

Maes, Elisabeth; Dewaelheyns, Nico; Fuss, Catherine; Van Hulle, Cynthia

Working Paper

The impact of exporting on SME capital structure and debt maturity choices

NBB Working Paper, No. 311

Provided in Cooperation with:

National Bank of Belgium, Brussels

Suggested Citation: Maes, Elisabeth; Dewaelheyns, Nico; Fuss, Catherine; Van Hulle, Cynthia (2016) : The impact of exporting on SME capital structure and debt maturity choices, NBB Working Paper, No. 311, National Bank of Belgium, Brussels

This Version is available at:

<https://hdl.handle.net/10419/173767>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

The impact of exporting on SME capital structure and debt maturity choices



by Elisabeth Maes, Nico Dewaelheyns, Catherine Fuss
and Cynthia Van Hulle

October 2016 No 311

Editor

Jan Smets, Governor of the National Bank of Belgium

Statement of purpose:

The purpose of these working papers is to promote the circulation of research results (Research Series) and analytical studies (Documents Series) made within the National Bank of Belgium or presented by external economists in seminars, conferences and conventions organised by the Bank. The aim is therefore to provide a platform for discussion. The opinions expressed are strictly those of the authors and do not necessarily reflect the views of the National Bank of Belgium.

Orders

For orders and information on subscriptions and reductions: National Bank of Belgium,
Documentation - Publications service, boulevard de Berlaimont 14, 1000 Brussels

Tel +32 2 221 20 33 - Fax +32 2 21 30 42

The Working Papers are available on the website of the Bank: <http://www.nbb.be>

© National Bank of Belgium, Brussels

All rights reserved.

Reproduction for educational and non-commercial purposes is permitted provided that the source is acknowledged.

ISSN: 1375-680X (print)

ISSN: 1784-2476 (online)

Abstract

Using a longitudinal dataset comprising of detailed financial and exporting data from Belgian small and medium-sized enterprises (SME) between 1998 and 2013, this article examines the manner in which firms manage to finance their export activities and the resulting impact on corporate capital structure. We find that exporters have to finance relatively more working capital as compared to their non-exporting peers and that they resolve this financing need by carrying more short-term debt. In addition, we evidence that the relationship between pledgeable short-term assets, such as working capital, and short-term debt financing is more pronounced for exporters. In particular, we show that the ties between pledgeable short-term assets and short-term debt financing are stronger for export-intensive firms and firms that serve distant and risky export destinations. Overall, what our empirical findings seem to suggest is that developing tools that facilitate the pledging of assets is likely to boost SME export activities by widening access to bank financing and reducing financial constraints.

JEL classification: F10, F14, F42, G3, G32

Keywords: SMEs, capital structure, debt maturity, export, collateral, working capital

Authors

Corresponding author:

Elisabeth Maes, KULeuven, Faculty of Economics and Business, Department of Accountancy, Finance and Insurance, Naamsestraat 69, 3000 Leuven, Belgium; e-mail: elisabeth.maes@kuleuven.be; phone: +32 16 372116; fax: +32 16 326683.

Nico Dewaelheyns, KULeuven, Faculty of Economics and Business, Department of Financial Management, Korte Nieuwstraat 33, 2000 Antwerp, Belgium; e-mail: nico.dewaelheyns@kuleuven.be; phone: +32 16 326766; fax: +32 16 326683.

Catherine Fuss, Economics and Research Department, National Bank of Belgium, Berlaimontlaan 14, 1000 Brussels, Belgium; e-mail: catherine.fuss@nbb.be; phone +32 2 2214025; fax: +32 2 2213162, and Université Libre de Bruxelles.

Cynthia Van Hulle, KULeuven, Faculty of Economics and Business, Department of Accountancy, Finance and Insurance, Naamsestraat 69, 3000 Leuven, Belgium; e-mail: cynthia.vanhulle@kuleuven.be; phone: +32 16 326764; fax: +32 16 326683.

Acknowledgements

We received helpful comments and suggestions from seminar participants at the National Bank of Belgium and at KULeuven, participants of the 2015 Corporate Finance Day in Ghent, the 2016 3L Finance Research Workshop in Brussels, the 2016 FMA European Conference in Helsinki and the 2016 Annual Conference of the Multinational Finance Society in Stockholm. The authors thank the National Bank of Belgium for granting access to the foreign trade database and the annual accounts database from the Central Balance Sheet Office. Further, we thank the Hercules Foundation (Project No. AKUL/11/02) for the financing provided to purchase the Bel-First and Datastream databases used in this paper to gather additional information.

The views expressed in this paper are those of the authors and do not necessarily reflect the views of the National Bank of Belgium or any other institution to which the authors are affiliated. All remaining errors are our own.

TABLE OF CONTENTS

1.	Introduction	1
2.	Multinational corporate financing decisions	3
3.	Financing of SME export activities.....	4
4.	Sample selection and variables definition	7
4.1.	Sample selection.....	7
4.2.	Variables.....	8
4.2.1.	Dependent variables	8
4.2.2.	Test variables.....	8
4.2.3.	Control variables	10
5.	Descriptive statistics and univariate tests.....	11
6.	Multivariate results	12
7.	Robustness checks.....	15
8.	Natural experiments.....	16
8.1.	Export entry	16
8.2.	Shocks in political risk	18
9.	Conclusions	19
	References	20
	Appendix	25
	Tables and Figure.....	28
	National Bank of Belgium - Working papers series	37

1 Introduction

Over the past decades, considerable effort has been devoted to enhancing our understanding of the complexity of corporate financing decisions. So far, studies on corporate capital structure and debt maturity choice have mainly focused on firm characteristics and industry determinants (Titman and Wessels, 1988; Rajan and Zingales, 1995; De Jong et al., 2008; Degryse et al., 2012), and on the influence of national culture, legislation and other country characteristics (Demirgüç-Kunt and Maksimovic, 1999; Hall et al., 2004; Qian and Strahan, 2007; Liberti and Mian, 2010; Fan et al., 2012; Zheng et al., 2012). Studies investigating the relationship between internationalization and corporate financing policy, however, are much more limited; in addition, the vast majority of the available empirical evidence is confined to large, stock exchange quoted firms. One of the main insights of this literature is that multinational corporations (MNCs) have lower long-term debt ratios and higher short-term debt ratios than comparable domestic corporations (DCs) (Fatemi, 1988; Lee and Kwok, 1988; Burgman, 1996; Chen et al., 1997; Kwok and Reeb, 2000; Doukas and Pantzalis, 2003). This leverage differential between MNCs and DCs is explained by the fact that the positive effect of geographic diversification on long-term debt financing is offset by increased risk, stemming from exchange rate exposure and unforeseen political events. Furthermore, due to their operational complexity, MNCs are more informationally opaque, which increases agency costs of debt. To mitigate the problems associated with a riskier borrower profile and agency conflicts, external creditors shorten loan maturities (Myers, 1977; Barnea et al., 1980; Barclay and Smith, 1995; Ortiz-Molina and Penas, 2008). Building on these studies, the aim of this article is to advance the current literature by empirically investigating the impact of exporting on the corporate financing decisions of small and medium-sized enterprises (SMEs). Since SMEs cannot easily substitute short-term and long-term debt financing¹, the mechanism through which export activities affect SME financing policy may be different from what is evidenced in the MNC literature. According to the World Trade Organization (WTO), access to financial resources to support export activities is a key concern for SMEs since, besides one-time upfront sunk costs (e.g. costs related to compliance with foreign market regulations and preparatory market research), exporting requires substantial ongoing investment in working capital as export activities lengthen the cash conversion cycle considerably (e.g. through longer shipment periods and the administrative burden associated with trading internationally) (WTO, 2016). Hence, understanding how exporting SMEs cope with these financing needs and how this affects their capital structure may yield useful insights for exporters, banks and policy makers.

This article contributes to existing research in three ways. *First*, this study is the first to investigate in depth the relationship between internationalization and corporate financial decision-making in a setting of SMEs. In spite of the importance of private, smaller-sized businesses to economic growth and development², the extant literature on internationalization and financing policy is confined to large, traded firms. This lack of research on private SMEs is largely attributable to limitations in the availability of data on

¹SMEs largely depend on short-term debt to finance their operations due to difficulties in obtaining long-term debt financing from financial institutions. To mitigate problems associated with borrower risk and information problems, which are typically more severe in small business lending, external creditors shorten loan maturities (Ortiz-Molina and Penas, 2008).

²In Belgium, SMEs account for approximately two thirds of total employment and 57.6% of value added (European Commission, 2013 SBA Fact Sheet); numbers which are in line with the European Union's average.

import and export flows at the firm-level. This study, however, draws on a large-scale database comprising detailed information on the international trading behavior of Belgian firms, including SMEs. In particular, the foreign trade database of the National Bank of Belgium (NBB) records both export and import flows by country of destination and origin of Belgian firms.³ The international trade data is consequently merged with key financial and ownership information from the corporate annual accounts database of the Central Balance Sheet Office of the NBB. Under Belgian Accounting Law, both large publicly quoted corporations and small unlisted firms are required to publish detailed financial statements, ensuring a wide coverage of this database. *Second*, since our dataset consists of SMEs that, because of their size, confine their international activity to exporting (importing) activities and, contrary to large firms, do not (or only limitedly) engage in foreign direct investment (FDI) activities, our sample avoids problems created by the interaction between FDI, international trade and corporate financing decisions. *Third*, this study sheds light on the mechanisms that SMEs use to access financing for their export activities. Since smaller-sized private firms and large traded firms differ substantially with respect to their banking relationships and access to financing, the available empirical evidence on MNC financing policy may not be generalizable to an SME setting.

Based upon a large longitudinal dataset consisting of firm-level information on the international trading behavior of Belgian SMEs, we show that exporters have significantly higher financial leverage than comparable non-exporting firms, which stems from a higher use of short-term debt financing by exporting firms. As such, contrary to the literature on the corporate financing decisions of large multinationals, we find no evidence in support of a trade-off mechanism between debt maturities in a setting of exporting SMEs. In addition, we show that the linkage between short-term assets (i.e. working capital) and short-term debt is tighter for exporting firms. Since the challenges and opportunities associated with exporting vary considerably across export destinations, we also explore how export (destination) characteristics, such as political risk, exchange exposure, and cultural and geographic distance, affect SME financing policy. We show that the positive association between short-term assets and short-term debt is prevalent for firms that show high export commitment and that serve distant and risky export destinations. Our findings may contribute to explaining for the trade collapses during credit crunches, documented in the literature, to which exporting SMEs seem especially vulnerable (Ahn et al., 2011; Amiti and Weinstein, 2011; Bricongne et al., 2012; Chor and Manova, 2012; Manova et al., 2015; Paravisini et al., 2015). They also suggest that developing tools that facilitate the pledging of assets for short-term credit and/or facilitate the use of such instruments is likely to considerably help exporting SMEs in acquiring the necessary financing for their export activities.

The remainder of this paper is organized as follows: the next section provides a comprehensive overview of the current literature on the effects of internationalization on (large firm) financial decision-making. Section 3 evaluates to what extent these insights may carry over to exporting SMEs. For this purpose, we introduce the linkage between corporate leverage and export activities. Section 4 describes the sample selection process, followed by the provision of descriptive statistics and univariate tests in Section 5. Section

³Considering its position as a gateway to Europe and to the rest of the world, Belgium represents an interesting research setting as about 85% of Belgian GDP originates from the exports of goods and services (Belgian Foreign Trade Agency, 2015).

6 and 7 comprise of the results of the multivariate tests and robustness checks, respectively. In Section 8, we supplement our analysis with two natural experiments. While controlling for the self-selection of firms into export markets, we examine whether export entry affects SME financing policy. In addition, we look at how an exogenous shock in political risk affects the financing policy of exporting SMEs. Finally, Section 9 offers concluding remarks and directions for future research.

2 Multinational corporate financing decisions

As the literature on multinationality and capital structure is confined to large, stock exchange quoted firms, we first provide an overview of the available empirical evidence for this type of firm. In the next section, we evaluate to what extent these insights carry over to exporting SMEs, while taking into account the specific nature of SMEs and the risks and opportunities associated with international trade.

