the value one when the number of employees is between 50 and 249 and zero otherwise.
Age ^a	A measure of the number of years that the firm has been in operation, which we use to define three dummy variables: age1 takes on the value one when the firm has been in operation 2 years or less and zero otherwise, age2 takes on the value one when the firm has been in operation between 2 and 10 years and zero otherwise, and age3 takes on the value one when the firm has been in operation more than 10 years and zero otherwise.

Data sources:

^a Survey on SMEs Access to Finance carried out by the European Commission between 2005 and 2006.

^b Djankov et al. (2007).

^c Doing Business Indicators 2005.

^d The Worldwide Governance Indicators (WGI) project financed by the World Bank: (<http://info.worldbank.org/governance/wgi/index.aspx#home>).

^e United Nations Statistics Division.

^f The Financial Development and Structure dataset (<http://go.worldbank.org/JC243H0MO0>).

Table 3
Correlations

	Factoring	Enforce debt	Legal index	Political stability	Creditor rights	GDP growth	Private credit	Credit information	Bank financing	Family	Size	Age	Constrained
Enforce debt	0.175***												
Legal index	-0.007	0.124***											
Political stability	-0.182***	-0.278***	0.274***										
Creditor rights	-0.004	0.199***	0.063***	0.014									
GDP growth	0.106***	0.252***	0.090***	0.144***	-0.123***								
Private credit	0.078***	0.239***	0.476***	-0.090***	0.351***	0.021							
Credit information	0.076***	0.263***	0.184***	-0.425***	0.430***	-0.314***	0.334***						
Bank financing	0.132***	0.002	0.022	-0.061***	0.044***	-0.027	0.136***	0.082***					
Family	-0.033*	0.030*	0.042**	-0.050***	0.057***	0.010	0.155***	0.065***	0.039**				
Size	0.102***	0.000	-0.015	0.014	-0.001	-0.028*	-0.071***	-0.013	0.123***	-0.290***			
Age	0.017	0.028*	-0.025	-0.176***	0.065***	-0.144***	0.052***	0.116***	0.111***	0.069***	0.112***		
Constrained	0.008	-0.010	-0.022	0.016	-0.008	-0.043**	-0.104***	-0.005	0.061***	-0.018	-0.042**	-0.055***	
Working capital	0.039**	0.031*	-0.005	0.021	0.004	0.006	-0.068***	-0.013	0.069***	0.019	-0.064***	-0.054***	0.114***

*, **, *** denote significance at the levels of 10 percent, 5 percent and 1 percent, respectively

Table 4
Country-specific and firm-specific characteristics

Country	Bank financing	Constrained	Working capital	Family	Size	Age	Private credit	GDP growth	Credit information
Belgium	0.820	0.063	0.026	0.751	1.538	2.933	0.730	0.233	6
Denmark	0.901	0.096	0.005	0.720	1.540	2.731	1.470	0.223	3
Germany	0.875	0.192	0.048	0.682	1.562	2.880	1.150	0.208	6
Greece	0.646	0.063	0.062	0.657	1.606	2.520	0.590	0.320	4
Spain	0.708	0.134	0.048	0.653	1.560	2.526	1.050	0.288	6
France	0.814	0.073	0.010	0.721	1.537	2.916	0.850	0.234	3
Ireland	0.879	0.167	0.072	0.714	1.747	2.838	1.080	0.290	5
Italy	0.773	0.205	0.034	0.661	1.569	2.554	0.800	0.236	6
Luxembourg	0.722	0.176	0.052	0.677	1.567	2.485	0.990	0.291	
The Netherlands	0.738	0.103	0.015	0.688	1.548	2.421	1.440	0.229	5
Austria	0.862	0.119	0.026	0.811	1.587	2.862	1.040	0.224	5
Portugal	0.616	0.084	0.134	0.646	1.535	2.361	1.380	0.224	5
Finland	0.633	0.080	0.000	0.641	1.582	2.911	0.600	0.215	4
Sweden	0.642	0.162	0.048	0.577	1.534	1.633	0.990	0.254	4
United Kingdom	0.684	0.116	0.067	0.767	1.555	2.676	1.360	0.159	6
Cyprus	0.865	0.114	0.081	0.854	1.629	2.697	1.590	0.260	
Czech Republic	0.696	0.152	0.054	0.522	1.754	2.626	0.290	0.215	5
Estonia	0.563	0.122	0.029	0.320	1.670	2.476	0.450	0.344	5
Hungary	0.573	0.260	0.090	0.545	1.649	2.419	0.370	0.258	3
Latvia	0.521	0.284	0.078	0.462	1.692	2.316	0.340	0.208	4
Lithuania	0.510	0.137	0.174	0.536	1.694	2.204	0.180	0.313	3
Malta	0.864	0.109	0.099	0.767	1.631	2.716	1.030	0.192	
Poland	0.685	0.257	0.080	0.480	1.780	2.646	0.270	0.094	5
Slovakia	0.607	0.240	0.065	0.396	1.729	2.224	0.340	0.360	3
Slovenia	0.750	0.189	0.106	0.647	1.629	2.690	0.400	0.260	3