Within the realm of static trade-off theory, a significant body of research has examined the impact of internationalization on the capital structure of large listed firms, and the factors that may explain the capital structure differential between domestic corporations (DCs) and multinational corporations (MNCs). A number of arguments suggest that MNCs must carry more leverage than DCs. *First*, multinationals are supposed to support more (long-term) leverage than domestic firms because of the benefits of international diversification. Expanding into non-perfectly positively correlated markets increases cash flow stability and thus reduces bankruptcy risk (Hirsch and Lev, 1971; Rugman, 1976; Shapiro, 1978). *Second*, the mere act of conducting international activities may signal borrower quality to external financiers, as only the most productive firms are able to overcome the hurdles associated with internationalization (Bernard and Jensen, 1999; Greenaway et al., 2007). *Third*, because of their multi-country operations, multinationals can more easily tap international bond markets than their domestically oriented peers, resulting in higher MNC leverage (Doukas and Pantzalis, 2003; Reeb et al., 2001; Mittoo and Zhang, 2008). *Fourth*, due to their operational complexity, MNCs might face difficulties in monitoring local management. Since debt repayments could help mitigate agency conflicts between managers and shareholders (Jensen, 1986), MNC leverage might be higher. *Finally*, in order to hedge exposure to currency and political risk, MNCs may decide to raise foreign currency-denominated debt at the affiliate level, leading to higher worldwide (long-term) debt ratios for the multinational firm (Burgman, 1996; Desai et al., 2004, 2008).

Empirical evidence, however, shows that MNCs have lower long-term debt ratios than comparable DCs (Fatemi, 1988; Lee and Kwok, 1988; Burgman, 1996; Chen et al., 1997; Doukas and Pantzalis, 2003; Singh and Nejadmalayeri, 2004; Aggarwal and Kyaw, 2010). In addition, Fatemi (1988) and Doukas and Pantzalis (2003) find that MNCs exhibit higher short-term debt ratios than DCs. The prevailing reasoning is that MNCs have more growth opportunities and are more informationally opaque due to their operational complexity, which magnifies agency conflicts between debtholders and owners and thus increases agency costs of debt. To mitigate problems associated with information asymmetry, external creditors may shorten loan maturities (Myers, 1977; Barnea et al., 1980; Barclay and Smith, 1995; Burgman, 1996; Ortiz-Molina and Penas, 2008). In addition, an increase in international operations affects exposure to political risk and

fluctuations in exchange rates, which may lead to increased volatility in earnings denominated in domestic currency. Consequently, MNCs may face more difficulties in accessing external financing due to a higher probability of financial distress. To address borrower risk, external financiers may also shorten loan maturities (Diamond, 1991; Ortiz-Molina and Penas, 2008). Overall, the prevailing hypothesis in the literature on multinational capital structure is that any of the positive effects from geographic sales diversification on (long-term) leverage and loan maturity are offset by increases in risk and agency problems. As such, empirical evidence points towards the existence of a trade-off mechanism between long-term and short-term debt financing: external creditors shorten loan maturities so as to mitigate the problems associated with the more opaque nature of multinationals and their riskier borrower profile.

3 Financing of SME export activities

Although scholars agree that the theoretical principles underlying the capital structure and debt maturity choice of large traded firms equally apply to small and private businesses (Van der Wijst and Thurik, 1993; Chittenden et al., 1996; Michaelas et al., 1999; Sogorb-Mira, 2005; Heyman et al., 2008; Degryse et al., 2012), the specific nature of smaller-sized private firms and the risks and opportunities associated with international trade suggest that the impact of certain capital structure determinants may be different in a setting of exporting SMEs.

Access to (external) financing to support firm growth is of importance to all firms, and in particular to firms selling abroad. A number of papers have documented the added time required to complete international transactions, as compared to domestic sales. Using a dataset covering 126 countries, Djankov et al. (2010) find that it takes on average 30 days between the moment the goods are ready to leave the factory until the goods are loaded on a ship. Hummels and Schaur (2013) further observe that European goods which are imported into the US have typically spent about 20 days on a vessel before reaching US ports. It requires another several weeks for the goods to be cleared by customs at the port of destination and to arrive at the importer's premises. As a result, it is not uncommon for goods to spend around two months in transit. In addition, having little market power and foreign buyers insisting on inspecting the goods prior to making payment, suppliers often have to offer payment terms under open account terms: the seller delivers the goods and waits for the agreed upon credit period for payment. Due to longer shipment periods and the administrative burden associated with cross-border transactions, the time lapse between landing the sales contract and collecting payment from the buyer is considerably longer in international sales transactions. As such, the prefinancing of these orders causes exporters to be particularly reliant on and in need of working capital financing as compared to non-exporting firms (Ahn et al., 2011). Some firms, however, may not have the required liquidity to prefinance sales orders and to extend attractive payment terms to their (foreign) customers. Nevertheless, these companies are likely to possess an important pool of short-term assets, such as receivables and inventory. These assets can be used as collateral to secure bank loans to bridge the period between stock-building and production and receiving ultimate payment from the foreign buyer. Furthermore, conventional wisdom also suggests that long-term assets (e.g. PPE) ought

to be financed with long-term funds (e.g. long-term debt), while short-term funds (e.g. lines of credit, trade credit) are to be used to finance short-term assets (e.g. receivables, inventory) (Chung, 1993). On the basis of the above arguments, it is hypothesized that:

H1: Exporters have relatively more short-term debt than their non-exporting peers.

There are a number of channels through which export activities may affect the linkage between short-term debt financing and short-term assets. *First*, Berger and Udell (1990) find a positive association between borrower risk and collateral, suggesting that risky firms tend to borrow on a secured basis. Similarly, more recent empirical studies show that the availability of pledgeable assets to obtain external financing is of greater importance to (SME) borrowers with a risky and more opaque profile (Boot et al., 1991; Berger and Udell, 1995; Carey et al., 1998; Klapper, 2001; Berger and Udell, 2006; Udell, 2008). Consequently, since cross-border transactions are generally considered to be riskier in nature due to exposure to risks that are of no or less relevance in a domestic selling context, the relationship between available short-term assets that may serve as collateral and corporate financing policy might be tighter for exporting firms.

Second, given the risky nature of international trade transactions and the pressure of export activities on working capital needs, Ahn (2011) and Ahn et al. (2011) state that exporters are much more reliant on trade financing instruments than are domestic players. As such, the higher usage of trade financing instruments, such as letters of credit (L/C) and trade credit insurance, in cross-border transactions may also result in a tighter linkage between short-term debt financing and short-term assets for exporters. By using such instruments, exporters can mitigate the risks associated with international sales and in turn improve on their capacity for short-term borrowing by increasing the quality of the foreign receivables and inventory used to secure bank-provided working capital loans (Becue, 2008; Jones, 2010; Amiti and Weinstein, 2011; Ferrando and Mulier, 2013). In practice, working capital loans tied to an export transaction are often backed by an L/C, especially so when trading with distant and risky buyers.⁴ From the perspective of the exporter, an L/C has the advantage that one can benefit from the creditworthiness of the importer's bank and indirectly of the credit standing of the importer, since the importer's bank is likely to provide a payment guarantee only if it expects that the importer will be able to pay (Amiti and Weinstein, 2011; Ahn, 2011; Ahn et al., 2011; Grath, 2011). As a result, default rates on trade credit are very low (WTO, 2016).⁵ The L/C enables the seller to prefinance the export order through discounting or securing working capital loans on the basis of the security provided by the L/C (Amiti and Weinstein, 2011). In view of the protection offered by the L/C, external creditors are generally more keen to provide (short-term) bank loans. Furthermore, since the use of the L/C strengthens the quality of the receivables and inventory, commercial lenders may be willing to extend more financing per unit of working capital.⁶ In addition,

⁴An L/C is a contractual agreement by the importer's bank on behalf of the foreign buyer that payment will be made by the bank to the exporter upon the complying presentation of the documents as stipulated in the L/C (Grath, 2011). The L/C protects the exporter from non-payment by replacing the creditworthiness of the buyer with that of the bank issuing the letter. Upon the submission of documents complying with the L/C, the issuing bank promises to reimburse the exporter.

⁵When trading with risky countries a confirmed L/C is typically used, where the exporter's bank adds its engagement to pay to that of the foreign issuing bank, protecting the exporter against both political and default risk.

⁶To the best of our knowledge, (firm-level) data on trade finance is not available, except for the International Trade Register of the International Chamber of Commerce (ICC). Because of the utter lack of information, the regulatory committee that developed Basel III asked the ICC to develop a trade register whereby banks would supply information on trade finance transactions to develop estimates of default and recovery rates which could be used in determining risk weights. This trade register, in which 23 banks worldwide participate, only contains information on a limited number of trade finance

because of the close bank monitoring associated with an L/C, asymmetric information problems between the lender and borrower are reduced substantially, again widening the exporter's borrowing capacity. In a similar vein, trade credit insurance allows exporters to offer attractive payment conditions to foreign buyers while minimizing the risk of non-payment. If the foreign buyer is insolvent or is unable to fulfill its obligations under the sales contract because of unforeseen political events, the exporter is reimbursed in accordance with the terms of the policy (Grath, 2011). Also, credit insurance allows the exporter to indirectly benefit from the creditworthiness of the importer, as the insurer is likely to accept to insure receivables on sufficiently healthy importing firms only.

Third, geographic sales diversification may also reduce the exporting firm's operating risk, decreasing the cost of debt financing and in turn easing access to external debt financing. *Finally*, due to the high sunk costs associated with international trade, conducting export activities might as well signal borrower quality, which may also facilitate the financing of (international) sales orders. On the basis of the above arguments, it is therefore hypothesized that:

H2: The relationship between short-term pledgeable assets and short-term debt is more pronounced for exporters than for their non-exporting peers.

It is not improbable that the ties between short-term assets and short-term debt vary by the level of export commitment and exposure to various export risks as well. Considering export risks first, it can be argued that cross-border transactions are riskier due to exposure to unforeseen political events, adverse currency movements and geographic and cultural barriers between the exporter and the foreign buyer. Since exposure to unforeseen political events, such as currency controls and import/export restrictions, and to fluctuations in exchange rates increases the riskiness of the firm, we expect the ties between short-term debt and short-term assets to be stronger for firms that export to distant and risky countries. Moreover, in order to secure financing for its operations, the higher riskiness of the export transactions to distant and risky destinations may pressure SMEs to use trade financing and insurance instruments more intensely, resulting in a better underlying quality of the pledgeable inventories and receivables. Furthermore, in line with the reasoning for hypothesis H2, it is also possible that exporting to distant countries adds to the geographical sales diversification, making external borrowing more easy. Finally, commensurate with the logic supporting hypothesis H2, it is possible that exporting to distant countries is an even stronger signal of borrower quality than trading with nearby countries. This argumentation holds for export commitment as well. As export commitment rises, export risks are equally likely to increase, leading to more pressure on exporters to resort to bank-intermediated trade finance or credit insurance. Simultaneously, higher export commitment is also likely to be associated with a higher degree of geographical diversification and may constitute a signal of increasing borrower quality. On the basis of the above arguments, we therefore

products that were purchased at one of the participating banks (ICC, 2015). Hence, it does not contain an overview of all (export) transactions by client firms; nor does it contain information about the use of credit insurance provided by specialized insurers. To improve our understanding on the information contained in our data in this regard, we interviewed practitioners. Specifically, we were able to conduct a short (either face-to-face or email) interview with the Belgian insurers that, besides credit insurance for domestic sales transactions, offer (trade) credit insurance services to Belgian exporters. Similarly, we conducted a short interview with specialists from within the major Belgian banks that engage in trade finance activities. For different reasons, interviewees did not offer any concrete data and we were obliged to focus on the main tendencies in our questions. Nevertheless, we obtained useful insights into the way Belgian exporters typically use trade finance instruments and trade credit insurance to obtain financing for their export activities. Interviews were conducted between the summer and early fall of 2016. The information offered, and validated later, by the interviewees is attached in Appendix.

hypothesize that:

H3: The relationship between short-term pledgeable assets and short-term debt is more pronounced for firms with higher export commitment and exposure to export risks.

4 Sample selection and variables definition

4.1 Sample selection

The dataset consists of private Belgian SMEs⁷ filing unconsolidated complete financial statements⁸ for at least four consecutive fiscal years between 1998-2013. Our dataset combines firm-level information from several databases, which are merged through the unique value added tax (VAT) number of the firm. Financial information is obtained from the annual accounts database from the Central Balance Sheet Office of the National Bank of Belgium. Under Belgian Accounting Law, all firms (except for the self-employed) either file complete or abbreviated financial statements, which guarantees a wide coverage of the database. The corporate annual accounts are subsequently merged with a highly confidential database from the Bank, which covers detailed information on the international trading behavior of Belgian firms. This foreign trade database comprises of export and import flows by country of destination and country of origin above a certain threshold. Until 2006, firms had to report their intra-EU trade through the Intrastat inquiry if their export flows surpassed 250,000 euros per year. As of 2006, a reporting threshold of one million euros per year applies to intra-EU trade transactions. Data on extra-EU trade is collected by customs agents as of a transaction value of 1,000 euros or as of a weight of one tonne. We limit the analysis to firms filing complete financial statements to minimize concern regarding the misclassification of firms as non-exporters due to these thresholds.⁹ To guarantee time-consistency between the different datasets, annual accounts information has been annualized.¹⁰ Based on (time-varying) ownership information from Bel-First (Bureau van Dijk EP), firms conducting foreign direct investment activities (ownership $\geq 10\%$) are excluded, as these firms may enjoy financing options which are (possibly) unavailable to domestic firms and to firms that confine their international activities to exporting. For similar reasons, listed firms are not included. Following customary practice, non-profit organizations, services providers (e.g. financial

⁷In line with the European Commission Recommendation (Art. 2.1 recommendation 2003/361/EC), SMEs are defined as firms having fewer than 250 employees (in FTE) and as, either having maximum sales of 50 million euros or a balance sheet total of less than 43 million euros.

⁸Under Belgian Accounting Law, companies are bound to file complete (unconsolidated) accounts if they meet at least two of the following criteria: total assets exceed 3.65 million euros; operating revenue exceeds 7.3 million euros; more than 50 full time equivalent employees. Companies with more than 100 full time equivalent employees always have to file complete accounts. All other firms may file abbreviated statements, which contain less detailed information. For instance, only firms filing complete annual accounts provide detailed information on items that are relevant to our research question (e.g. turnover number).

⁹Firms filing abbreviated annual accounts were discarded for two main reasons. First, these firms are not bound to provide some detailed information that is relevant to our research question (e.g. turnover) and for the construction of certain variables (e.g. export intensity, sales growth). Second, confining the analysis to SMEs filing complete annual accounts reduces concern on the misclassification of smaller-sized, purely intra-EU exporters that do not exceed the Intrastat registration thresholds as non-exporters.

¹⁰Flows are adjusted by taking a weighted average of t and $t+1$ flows. Stocks are adjusted by adding to the current year stock the weighted stock variation between the current and next year. The procedure attributes a missing value when there is not enough information to recover the entire year, for example when information about the first months or the last months of a given year are missing. This does not apply for the last year during which the firm is observed or for flows of the first year the firm is covered.

institutions), firm-years with zero sales, or with extremely high levels of leverage ($> 100\%$ of total assets) and absolute total assets growth rates exceeding 100% are also discarded. We define the sector of activity on the basis of the main NACE-BEL industry code available for each firm between 1998-2013, converted into NACE-BEL Rev. 2 when necessary. Finally, as exporting firms are not a random subsample of firm population (Bernard and Jensen, 1999), we control for sample selection bias by matching each exporter with a comparable non-exporter in terms of size (total assets), industry classification (2-digit NACE-BEL Rev. 2 code) and year (Chen et al., 1997; Dewaelheyns and Van Hulle, 2012)¹¹. The resulting matched sample consists of 8,501 SMEs and comprises of 53,894 firm-year observations, of which 40,470 (75.09%) belong to the subsample of exporters.

4.2 Variables

4.2.1 Dependent variables

Export activities may affect corporate financing policy in two ways. First, export activities could affect the levels of long-term and short-term debt financing. Second, these activities may alter the mix of long-term and short-term debt financing. Accordingly, we measure *leverage* as total financial debt over total assets (TOT), *long-term leverage* as long-term financial debt over total assets (LT), and *short-term leverage* as short-term financial debt over total assets (ST) (Demirgüç-Kunt and Maksimovic, 1999; Michaelas et al., 1999). *Debt maturity* is defined as long-term financial debt over total financial debt (Fan et al., 2012; Zheng et al., 2012).

4.2.2 Test variables

Since the risks and opportunities associated with international trade vary considerably across export destinations, we define several firm-level measures for the scale and scope of export activities conducted by the firm. *Export propensity* is a dummy variable that equals unity if foreign sales are reported for a particular firm-year observation. If not, the observation belongs to the subsample of non-exporting firms. *Export intensity* is defined as the ratio of export sales to total sales. To measure *export diversity*, we define six regional markets which are homogenous in terms of economic development, political condition and geography: (1) Belgium, (2) neighboring countries of Belgium, including the UK, (3) other EU countries, (4) non-EU countries, geographically located within Europe, (5) Canada and the US, and (6) all other countries (De Clercq et al., 2005).¹² Following Hirsch and Lev (1971), we define our entropy measure of export diversity as the negative sum of the products of the percentage of sales generated in each regional market k and the natural logarithm of that percentage (i.e. $\text{export diversity} = - \sum X(k) * \ln(X(k))$) where

¹¹Since the subsamples of exporters and non-exporting firms may differ on dimensions other than industry affiliation and size, we additionally apply propensity score matching. Repeating the analysis on this smaller, propensity score matched sample does not alter the results in a qualitative manner. Furthermore, repeating the analysis on the initial, unmatched dataset of exporters and non-exporters does not alter the main conclusions of our analysis either, which indicates that the matching procedure does not affect our results. More details about the applied alternative matching procedures can be found in the robustness section.

¹²The composition of the regions takes into account the entry into the European Union of Cyprus, the Czech Republic, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia in 2004, the entry of Bulgaria and Romania in 2007, and the entry of Croatia in 2013.

$X_i(k)$ is the fraction of total sales generated in region k). Thus, exporters generating an equal fraction of their sales in all of the six regional markets will have the highest score on the export diversity measure (i.e. $\ln(6)$), while exporters serving a single region have zero export diversity. As an alternative rougher measure of export diversity, we additionally use the natural logarithm of the *number of export destination countries* (Fernhaber et al., 2008). Next, we proxy export distance in terms of the *cultural and geographic distance* between the Belgian home market and the export destination markets. To measure national culture, we use data from the World Values Survey (WVS)¹³ and follow the approach of Ahern et al. (2012) in order to construct a country-level cultural index. After rescaling the original survey answers to values between zero and one, a composite country-specific cultural distance index is constructed yearly on the basis of the squared deviations of each export destination country from Belgium along three dimensions of national culture (i.e. trust, individualism and hierarchy) (Kogut and Singh, 1988; Morosini et al., 1998; Chakrabarti et al., 2009). Cultural distance at the level of the firm thus equals the sum of the weighted country-level cultural distance indices, where the weights equal the proportion of sales generated in each country to total sales. Geographic distance is measured as the weighted average great circle distance (in km) between the most populous cities of Belgium and the export destination countries (Coval and Moskowitz, 1999). Geographic distances between cities are taken from CEPII¹⁴. Thus, exporters generating a larger fraction of their sales in markets that are geographically and culturally distant from Belgium will have higher scores on the geographic and cultural indices, respectively. To measure *political risk*, we employ the country-specific Worldwide Governance Indicators (Kaufmann et al., 2011). We consider four time-varying political risk dimensions, namely government effectiveness, regulatory quality, rule of law, and control of corruption, with higher scores assigned to politically stable economies. For ease of interpretation, we rescale the political risk scores so that higher scores indicate higher risk. The average correlation between each possible pair of these political dimensions is about 90%, which would raise concern on multicollinearity when regressing leverage and debt maturity on the different legality measures simultaneously. We therefore summarize these political risk measures into a single country-specific index through principal components analysis, applied on a yearly basis (Berkowitz et al., 2003). The resulting index is the first principal component, which summarizes on average 84.7% of the total variance. To construct an overall measure of exposure to political risk at the firm level, we take the sum of the weighted country-level political risk indices, where the weights equal the proportion of sales generated in the respective countries to total sales (Chkir and Cosset, 2001; Ramirez and Kwok, 2010). As a result, exporters with a larger fraction of their sales originating in politically unstable economies should have a higher score on this measure. Finally, *exchange rate risk* is defined as a function of the correlations of the national currencies of the export countries, for all currency combinations (Markowitz, 1952). The portfolio weights are defined as the difference between export flows directed towards and import flows originating from a particular country, scaled by total sales minus cost of goods sold. Thus, firms exporting largely to foreign countries whose national currencies are strongly positively correlated among each other will have higher exchange exposure. Monthly exchange rates are gathered from Thomson Reuters Datastream.

¹³Readers who are interested in detailed information about the surveys can visit the WVS website at <http://www.worldvaluessurvey.org/>.

¹⁴Centre d'Etudes Prospectives et d'Informations Internationales, <http://www.cepii.fr>

4.2.3 Control variables

Consistent with the literature on (SME) capital structure, the following firm-specific characteristics are selected as control variables. *Size* equals the natural logarithm of total assets (Titman and Wessels, 1988; Hall et al., 2004; Degryse et al., 2012). Following trade-off theory, larger firms are typically more diversified and thus less volatile, which results in a higher borrowing capacity. Also pecking order theory predicts a positive association between firm size and leverage because agency costs of debt are reduced under corporate diversification. *Growth* is defined as the average yearly change in sales over the three preceding years (Hall et al., 2004; Schoubben and Van Hulle, 2011). Sales growth is used as an alternative to Tobin's Q since this measure is unavailable for unlisted firms. Growth opportunities are difficult to collateralize and do not generate current taxable income, which suggests a negative association between growth and leverage. Myers (1977), by contrast, contends that managers underinvest if interest payments are high. Shortening loan maturities could, however, overcome this underinvestment problem. As such, growth opportunities and short-term leverage are expected to show a positive correlation. SME studies, however, generally find evidence in favor of a positive association between growth opportunities and (long-term) leverage. Degryse et al. (2012) report a positive effect of growth on long-term leverage, while Sogorb-Mira (2005) reports a stronger positive (negative) effect on long-term (short-term) debt. *Profitability* is defined as earnings before interest and taxes, scaled by total assets (Sogorb-Mira, 2005; Heyman et al., 2008). Following the free cash flow theory of Jensen (1986), debt and profitability are positively related. High leverage forces the managers to use profits to make interest payments and reimburse the loan, which prevents them from investing in unprofitable projects. Trade-off theory also predicts a positive association between leverage and profitability: profitable firms have a higher borrowing capacity. Empirical studies generally find that profits are used to pay down debt, however: this supports the existence of a pecking order of financing sources. Van der Wijst and Thurik (1993) and Sogorb-Mira (2005) find that SMEs use profits to pay down short-term debt first. *Volatility* is defined as the standard deviation of ebit scaled by total assets over the three preceding years (Dewaelheyns and Van Hulle, 2012). Following static trade-off theory, a firm's optimal debt level is a decreasing function of the volatility of its earnings (Titman and Wessels, 1988). *LT collateral* measures the availability of long-term pledgeable assets and equals the ratio of tangible fixed assets to total assets (Van der Wijst and Thurik, 1993; Cassar and Holmes, 2003; Hall et al., 2004; Degryse et al., 2012) and is an indicator of the structure of the firm's assets. Firms with a high level of tangible fixed assets, pledgeable as collateral, should have higher borrowing capacity. Also, in accordance with the maturity matching principle, which states that long-term assets should be financed with long-term funds, the correlation of our measure of asset tangibility with long-term leverage should be prevalent. Consequently, firms with high levels of tangible fixed assets may also require more long-term financing. *ST collateral* measures the availability of short-term pledgeable assets and is defined as the ratio of inventory and accounts receivables minus accounts payables to total assets. In line with the maturity matching principle, we expect this variable to be positively (negatively) associated with short-term leverage (debt maturity). We expect the relationship between short-term assets and short-term debt to depend upon export status. As access to internal capital markets may influence debt policy (Verschueren and Deloof, 2006), a *group dummy* is included that equals unity if the firm is part of a business group, and

zero if the firm is a standalone firm. A firm is considered to be an affiliate if at least 50% of the firm's shares or votes are, indirectly or directly, held by another firm. Finally, *year* and *industry* dummies (at the NACE-BEL 2-digit level) are added to control for macroeconomic shocks and industry heterogeneity. All continuous variables are winsorized at the 1%-level to reduce the influence of outliers. A detailed overview of the definition of all the variables used in the subsequent analyses is provided in Table 1 in Appendix.