Table 5
Overview of the Use of Factoring by Firm Size and Industry

Panel A		
Use of factoring by firm size		
Number Employees	Observations	Factoring (%)
0-9	2388	17.55
10-49	1257	23.79
50-249	703	27.17
Total	4348	20.91
Panel B		
Use of factoring by industry		
Industry	Observations	Factoring (%)
Production	830	26.39
Trade	1485	22.63
Extraction	71	21.13
Construction	530	20.57
Services to consumers	660	16.67
Services business	583	16.64
Transport	189	12.17
Total	4348	20.91

Table 6
Logistic Regressions of Use of Factoring on Country and Firm-Level Variables

	Logit (1)	Logit (2)	Logit (3)	Logit (4)	Logit (5)	Logit (6)
Constant	-1.2739*** (0.3831)	-1.8533*** (0.3952)	-2.6923*** (0.4957)	-4.3304*** (0.6829)	-3.2932*** (0.5070)	-2.6798*** (0.4988)
<i>Legal origin dummies:</i>						
French-civil-law	0.3786** (0.1513)					
German-civil-law	-0.7793*** (0.1597)					
Scandinavian-civil-law	-0.9885*** (0.2124)					
<i>Legal environment:</i>						
Enforce debt		9.0458*** (1.1595)	6.6238*** (1.2786)	7.1933*** (1.4004)	7.0884*** (1.2830)	6.6070*** (1.2915)
Legal index		0.1038*** (0.0262)	0.0609** (0.0293)	0.0678** (0.0343)	0.0653** (0.0294)	0.0545* (0.0295)
Political stability		-1.0321*** (0.1082)	-1.0216*** (0.1186)	-0.8227*** (0.2120)	-1.0393*** (0.1201)	-1.0284*** (0.1194)
Creditor rights		-0.2153*** (0.0572)	-0.1200* (0.0657)		-0.1101* (0.0656)	-0.1219* (0.0662)
Creditor rights0				1.3886*** (0.3491)		
Creditor rights1				0.4524 (0.3731)		
Creditor rights2				0.4705 (0.3531)		
Creditor rights3				0.5674* (0.2934)		
<i>Institutional environment</i>						
GDP growth			4.0784*** (0.8955)	4.4086*** (1.5121)	4.1530*** (0.9079)	4.0752*** (0.9002)
Private credit			0.2883** (0.1454)	0.1111 (0.1672)	0.1902 (0.1471)	0.3195** (0.1471)
Credit information			-0.0067 (0.0500)	0.1309 (0.0863)	-0.0125 (0.0498)	-0.0044 (0.0504)
<i>Firm characteristics:</i>						
Bank lending					0.7696*** (0.1145)	
Working capital						0.5426*** (0.1771)
Family	-0.1475 (0.0930)	-0.1212 (0.0928)	-0.1379 (0.0940)	-0.1484 (0.0945)	-0.1679* (0.0949)	-0.1350 (0.0947)

Constrained	0.2840** (0.1168)	0.1758 (0.1159)	0.2191* (0.1174)	0.2274* (0.1183)	0.1321 (0.1189)	0.1816 (0.1198)
Size1	-0.5806*** (0.1246)	-0.4570*** (0.0997)	-0.4784*** (0.1005)	-0.4923*** (0.1009)	-0.4166*** (0.1016)	-0.5108*** (0.1016)
Size3	0.0890 (0.1242)	0.1175 (0.1247)	0.1162 (0.1253)	0.1183 (0.1257)	0.1036 (0.1262)	0.1325 (0.1261)
Age1	-0.0408 (0.1967)	-0.0417 (0.1940)	-0.1188 (0.1947)	0.0310 (0.1995)	-0.0007 (0.1969)	-0.1200 (0.1959)
Age2	0.0802 (0.0961)	0.1530 (0.0974)	0.1260 (0.0987)	0.1940* (0.1014)	0.1381 (0.0998)	0.1289 (0.0998)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of firms	3655	3655	3655	3655	3650	3588
Pseudo-R ²	0.0692	0.0755	0.0821	0.0874	0.0959	0.0865

The dependent variable is Factoring. All regressions include industry effects. Definitions and sources of the variables are provided in table 2.

*, **, *** denote significance at the levels of 10 percent, 5 percent and 1 percent, respectively and the standard errors are in brackets.