5 Descriptive statistics and univariate tests

Table 2 presents the descriptive statistics for the full matched sample, and for the subsamples of exporters and matched non-exporters separately. In addition, it compares the average and median values of a range of firm characteristics of exporters and matched non-exporting firms using Student's t-tests (equality of means) and Wilcoxon rank sum z-tests (equality of medians). Although these univariate tests do not control for firm differences between exporters and non-exporters, they do provide preliminary insights into the effect of exporting on capital structure and loan maturity, amongst other things. The average SME has a long-term financial debt ratio of 8.0% and a short-term financial debt ratio of 10.7%, which is in line with earlier studies covering the capital structure of Belgian firms (Demirgüç-Kunt and Maksimovic, 1999; Hall et al., 2004; De Jong et al., 2008). For the average exporter (non-exporter), these ratios equal 7.8% (8.7%) and 11.4% (8.4%), respectively. Table 2 further shows that exporters have significantly higher leverage than comparable non-exporting firms, a result driven by a higher use of short-term debt by exporters. We find only weak statistical evidence that exporters and non-exporters differ in their reliance on long-term debt financing. As a result, exporters and non-exporters differ substantially in their loan maturities: the average portion of long-term debt in total debt of an exporter equals 39.1%, while for a non-exporter 44.9% of total financial debt is long-term in nature.

< insert Table 2 around here >

With respect to firm size, we find that exporters are significantly larger than non-exporting firms. In addition, exporters show a higher earnings volatility as compared to non-exporters. Furthermore, exporters have less long-term assets available that can be used as collateral¹⁵. In line with expectations, exporters have more short-term assets (i.e. accounts receivables and inventory (net of accounts payables)), that can be used as collateral to obtain financing, on their balance sheet than non-exporters. The average (median) SME is profitable, and exporters are more profitable than their non-exporting peers. We find that growth in sales is lower for exporters than for non-exporting firms. For the average exporter, export intensity equals 0.261, which implies that on average 26.1% of total sales originate in sales to foreign markets. An exporter serves about 6 countries (Table 2 reports the log-transformed variable used in subsequent regressions), but this number varies strongly across exporters. Export diversity, which is bounded between

¹⁵As our measure for the availability of long-term assets is measured in relation to total assets, it might be affected by the level of intangibles, accounts receivables and inventories, amongst others, which could all be proportionately larger for exporting firms. However, proxying this measure in relation to other variables reflecting firm size (e.g. total sales and average employment in FTE) yields similar results.

0 (no diversification) and 1.791 (perfect diversification), equals 0.477 on average, indicating that Belgian SMEs export to a relatively limited number of different geographic regions.¹⁶

< insert Table 3 around here >

Table 3 presents the Pearson correlations between the continuous variables for the full matched sample of firms. As expected and in line with the maturity matching principle, our short-term collateral variable is positively (negatively) associated with short-term debt (loan maturity). In addition, export activities put pressure on the working capital needs of the firm, which is reflected in the significantly positive correlations between ST collateral and the various export (destination) characteristics. The export (destination) characteristics show very high correlations among each other, which would raise concern on multicollinearity when including these variables simultaneously in the regressions. The other Pearson correlations, however, are relatively low, which indicates that there is little reason for concern on multicollinearity.

6 Multivariate results

As univariate tests are not conclusive, this section explores the capital structure and debt maturity choices of exporters and comparable non-exporters in more detail using multivariate techniques. The different measures of leverage and loan maturity are regressed on the one-period lags of a set of control variables and our first variable of interest, the one-period lagged export dummy variable (Demirgüç-Kunt and Maksimovic, 1999; Fan et al., 2012). The pooled OLS regression coefficients of the different leverage (TOT, LT, ST) and maturity (MAT) equations on the full (matched) sample of exporters and non-exporters are depicted under column headings *full* in Table 4. The pooled OLS regression coefficients of the leverage and maturity equations for the subsamples of exporters and matched non-exporting firms are also summarized in Table 4 under the column headings *Exporters* and *Non-exporters*, respectively. All regressions include year and industry dummies (at the NACE-BEL 2-digit level) to control for macroeconomic shocks and industry heterogeneity. Reported standard errors are in parentheses and robust to firm-level clustering (Petersen, 2009).¹⁷

< insert Table 4 around here >

While controlling for firm and industry characteristics, and macroeconomic shocks, we find a positive and statistically significant association between export status and total and short-term debt ratios. The total debt ratio of an exporter is significantly higher than that of a non-exporter. In support of our first hypothesis (H1), this results entirely from a higher reliance on short-term debt financing by exporters. Consequently, this finding contrasts with the MNC literature (Burgman, 1996; Chen et al., 1997; Doukas and Pantzalis, 2003) since we do not find statistical evidence in favor of a trade-off mechanism between long-term and short-term debt for exporting firms.¹⁸

¹⁶For illustration purposes, Figure 1 in Appendix visualizes the importance in trade volume of the various destinations to which Belgian goods are exported between 1998-2013.

¹⁷Given that our dependent variables are censored between zero and one, we additionally ran pooled Tobit regressions. The results remain qualitatively unchanged.

¹⁸Note that the positive and statistically significant association between the export indicator and the short-term debt ratio indicates that exporters carry more short-term debt than non-exporting firms because of factors other than differences in the

Turning to the control variables, we find that the relationships with the leverage and maturity measures are qualitatively highly similar for the full matched sample and for the subsamples of exporters and non-exporters and that they are in line with (SME) literature. Looking first at the main variables of interest, we find a positive association between long-term assets and both short-term and long-term debt. Short-term assets (i.e. working capital) are positively (negatively) associated with short-term leverage (debt maturity) and this seems to be the case especially for exporters. To further evaluate whether the linkage between short-term collateral and short-term debt depends on export status, we add an interaction term between the export dummy and the variable ST collateral. The coefficient estimates of this interaction model on the full, matched sample are depicted under the column heading *Full (interaction)*. In support of our second hypothesis (H2), we find that the interaction term between the export dummy and ST collateral is significantly positively (negatively) associated with total and short-term debt (loan maturity). This finding suggests that the financing policy of exporters is most sensitive to changes in the availability of short-term pledgeable assets.¹⁹ Volatility is negatively related to both short-term and long-term leverage. Cash flow volatility increases bankruptcy risk and therefore reduces the optimal level of debt. In line with Diamond (1991) and Ortiz-Molina and Penas (2008), we also find that a riskier borrower profile results in shorter loan maturities. Profitability is negatively related to both short-term and long-term debt ratios, which is in line with pecking order behavior. Firms also seem to use internally generated funds to pay down short-term debt first, which results in longer maturities for profitable firms (Van der Wijst and Thurik, 1993; Sogorb-Mira, 2005). In line with expectations, we find a positive association between firm size and leverage and debt maturity. Larger firms carry higher leverage because they are generally more diversified and have more collateral available. Average sales growth, proxying growth opportunities, is positively related with both leverage and maturity. It seems that firms with high growth opportunities are more likely to raise new funds than firms with fewer growth opportunities, which is commensurate with earlier evidence on SMEs (Michaelas et al., 1999; Sogorb-Mira, 2005; Degryse et al., 2012). In line with the internal capital markets argument, we find that group affiliation negatively affects leverage and debt maturity. We also tested whether the impact of some of the other control variables differs significantly between exporters and non-exporters.²⁰ We find that the negative association between earnings volatility and short-term debt levels and loan maturity is more important for exporting firms, indicating that the debt financing of the latter is more vulnerable to circumstances that increase their riskiness (e.g. economic shocks). In the same vein, we also find that the (negative) impact of profitability on capital structure and loan maturity differs substantially between exporters and matched non-exporting firms. It turns out that the (short-term) debt position and loan maturity of exporters is most sensitive to shocks in profitability. Since (access to) short-term debt financing is essential for the ongoing funding of the working capital needs of the exporting firm, it does not come as a surprise that internally generated resources are an important tool to repay debt timely and to keep debt levels under control.

control variables, like for instance the level of short-term collateral. This is indeed what one would expect if hypothesis H2 and/or hypothesis H3 hold true.

¹⁹Since trade financing instruments may comprise the pre-financing of both inventories and accounts receivables, we also ran regressions in which we included accounts receivables and inventory as separate variables. Both inventory and receivables show a positive and statistically significant association with short-term debt, while the linkage between both variables and short-term debt is strongest for exporting firms. These results are not reported, but are available from the authors.

²⁰The results from these interaction models are not reported, but are available from the authors upon request.

To assess the implications of the scale and scope of export activities for corporate capital structure and debt maturity, we subsequently run pooled OLS regressions of the different measures of leverage and loan maturity on the one-period lags of the same set of control variables employed earlier and variables measuring export commitment and exposure to export risks (Table 5, Models 1 to 8). The full sample of exporters and matched non-exporting firms is again employed. Given the high levels of correlation between the export (destination) characteristics, these variables were included separately into the leverage and maturity equations. Again, all models contain industry (at the NACE-BEL 2-digit level) and year dummies; in addition, the standard errors are robust to clustering at the firm-level (Petersen, 2009). The relationships between the control variables and our measures of leverage and maturity are as expected and qualitatively similar to what was found earlier.

< insert Table 5 around here >

Model 1 in Table 5 presents the coefficient estimates of the leverage and loan maturity equations containing export intensity. To evaluate whether the impact of the availability of short-term assets on financing policy depends upon the level of export commitment (and vice versa), we also included an interaction term between export intensity and our measure for short-term assets. We find that both the direct effect of short-term assets and the interaction effect on total and short-term debt are significantly positive. As such, the availability of (pledgeable) short-term assets is of more importance in obtaining short-term financing for firms that show a higher commitment towards export activities. In addition, export intensity seems to be of importance only to the corporate financing decisions of firms with substantial levels of short-term assets. Model 2 (and 3) presents the coefficient estimates of the leverage and loan maturity equations containing export diversity (and its square) and an interaction term between our entropy measure of export diversity (and its square) and short-term assets. Consistent with our third hypothesis, we find that the positive (negative) effect of short-term assets on total and short-term debt (loan maturity) is more pronounced for firms that export to diverse geographical regions. Model 4 contains the coefficient estimates of the leverage and loan maturity equations containing the natural logarithm of the number of export destinations and an interaction term between short-term assets and the number of export destination countries. Similar to the models including export intensity and diversity, and consistent with H3, we find that the interaction term is significantly positively (negatively) related to total and short-term debt ratios (loan maturity), while also the direct effect of short-term assets is significantly positively (negatively) related to total and short-term leverage (loan maturity). As such, the positive (negative) effect of short-term assets on short-term debt (loan maturity) is more pronounced for firms that serve a higher number of export markets. Models 5 (and 6) present the coefficient estimates of the leverage and loan maturity equations containing our measure for cultural (and geographic) distance and an interaction term between cultural (geographic) distance and short-term assets. We find that the positive (negative) effect of short-term assets on short-term debt (loan maturity) is more pronounced for firms that serve export markets that are distant to them from a cultural and geographic point of view. Again, the direct effects of cultural and geographic distance are mostly insignificant, which implies that distance matters only to firms with substantial levels of short-term assets. Model 7 presents the coefficient estimates of the leverage and loan maturity equations containing our measure for political risk and an interaction term between political risk and short-term assets. We find

that the positive effect of short-term assets on total and short-term debt is more pronounced for firms that export to politically unstable countries. Finally, Model 8 presents the coefficient estimates of the leverage and loan maturity equations containing our measure for exchange rate exposure and an interaction term between exchange rate exposure and short-term assets. Again, we find that short-term assets have a more pronounced positive (negative) impact on total and short-term debt ratios (debt maturity) of firms that experience high exposure to currency fluctuations. Overall, we find that the ties between short-term assets and short-term debt are more pronounced for export-intensive firms and for firms exporting to destinations that are distant to them from a cultural, geographic and economic perspective, which supports our third hypothesis (H3).

7 Robustness checks

Our results are robust to a wide variety of changes in sample specification. Generally, firms that are part of a business group are expected to have better access to both internal and external capital markets than their standalone peers (Dewaelheyns and Van Hulle, 2012). As a robustness check, we therefore confine our analysis to standalone firms, that is, all firms without a controlling parent firm. This results in qualitatively similar findings.

The international trade database only concerns trade in goods. Cross-border service provisions are not registered which may result in the misclassification of exporting service providers as non-exporting firms in our dataset. In addition, goods represent the majority of export flows, but they are often exported by intermediate traders (e.g. wholesalers and retailers): goods may be imported by Belgian-resident businesses and re-exported later, or traditional Belgian industrial companies may use unaffiliated trade intermediaries to export their products. It is shown that trade intermediation is more prevalent in export markets with high sunk entry costs, a weak contracting environment, high risk of expropriation and that are geographically and culturally distant from the home market (Felbermayr and Jung, 2011; Bernard et al., 2015). In addition, these trade intermediaries are smaller on average (Bernard et al., 2010), have fewer collateral and may consequently face substantial difficulties in accessing external finance. We therefore repeat the analysis for manufacturing firms only (NACE-BEL 2-digit codes 10 to 33), which are the main exporters of goods in Belgium. The results are robust.

To correct for the inconsistency in the reporting of intra-EU trade flows during the research period, we repeat our analysis after imposing a constant reporting threshold of one million euros on intra-EU export flows, while keeping the definition of the EU constant over the research period (EU27). The results are again robust.

Finally, we apply different matching procedures. In the base scenario, we match each exporting firm with a non-exporting firm active in the same sector (at the 2-digit NACE-BEL level) and of comparable size (total assets) to control for self-selection bias. Using the initial, unmatched sample of exporters and non-exporters would lead to important differences in firm size and industry distribution. For instance, before matching, the median exporter is about 1.67 times the size of the median domestic firm (measured in total

assets). A drawback of this bivariate matching procedure, however, is that the export variable might still capture other characteristics since non-exporters and exporters differ from non-exporters on many other, both observable and unobservable dimensions. As a robustness check, we therefore additionally apply propensity score matching (PSM). At each point in time, we match each exporter with a domestic firm on the basis of a range of (lagged) firm characteristics, including total factor productivity (TFP), firm size (total assets), firm age, group affiliation, sales growth and profitability. Matching occurs within sectors as the impact of various variables on the decision to export might differ across sectors (De Loecker, 2007) and is done with replacement. So, at each point in time and within each sector, a non-exporting firm, which is closest in terms of its propensity score to an exporting firm, is selected as a match for the former, using the nearest-neighbor matching method. Using propensity score matching instead of univariate matching does not alter the results in a qualitative manner. Repeating the analysis on the initial, unmatched dataset of exporters and non-exporters does not alter the main conclusions of our analysis either, which indicates that the matching procedure does not affect our results into large extent.²¹

8 Natural experiments

To deepen our understanding on the causal impact of export dynamics on SME financing policy and to minimize concerns about reverse causality, we supplement our analysis with two natural experiments. Following Heckman et al. (1998), the difference-in-difference (DID) methodology on a matched sample of firms is highly effective in controlling for selection on both observables and unobservables since it combines the advantages of propensity score matching techniques and the difference-in-difference estimator. It is typically used in policy evaluation literature, but gained popularity in the trade literature in more recent years (Girma et al., 2004; De Loecker, 2007; Greenaway et al., 2007).

8.1 Export entry

To study the impact of export entry on corporate financing policy, we construct two samples. The first sample contains all firms that start exporting during the research period. Export entrants are firms that did not report export sales in the two years preceding entry into export markets, but do report export sales in the two years following export entry (Hansson and Lundin, 2004). When a firm enters export markets more than once during the research horizon, only the first entry is included. 530 firms entered export markets during the sample period. The control sample of non-exporters contains all firms that did not report export sales between 1996 and 2010. The impact of export entry on corporate financing policy y_i can be modelled as $y_{i,t+1}^1 - y_{i,t+1}^0$, where $y_{i,t+1}^1$ measures post-export entry leverage or debt maturity of the export entrant i at time $t+1$ and the (unobservable) counterfactual $y_{i,t+1}^0$ stands for post-entry leverage or debt maturity of the entrant i at time $t+1$ in case the firm would not have decided to start exporting at time t . As such, the subscripts i and t index the firms and years during which the export entry was made, respectively. The counterfactual situation is by definition unobservable, meaning that a valid

²¹The results from all robustness tests are available from the authors upon request.

control group must be identified to measure this variable. Randomly assigning continuous non-exporters to export entrants would not be a good idea for they are likely to differ considerably with respect to some pre-export entry characteristics, causing sample selection bias. Therefore, at each point in time t and for each firm i that enters foreign markets, a non-exporter j is selected, similar with respect to a range of pre-export entry firm characteristics. The probability of export market entry is modelled as a function of pre-export entry total factor productivity, group affiliation, firm size (total assets), firm age, sales growth, profitability, and short-term and long-term debt ratios. After obtaining the propensity scores (or predicted probabilities of export entry) for export entrants and the control sample of non-exporters, firms need to be matched. We match each export entrant with its closest non-exporting firm in terms of their propensity scores. The matching is done with replacement, so that each non-exporting firms can be assigned as a matching partner to multiple export entrants.

A DID estimator on the matched export entrants and continuous non-exporters is then employed to examine the causal effect of export entry on capital structure and debt maturity. The DID regression model on the matched sample is specified as follows:

$$Y_{i,t} = \alpha + \beta_1 X_{i,t-1} + \beta_2 Post_{i,t} + \beta_3 Export\ entrant_i + \beta_4 Post_{i,t} * Export\ entrant_i + \eta_i + \tau_t + \epsilon_{i,t} \quad (1)$$

where $Export\ entrant_i$ is a dummy variable that equals unity for all export entrants and zero for all continuous non-exporters. This variable controls for any permanent differences between export entrants and non-exporters. $Post_{i,t}$ is a dummy variable equal to one in the post-export entry period and controls for common trends between export entrants and their matched non-exporters. $X_{i,t-1}$ represents a vector of lagged control variables that are typically considered to be important determinants of corporate capital structure. As before, we include earnings volatility, group affiliation, profitability, firm size, sales growth and asset tangibility (both short-term and long-term). The inclusion of time-varying firm characteristics ensures that the DID estimates are unaffected by shocks in these determinants. The coefficient of interest belongs to the interaction term between the *Export entrant* and *Post* dummies (β_4) as it indicates the impact of export entry on financing policy. Time (η_i) and industry (at the NACE-BEL 2-digit level) or firm fixed effects (τ_i) are also added.

< insert Table 6 around here >

Table 6 presents the coefficient estimates for the DID analysis on the matched sample of export entrants and continuous non-exporters. The first four columns (under heading *pooled OLS*) contain the coefficient estimates without firm fixed effects, while the next four columns (under heading *firm FE*) consist of the DID estimates while controlling for unobserved firm heterogeneity. Standard errors are in parentheses and are robust to firm-level clustering (Petersen, 2009). Under both pooled OLS and firm fixed effects, we find that the coefficient of the interaction term between the dummies *Post* and *Export entrant* is positive and significant which indicates that the average short-term financial debt ratio increases significantly following export entry. On average, short-term leverage of export entrants is around 1.2 percentage points higher (in relative terms of the sample mean) than that of continuous non-exporters.

8.2 Shocks in political risk

The Arab Spring was named after a long series of demonstrations, protests and civil wars in the Arab world that began in December 2010 in Tunisia, but spread throughout many other Arab countries, such as Egypt, Libya and Yemen, in the months after. To model the impact of this shock in political risk on the corporate financing policy of exporters, we construct two samples. The first sample consists of all firms that exported to the six main Arab countries involved in the Arab Spring²² both prior to and after its outbreak (2009-2013). The second sample consists of all firms that reported export activities during this period, but that were not engaged in trading with these six countries. Since firms exporting to Arab Spring countries and those that do not may differ substantially on a range of observable and unobservable characteristics, we again apply a propensity score matching procedure. For each firm i that exports to at least one of the six Arab Spring countries, a non-Arab Spring country exporter j is selected, similar with respect to a range of observable firm characteristics (from 2010).²³ The matching is done without replacement, so that each Arab Spring country exporter can be matched to several non-Arab Spring country exporters. We apply the following DID set-up on the matched sample of Arab and non-Arab Spring country exporters during 2009-2012:

$$\begin{aligned}
 Y_{i,t} = & \alpha + \beta_1 X_{i,t-1} + \beta_2 Post_t + \beta_3 Arab\ Spring\ country\ exporter_i + \\
 & \beta_4 Post_t * Arab\ Spring\ country\ exporter_i + \beta_5 Arab\ Spring\ country\ exporter_i * ST\ collateral_{i,t} + \\
 & \beta_6 Post_t * ST\ collateral_{i,t} + \beta_7 Post_t * Arab\ Spring\ country\ exporter_i * ST\ collateral_{i,t} + \eta_i + \epsilon_{i,t}
 \end{aligned}
 \tag{2}$$

where *Arab Spring country exporter* _{i} is a dummy variable that equals unity for all exporters that conduct trade with at least one of the six Arab Spring countries in 2009-2013 and zero for exporters that did not trade with Arab Spring countries during this period, and *Post* _{t} is a dummy variable that equals one after the start of the Arab Spring (i.e. as of January 2011 until end of 2012). $X_{i,t-1}$ represents the usual vector of lagged determinants of corporate capital structure. The coefficient of interest belongs to the interaction term between the dummies *Arab Spring country exporter* and *Post*, and the continuous variable *ST collateral* (β_7) as it reflects the impact of a change in the political climate on the relationship between pledgeable short-term assets and financing policy for Arab Spring country exporters. Industry (firm) fixed effects (τ_i) are also added to control for unobserved industry (firm) heterogeneity. Table 7 summarizes the DID coefficient estimates. In line with expectations, we find that the coefficients of the interaction terms between the dummies *Post* and *Arab Spring country exporter* and the *ST collateral* variable are positive and statistically significant for the short-term debt equations. Again, the stronger linkage between short-term debt levels and short-term pledgeable assets for Arab Spring country exporters after the outbreak of the Arab Spring could be attributable to a number of factors, such as an intenser use of trade finance instruments by these exporters to cope with a worsening political climate.

< insert Table 7 around here >

²²Initially, the largest protests and demonstrations took place in Tunisia, Egypt, Libya, Yemen, Syria and Bahrain.

²³As before, we include total factor productivity, group affiliation, firm size (total assets), firm age, sales growth, profitability, and short-term and long-term debt ratios in the probit equation.

9 Conclusions

Empirical evidence on the impact of multinationality on large firm capital structure shows that internationalization results in a lower level of long-term and a higher level of short-term debt for multinational corporations (MNCs) than for comparable domestic corporations (DCs) (Fatemi, 1988; Lee and Kwok, 1988; Burgman, 1996; Chen et al., 1997; Kwok and Reeb, 2000; Doukas and Pantzalis, 2003; Aggarwal and Kyaw, 2010). So far, SMEs have not yet been studied in this context, which is largely attributable to limitations in data availability on the export and import flows of smaller-sized, private businesses. Using a confidential dataset, assembled by the National Bank of Belgium, that merges corporate annual accounts and firm-level information on international trade transactions, this paper aims to advance the literature by providing an in-depth overview of the impact of exporting on the corporate financing decisions of SMEs and of the mechanisms SMEs use to (pre-)finance their export activities.

We document that exporting SMEs carry more leverage than their non-exporting peers, and that this is entirely attributable to a higher use of short-term debt financing by exporters. As such, contrary to the literature on corporate financing decisions of large multinationals, we find no evidence in favor of a trade-off mechanism between debt maturities for exporting SMEs. Furthermore, exporting SMEs need to finance relatively more working capital than their non-exporting peers. We show that a tighter linkage between short-term assets and the amount of short-term debt exists for exporting firms. In particular, we show that the relationship between short-term assets and short-term debt is most pronounced for export-intensive firms and firms that serve distant and risky export destinations. These relationships are economically meaningful. Finally, we supplemented our analysis with quasi-natural experiments of export entry and an exogenous shock in political risk on capital structure and debt maturity. We find that short-term financial leverage increases substantially following export market entry. In addition, we show that, after the outbreak of the Arab Spring, the linkage between short-term assets and short-term debt financing is tighter for firms exporting to Arab countries involved in the Arab Spring compared to non-Arab Spring country exporters. Again, long-term debt financing does not seem to be affected.

There are several possible channels through which export activities may affect the ties between short-term assets and short-term debt financing. First, given the riskiness of cross-border transactions, the availability of pledgeable short-term assets to obtain financing may be of more importance for exporters. In addition, the opportunities offered by the use of trade financing instruments allow exporters to enhance the quality of their working capital components as pledgeable assets, while the close bank monitoring of sales transactions associated with trade finance products tends to reduce information asymmetries between the lender and the exporter-borrower, widening their borrowing capacity. Although better quality firms may self-select into exporting and geographic sales diversification resulting in a higher borrowing capacity of exporters, the observed relationship between short-term debt financing and working capital suggests that the use of trade financing instruments, such as letters of credit, guarantees and trade credit insurance, likely plays an important role in explaining our findings as well.

This study aimed at providing valuable new insights into the implications of exporting for SME financing

decisions to both practitioners and policymakers, who devote substantial resources to facilitate SME financing and export development. Particularly worrisome is that, in spite of the contribution of SMEs to employment, trade and economic growth, SMEs still face substantial difficulties in accessing affordable external financing (WTO, 2016). In this respect, our findings suggest that the development of tools that facilitate the use of assets for collateral purposes is likely to stimulate SME export activities by easing access to bank financing and thus overcoming capital constraints. Furthermore, the importance of short-term asset-backed funding to prefinance SME export activities may serve as an explanation for a trade collapse during credit crunches or in periods of low profitability. Negative bank credit shocks are shown to reduce export activities considerably (Ahn et al., 2011; Amiti and Weinstein, 2011; Bricongne et al., 2012; Chor and Manova, 2012; Manova et al., 2015; Paravisini et al., 2015), and especially so for firms active in sectors that exhibit high financial dependence. Since exporters rely more heavily on short-term finance than non-exporting firms, tighter credit conditions or a drop in firm revenue have an immediate and detrimental effect on the financing of the activities of these exporters. Therefore, any policy aiming at overcoming the capital constraints faced by (exporting) SMEs and avoiding spillovers from the financial system to the real economy should be highly encouraged. Finally, our results may also shed some additional light on how capital constraints may hinder export performance of SMEs. In particular, financial dependence might affect export performance by limiting the range of potential importers one can sell to. Exporters that are highly dependent upon bank- or insurer-intermediated trade finance might be able to sell to the most creditworthy importers only, since banks and insurers are likely to provide payment guarantees and credit insurance on receivables on this type of firm only. Financially independent firms, by contrast, which are less reliant upon external funding to finance their export activities, may be able to export to a wider variety of importers. Simultaneously, since such financially independent SMEs do not have to rely upon the credit standing of their importing customers to obtain financing, they are also likely to be in a stronger bargaining position, relative to these customers.

References

- Aggarwal, R., Kyaw, N. A., 2010. Capital structure, dividend policy, and multinationality: Theory versus empirical evidence. *International Review of Financial Analysis* 19 (2), 140–150.
- Ahern, K. R., Daminelli, D., Fracassi, C., 2012. Lost in translation? The effect of cultural values on mergers around the world. *Journal of Financial Economics* 117 (1), 165–189.
- Ahn, J., 2011. A theory of domestic and international trade finance. *IMF Working Papers*, 1–35.
- Ahn, J., Amiti, M., Weinstein, D. E., 2011. Trade finance and the great trade collapse. *The American Economic Review*, 298–302.
- Amiti, M., Weinstein, D. E., 2011. Exports and financial shocks. *Quarterly Journal of Economics* 126, 1841–1877.
- Asmundson, I., Dorsey, T. W., Khachatryan, A., Niculcea, I., Saito, M., 2011. Trade and trade finance in the 2008-2009 financial crisis. *IMF Working Papers* 16, 1–65.
- Barclay, M. J., Smith, C. W., 1995. The maturity structure of corporate debt. *The Journal of Finance* 50 (2), 609–631.

- Barnea, A., Haugen, R. A., Senbet, L. W., 1980. A rationale for debt maturity structure and call provisions in the agency theoretic framework. *The Journal of Finance* 35 (5), 1223–1234.
- Becue, P., 2008. *Handboek kredietverzekering: De onzichtbare bank*. Antwerpen: Intersentia.
- Berger, A. N., Udell, G. F., 1990. Collateral, loan quality and bank risk. *Journal of Monetary Economics* 25 (1), 21–42.
- Berger, A. N., Udell, G. F., 1995. Relationship lending and lines of credit in small firm finance. *Journal of Business*, 351–381.
- Berger, A. N., Udell, G. F., 2006. A more complete conceptual framework for SME finance. *Journal of Banking & Finance* 30 (11), 2945–2966.
- Berkowitz, D., Pistor, K., Richard, J.-F., 2003. Economic development, legality, and the transplant effect. *European Economic Review* 47 (1), 165–195.
- Bernard, A. B., Grazi, M., Tomasi, C., 2015. Intermediaries in international trade: Products and destinations. *Review of Economics and Statistics* 97 (4), 916–920.
- Bernard, A. B., Jensen, J. B., 1999. Exceptional exporter performance: Cause, effect, or both? *Journal of International Economics* 47 (1), 1–25.
- Bernard, A. B., Jensen, J. B., Redding, S. J., Schott, P. K., 2010. Wholesalers and retailers in US trade. *The American Economic Review* 100 (2), 408–413.
- Boot, A., Thakor, A. V., Udell, G. F., 1991. Secured lending and default risk: Equilibrium analysis, policy implications and empirical results. *The Economic Journal* 101 (406), 458–472.
- Bricongne, J.-C., Fontagné, L., Gaulier, G., Taglioni, D., Vicard, V., 2012. Firms and the global crisis: French exports in the turmoil. *Journal of International Economics* 87 (1), 134–146.
- Burgman, T. A., 1996. An empirical examination of multinational corporate capital structure. *Journal of International Business Studies* 27 (3), 553–570.
- Carey, M., Post, M., Sharpe, S. A., 1998. Does corporate lending by banks and finance companies differ? Evidence on specialization in private debt contracting. *The Journal of Finance* 53 (3), 845–878.
- Cassar, G., Holmes, S., 2003. Capital structure and financing of SMEs: Australian evidence. *Accounting & Finance* 43 (2), 123–147.
- Chakrabarti, R., Gupta-Mukherjee, S., Jayaraman, N., 2009. Mars–Venus marriages: Culture and cross-border M&A. *Journal of International Business Studies* 40 (2), 216–236.
- Chen, C. J., Cheng, C. A., He, J., Kim, J., 1997. An investigation of the relationship between international activities and capital structure. *Journal of International Business Studies* 28 (3), 563–577.
- Chittenden, F., Hall, G., Hutchinson, P., 1996. Small firm growth, access to capital markets and financial structure: Review of issues and an empirical investigation. *Small Business Economics* 8 (1), 59–67.
- Chkir, I. E., Cosset, J.-C., 2001. Diversification strategy and capital structure of multinational corporations. *Journal of Multinational Financial Management* 11 (1), 17–37.
- Chor, D., Manova, K., 2012. Off the cliff and back? Credit conditions and international trade during the global financial crisis. *Journal of International Economics* 87 (1), 117–133.
- Chung, K. H., 1993. Asset characteristics and corporate debt policy: An empirical test. *Journal of Business Finance & Accounting* 20 (1), 83–98.
- Coval, J. D., Moskowitz, T. J., 1999. Home bias at home: Local equity preference in domestic portfolios. *The Journal of Finance* 54 (6), 2045–2073.
- De Clercq, D., Sapienza, H. J., Crijns, H., 2005. The internationalization of small and medium-sized firms. *Small Business Economics* 24 (4), 409–419.
- De Jong, A., Kabir, R., Nguyen, T. T., 2008. Capital structure around the world: The roles of firm- and country-specific determinants. *Journal of Banking & Finance* 32 (9), 1954–1969.

- De Loecker, J., 2007. Do exports generate higher productivity? Evidence from Slovenia. *Journal of International Economics* 73 (1), 69–98.
- Degryse, H., de Goeij, P., Kappert, P., 2012. The impact of firm and industry characteristics on small firms' capital structure. *Small Business Economics* 38 (4), 431–447.
- Demirgüç-Kunt, A., Maksimovic, V., 1999. Institutions, financial markets, and firm debt maturity. *Journal of Financial Economics* 54 (3), 295–336.
- Desai, M. A., Foley, C. F., Hines, J. R., 2004. A multinational perspective on capital structure choice and internal capital markets. *The Journal of Finance* 59 (6), 2451–2487.
- Desai, M. A., Foley, C. F., Hines, J. R., 2008. Capital structure with risky foreign investment. *Journal of Financial Economics* 88 (3), 534–553.
- Dewaelheyns, N., Van Hulle, C., 2012. Capital structure adjustments in private business group companies. *Applied Financial Economics* 22 (15), 1275–1288.
- Diamond, D. W., 1991. Debt maturity structure and liquidity risk. *The Quarterly Journal of Economics* 106 (3), 709–737.
- Djankov, S., Freund, C., Pham, C., 2010. Trading on time. *The Review of Economics and Statistics* 92 (1), 166–173.
- Doukas, J. A., Pantzalis, C., 2003. Geographic diversification and agency costs of debt of multinational firms. *Journal of Corporate Finance* 9 (1), 59–92.
- Egger, P., Url, T., 2006. Public export credit guarantees and foreign trade structure: Evidence from Austria. *The World Economy* 29 (4), 399–418.
- Fan, J. P., Titman, S., Twite, G., 2012. An international comparison of capital structure and debt maturity choices. *Journal of Financial and Quantitative Analysis* 47 (1), 23–56.
- Fatemi, A. M., 1988. The effect of international diversification on corporate financing policy. *Journal of Business Research* 16 (1), 17–30.
- Felbermayr, G., Jung, B., 2011. Trade intermediation and the organization of exporters. *Review of International Economics* 19 (4), 634–648.
- Felbermayr, G. J., Yalcin, E., 2013. Export credit guarantees and export performance: An empirical analysis for Germany. *The World Economy* 36 (8), 967–999.
- Fernhaber, S. A., Gilbert, B. A., McDougall, P. P., 2008. International entrepreneurship and geographic location: An empirical examination of new venture internationalization. *Journal of International Business Studies* 39 (2), 267–290.
- Ferrando, A., Mulier, K., 2013. Do firms use the trade credit channel to manage growth? *Journal of Banking & Finance* 37 (8), 3035–3046.
- Girma, S., Greenaway, D., Kneller, R., 2004. Does exporting increase productivity? A microeconomic analysis of matched firms. *Review of International Economics* 12 (5), 855–866.
- Grath, A., 2011. *The handbook of international trade and finance: The complete guide to risk management, international payments and currency management, bonds and guarantees, credit insurance and trade finance*. Great Britain: Kogan Page Publishers.
- Greenaway, D., Guariglia, A., Kneller, R., 2007. Financial factors and exporting decisions. *Journal of International Economics* 73 (2), 377–395.
- Hall, G. C., Hutchinson, P. J., Michaelas, N., 2004. Determinants of the capital structures of European SMEs. *Journal of Business, Finance & Accounting* 31 (5-6), 711–728.
- Hansson, P., Lundin, N. N., 2004. Exports as an indicator on or promoter of successful Swedish manufacturing firms in the 1990s. *Review of World Economics* 140 (3), 415–445.
- Heckman, J., Ichimura, H., Smith, J., Todd, P., 1998. Characterizing selection bias using experimental data. *Econometrica* 66 (5), 1017–1098.

- Heyman, D., Deloof, M., Ooghe, H., 2008. The financial structure of private held Belgian firms. *Small Business Economics* 30 (3), 301–313.
- Hirsch, S., Lev, B., 1971. Sales stabilization through export diversification. *The Review of Economics and Statistics* 53 (3), 270–277.
- Hummels, D. L., Schaur, G., 2013. Time as a trade barrier. *The American Economic Review* 103 (7), 2935–2959.
- ICC, 2015. Trade register report - Global risks in trade finance.
- Jensen, M. C., 1986. Agency cost of free cash flow, corporate finance, and takeovers. *The American Economic Review* 76 (2), 323–329.
- Jones, P. M., 2010. Trade credit insurance. *Primer Series on Insurance*, Washington, DC: The World Bank 15.
- Kaufmann, D., Kraay, A., Mastruzzi, M., 2011. The worldwide governance indicators: Methodology and analytical issues. *Hague Journal on the Rule of Law* 3 (2), 220.
- Klapper, L., 2001. The uniqueness of short-term collateralization. Vol. 2544. World Bank Publications.
- Kogut, B., Singh, H., 1988. The effect of national culture on the choice of entry mode. *Journal of International Business Studies* 19 (3), 411–432.
- Kwok, C. C., Reeb, D. M., 2000. Internationalization and firm risk: An upstream-downstream hypothesis. *Journal of International Business Studies* 31 (4), 611–629.
- Lee, K. C., Kwok, C. C., 1988. Multinational corporations vs. domestic corporations: International environmental factors and determinants of capital structure. *Journal of International Business Studies* 19 (2), 195–217.
- Liberti, J. M., Mian, A. R., 2010. Collateral spread and financial development. *The Journal of Finance* 65 (1), 147–177.
- Manova, K., Wei, S.-J., Zhang, Z., 2015. Firm exports and multinational activity under credit constraints. *Review of Economics and Statistics* 97 (3), 574–588.
- Markowitz, H., 1952. Portfolio selection. *The Journal of Finance* 7 (1), 77–91.
- Michaelas, N., Chittenden, F., Poutziouris, P., 1999. Financial policy and capital structure choice in UK SMEs: Empirical evidence from company panel data. *Small Business Economics* 12 (2), 113–130.
- Mittoo, U. R., Zhang, Z., 2008. The capital structure of multinational corporations: Canadian versus US evidence. *Journal of Corporate Finance* 14 (5), 706–720.
- Morosini, P., Shane, S., Singh, H., 1998. National cultural distance and cross-border acquisition performance. *Journal of International Business Studies* 29 (1), 137–158.
- Myers, S. C., 1977. Determinants of corporate borrowing. *Journal of Financial Economics* 5 (2), 147–175.
- Ortiz-Molina, H., Penas, M. F., 2008. Lending to small businesses: The role of loan maturity in addressing information problems. *Small Business Economics* 30 (4), 361–383.
- Paravisini, D., Rappoport, V., Schnabl, P., Wolfenzon, D., 2015. Dissecting the effect of credit supply on trade: Evidence from matched credit-export data. *The Review of Economic Studies* 82 (1), 333–359.
- Petersen, M. A., 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies* 22 (1), 435–480.
- Qian, J., Strahan, P. E., 2007. How laws and institutions shape financial contracts: The case of bank loans. *The Journal of Finance* 62 (6), 2803–2834.
- Rajan, R. G., Zingales, L., 1995. What do we know about capital structure? Some evidence from international data. *The Journal of Finance* 50 (5), 1421–1460.

- Ramirez, A., Kwok, C. C., 2010. Settling the debate on multinational capital structure using the CEPR measure. *Journal of Multinational Financial Management* 20 (4), 251–271.
- Reeb, D. M., Mansi, S. A., Allee, J. M., 2001. Firm internationalization and the cost of debt financing: Evidence from non-provisional publicly traded debt. *Journal of Financial and Quantitative Analysis* 36 (3), 395–414.
- Rosenbaum, P. R., Rubin, D. B., 1983. The central role of the propensity score in observational studies for causal effects. *Biometrika* 70 (1), 41–55.
- Rugman, A. M., 1976. Risk reduction by international diversification. *Journal of International Business Studies* 7 (2), 75–80.
- Schoubben, F., Van Hulle, C., 2011. Stock listing and financial flexibility. *Journal of Business Research* 64 (5), 483–489.
- Shapiro, A. C., 1978. Financial structure and cost of capital in the multinational corporation. *Journal of Financial and Quantitative Analysis* 13 (2), 211–226.
- Singh, M., Nejadmalayeri, A., 2004. Internationalization, capital structure, and cost of capital: Evidence from French corporations. *Journal of Multinational Financial Management* 14 (2), 153–169.
- Sogorb-Mira, F., 2005. How SME uniqueness affects capital structure: Evidence from a 1994–1998 Spanish data panel. *Small Business Economics* 25 (5), 447–457.
- Titman, S., Wessels, R., 1988. The determinants of capital structure choice. *The Journal of Finance* 43 (1), 1–19.
- Udell, G. F., 2008. What’s in a relationship? The case of commercial lending. *Business Horizons* 51 (2), 93–103.
- Van der Veer, K. J., 2015. The private export credit insurance effect on trade. *Journal of Risk and Insurance* 82 (3), 601–624.
- Van der Wijst, N., Thurik, R., 1993. Determinants of small firm debt ratios: An analysis of retail panel data. *Small Business Economics* 5 (1), 55–65.
- Verschueren, I., Deloof, M., 2006. How does intragroup financing affect leverage? Belgian evidence. *Journal of Accounting, Auditing & Finance* 21 (1), 83–108.
- WTO, 2016. Trade finance and SMEs: Bridging the gaps in provision.
- Zheng, X., El Ghouli, S., Guedhami, O., Kwok, C. C., 2012. National culture and corporate debt maturity. *Journal of Banking & Finance* 36 (2), 468–488.

10 Appendix

10.1 Financing export activities: General information

The importance of globalization for economic development and growth has encouraged governments and (financial) institutions worldwide to design policies and financial instruments to support cross-border transactions. Several studies have confirmed the importance of these initiatives in stimulating international trade (Egger and Url, 2006; Jones, 2010; Amiti and Weinstein, 2011; Felbermayr and Yalcin, 2013; Van der Veer, 2015). The International Monetary Fund (IMF) estimates that about half of global exports employ (public or private) export credit insurance and/or bank-provided trade finance (Asmundson et al., 2011; Van der Veer, 2015). A recent study by the World Trade Organization (WTO, 2016), in turn, states that about 80 percent of all global trade transactions rely on some form of bank or insurer-intermediated trade finance.

Trade finance comprises of the bank and insurance products that are linked to international sales transactions. In essence, financial institutions and insurers facilitate trade transactions by providing products to their clients that help them mitigate trade risks (e.g. providing payment guarantees or trade credit insurance) and that ease access to credit to support these sales transactions (Grath, 2011; WTO, 2016). Given the risky nature of international trade transactions and the pressure of export activities on working capital needs, exporters tend to be much heavier users of trade financing products than their non-exporting peers (Ahn, 2011; Ahn et al., 2011). Common trade financing instruments, such as letters of credit, guarantees and trade credit insurance, all work in a similar fashion in the sense that they facilitate access to external (debt) financing by replacing the creditworthiness of either the exporter/borrower or the importer with that of a more creditworthy entity, such as an export credit insurer or a commercial bank. Because of the protection offered by such instruments against various trade risks (e.g. commercial risk, political risk), external creditors are generally more keen to accept short-term assets, such as accounts receivables and inventory, as collateral to secure (short-term) bank loans. Furthermore, since the use of these instruments strengthens the quality of the pledged receivables and inventory, commercial lenders may be willing to extend relatively more working capital financing to firms that insure their receivables against trade risks. In sum, the more intense use of trade financing instruments by exporters widens exporters' borrowing capacity and their access to (short-term) bank financing. Since the provision of trade finance is backed by strong collateral and loan documentation, short-term trade finance products are generally considered to be low-risk in nature (WTO, 2016).

To the best of our knowledge, firm-level information on the use of trade financing products by Belgian exporters and non-exporting firms is not available. To exemplify the lack of information on cross-border sales transactions and the use of trade financing instruments: while writing Basel III, the Committee did not have access to information concerning default risk in cross-border sales transactions when setting capital requirements for banks. To overcome this lack of data on the products and their risk characteristics in trade and export finance, the International Chamber of Commerce (ICC) has initiated the development of a trade register which contains data as from 2007 onwards on credit risk in trade and export finance,

provided by 23 participating banks worldwide (ICC, 2015). This trade register is undergoing continuous improvement. So far, the scope of the register is limited with respect to the set of products purchased at one of the participating banks and by the risk types covered (ICC, 2015). Consequently, it does not contain an overview of all trade transactions by client firms and all products purchased, nor does it contain information on the use of trade credit insurance purchased from trade insurers.

10.2 Belgian practice

In response to the lack of firm-level data on insurer or bank-intermediated trade finance, we conducted a small survey in the summer and fall of 2016 amongst the insurers active on the Belgian market that provide trade credit insurance in both domestic and international sales transactions and amongst the main Belgian banks that have a trade finance department. For various reasons, the interviewees could not offer any granular or aggregate data on the use of trade financing products they provide to firms. They did, however, offer useful general insights into the financing habits of Belgian exporters versus non-exporting firms.

The responses of the interviewees were in line with the general information that we obtained from sources such as the World Trade Organization (WTO, 2016) and the previously mentioned academic literature on the subject (Jones, 2010; Ahn, 2011; Amity and Weinstein, 2011; Grath, 2011). Extending payment terms under open account terms (i.e. payment after delivery) is advantageous to the importer in terms of cash flow and cost, since payment is due only after the goods have been shipped and delivered. However, it causes exporters to be particularly vulnerable to commercial risks (e.g. default risk, resiliation risk), adverse changes in exchange rates and the occurrence of unforeseen political events (e.g. transfer risk, currency controls). As a result, to credibly offer payment after delivery terms, the use of trade finance and insurance products is highly recommended for firms serving politically unstable markets and dealing with foreign buyers whose creditworthiness is low or difficult to assess. The use of trade finance and insurance products allows exporters to simultaneously mitigate the risks associated with international sales and improve on their capacity for short-term borrowing by increasing the quality of foreign receivables and inventory used to secure working capital loans.

The interviewed insurance companies active in (trade) finance credit insurance on the Belgian market uniformly confirmed that the vast majority of credit insurance contracts cover export activities rather than domestic sales transactions and that export-intensive firms (i.e. firms that generate a large part of their turnover in foreign markets) are more likely to insure their foreign receivables against trade risks. In addition, export credit insurance typically covers sales transactions outside the European Union, or a mix thereof. The interviewed banks affirmed that both letters of credit (L/C) and trade credit insurance are most intensely used to insure cross-border transactions. When applying for bank financing for trade transactions with near and less risky countries, exporters tend to use credit insurance, while (confirmed) letters of credit are mostly used when exporting to faraway and risky export destinations. The L/C enables the exporter to prefinance its export activities through discounting or securing working capital loans on the basis of the security provided by L/Cs which are usually offered in pawn to the lending

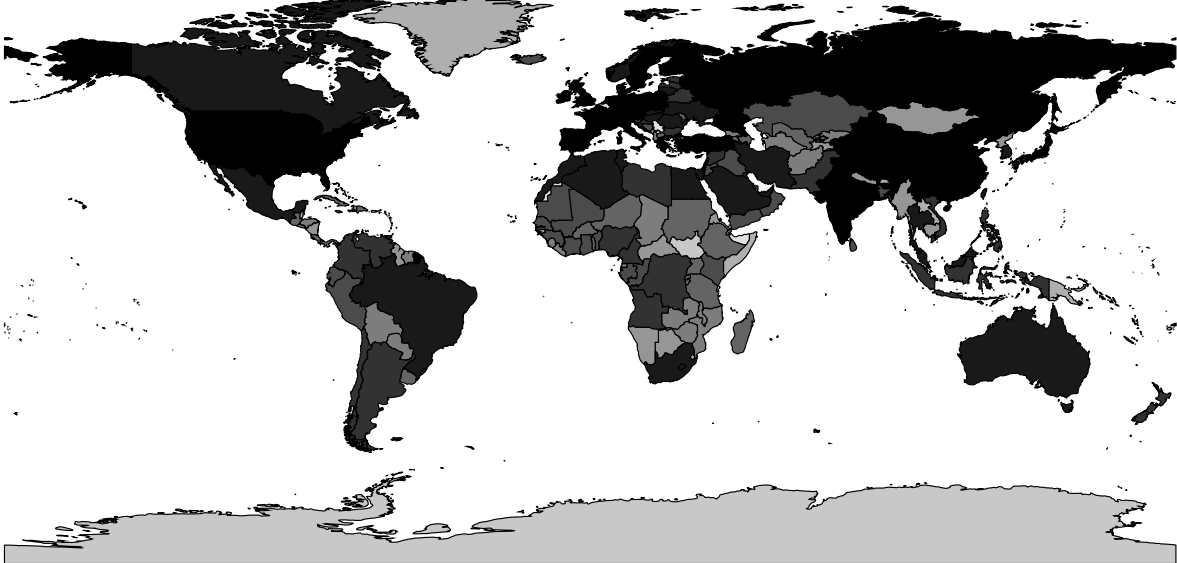
bank. Under a confirmed L/C, the exporter's bank adds its engagement to pay to that of the issuing bank, protecting the exporter against both political and default risk. L/Cs are custom-made for each sales transaction, typically cover 100% of the export sales value and are more costly than trade credit insurance and bank guarantees. Also, under an L/C, the export transaction is monitored closely from start to end by the exporter's bank, which reduces information asymmetries between the exporter and the bank. Banks agree that this monitoring is helpful in widening the exporters' borrowing capacity. Under *trade credit insurance*, the exporter is reimbursed by the insurer in accordance with the terms of the insurance policy when the foreign buyer is insolvent or unable to fulfill its obligations under the sales contract because of unforeseen political events. The insurance policy is purchased by and for the benefit of the exporter and typically covers only a portion of the export sales value. Using trade credit insurance avoids exceptional losses on foreign receivables and thus improves on their strength. By insuring their receivables and inventory, exporters can enhance their short-term borrowing capacity and obtain working capital financing more easily. *Payment guarantees or payment bonds* are mostly used when trading with relatively more trustworthy or familiar foreign buyers and/or when there is confidence in the stability of the importing country and the creditworthiness of the guarantor. In order for the exporter to be willing to offer payment terms under open account terms to the foreign buyer, the importer may be obliged to arrange for a bank guarantee that ensures that the seller will receive payment on the agreed date. In case the importer is unable to pay at the agreed date, the exporter can draw against the bank guarantee. These guarantees can be custom-made at the individual transaction-level as well as cover a number of transactions with a single foreign buyer. Alternatively, export insurers, such as Credimundi, may offer *loan guarantees* in which they promise to reimburse the (bank) lender for the guaranteed portion (typically < 50%) of the working capital loan in case the borrowing exporter defaults on the loan. As a result of this risk-sharing participation, banks are generally more keen to provide the necessary funds to prefinance international sales orders to exporters who applied for export credit guarantees.

Table 1: Variables definition

<i>Variables</i>	<i>Definition</i>
DEPENDENT VARIABLES	
$ST_{i,t}$, $LT_{i,t}$, $TOT_{i,t}$	short-term, long-term and total financial debt over total assets
$MAT_{i,t}$	long-term financial debt over total financial debt
CONTROL VARIABLES	
$Size_{i,t}$	ln of total assets
$Volatility_{i,t}$	standard deviation of three-year ebit over total assets
$Growth_{i,t}$	average yearly change in sales over the three preceding years
$Group_{i,t}$	1 if the firm is controlled for at least 50% directly or indirectly, by a parent firm, 0 otherwise
$Profitability_{i,t}$	ebit over total assets
$LT\ collateral_{i,t}$	tangible fixed assets over total assets
$ST\ collateral_{i,t}$	inventories and accounts receivable minus accounts payable over total assets
EXPORT CHARACTERISTICS	
$Export\ propensity_{i,t}$	1 if the firm reported export sales, 0 otherwise
$Export\ intensity_{i,t}$	export sales over total sales
$Export\ diversity_{i,t}$	the negative sum of the products of the percentage of sales generated in each region k and the ln of that percentage. Six homogenous regions are defined: 1) Belgium; 2) neighboring countries of Belgium; 3) other EU members; 4) non-EU countries, geographically located within Europe; 5) Canada and US and 6) all other countries.
$No.\ of\ destinations_{i,t}$	ln of 1+number of export destination countries
$Political\ risk_{i,t}$	weighted average of the country-specific political risk indices of the export destination countries from performing a yearly principal components analysis on four legality measures from Kaufmann et al. (2011): government effectiveness, regulatory quality, rule of law, and control of corruption. Weights equal the proportion of sales generated in a particular country to total sales.
$Cultural\ distance_{i,t}$	a composite single-country cultural distance index is constructed yearly on the basis of the squared deviations of each export destination country from Belgium along the three World Values Survey (WVS) dimensions of national culture (i.e. trust, individualism and hierarchy) (Kogut and Singh, 1988; Morosini et al., 1998; Chakrabarti et al., 2009). Cultural distance at the level of the firm then equals the weighted average of these country-specific indices, where the weights equal the proportion of sales generated in that particular country to total sales.
$Geographic\ distance_{i,t}$	weighted average of the ln of the great-circle distance in km between the most important capitals in terms of population of Belgium and the export destination countries. Geographic distances are taken from CEPPII (Centre d'Etudes Prospectives et d'Informations Internationales). Weights equal the proportion of sales generated in a particular country to total sales.
$Exchange\ exposure_{i,t}$	Markowitz (1952) portfolio variance, in which the portfolio assets are the national currencies of the export destination countries and the portfolio weights are defined as the difference between export and import flows directed towards and originating from a particular country, scaled by total turnover minus costs of goods sold.

Descriptive statistics and univariate tests

Figure 1: Belgian worldwide export destinations (1998-2013)



Note: Different tones of grey are used to visualize the importance of each country as a trading partner during the period 1998-2013; that is, the darker colored the country, the larger its share in Belgian exports.

Table 2: Descriptive statistics for the full sample, and exporters and non-exporters separately

	Full			Exporters			Non-exporters			Equality of means		Equality of medians	
	N	mean	sd	N	mean	sd	N	mean	sd	t-test	p-value	z-test	p-value
TOT	53,894	0.188	0.137	40,470	0.194	0.148	0.192	13,424	0.173	0.102	0.000	-13.239	0.000
LT	53,894	0.080	0.018	40,470	0.078	0.019	0.114	13,424	0.087	0.017	0.000	-0.308	0.758
ST	53,894	0.107	0.047	40,470	0.114	0.054	0.140	13,424	0.084	0.032	0.000	-19.978	0.000
MAT	41,026	0.405	0.395	31,346	0.391	0.368	0.327	9,680	0.449	0.482	0.000	14.356	0.000
Size	53,894	15.725	15.685	40,470	15.810	15.767	0.764	13,424	15.470	15.438	0.000	-42.710	0.000
Volatility	46,561	0.042	0.030	35,200	0.042	0.030	0.041	11,361	0.041	0.028	0.029	-6.890	0.000
LT collateral	53,894	0.198	0.153	40,470	0.191	0.151	0.163	13,424	0.219	0.161	0.000	7.182	0.000
ST collateral	53,644	0.286	0.281	40,346	0.303	0.299	0.212	13,298	0.233	0.222	0.000	-31.740	0.000
Profitability	53,894	0.068	0.051	40,470	0.069	0.052	0.105	13,424	0.066	0.048	0.000	-4.034	0.000
Growth	47,200	0.064	0.038	35,675	0.061	0.037	0.209	11,525	0.074	0.039	0.000	2.636	0.008
Export intensity	53,894	0.196	0.043	40,470	0.261	0.128	0.293	13,424	0.000	0.000	0.000		
Political risk	53,870	0.225	0.030	40,446	0.300	0.093	0.436	13,424	0.000	0.000	0.000		
Cultural distance	51,542	0.063	0.009	38,118	0.085	0.031	0.116	13,424	0.000	0.000	0.000		
Geographic distance	53,846	1.173	0.248	40,422	1.563	0.728	1.809	13,424	0.000	0.000	0.000		
Export diversity	53,894	0.358	0.184	40,470	0.477	0.401	0.418	13,424	0.000	0.000	0.000		
No. of destinations	53,894	1.470	1.386	40,470	1.957	1.946	0.914	13,424	0.000	0.000	0.000		
Exchange exposure	33,111	0.017	0.002	28,571	0.019	0.003	0.048	4,540	0.006	0.000	0.024		

Note: Descriptive statistics on the matched sample of exporters and non-exporting firms are presented. In addition, to test the difference in mean and median value between both subsamples, Student's t-tests and Wilcoxon rank sum z-tests have been used. All continuous variables have been winsorized at the 1%-level.

Table 3: Pearson's correlation matrix

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1. TOT	1.00																
2. LT	0.70***	1.00															
3. ST	0.78***	0.11***	1.00														
4. MAT	0.10***	0.67***	-0.48***	1.00													
5. Size	0.09***	0.06***	0.07***	0.02***	1.00												
6. Volatility	-0.14***	-0.10***	-0.11***	-0.05***	-0.18***	1.00											
7. LT collateral	0.39***	0.50***	0.10***	0.34***	0.02***	-0.05***	1.00										
8. ST collateral	0.12***	-0.12***	0.27***	-0.27***	-0.08***	-0.02***	-0.15***	1.00									
9. Profitability	-0.24***	-0.14***	-0.21***	0.03***	-0.02***	0.06***	0.03***	0.07***	1.00								
10. Growth	0.05***	0.07***	0.00	0.06***	0.04***	0.00	0.03***	-0.04***	0.12***	1.00							
11. Export intensity	0.08***	0.02***	0.09***	-0.03***	0.18***	0.06***	0.05***	0.08***	0.00	-0.00	1.00						
12. Political risk	0.04***	-0.01*	0.07***	-0.04***	0.17***	0.06***	0.01**	0.08***	0.00	0.01	0.85***	1.00					
13. Cultural distance	0.06***	0.02***	0.06***	-0.01**	0.12***	0.05***	0.04***	0.06***	-0.00	-0.01*	0.75***	0.54***	1.00				
14. Geographic distance	0.07***	0.02***	0.09***	-0.03***	0.18***	0.06***	0.04***	0.08***	0.01	0.00	0.99***	0.90***	0.74***	1.00			
15. Export diversity	0.08***	0.01***	0.11***	-0.05***	0.21***	0.05***	0.02***	0.12***	0.00	-0.01**	0.88***	0.80***	0.69***	0.89***	1.00		
16. Exchange exposure	0.07***	-0.05***	0.13***	-0.10***	0.10***	0.02***	-0.12***	0.08***	-0.07***	0.00	0.27***	0.31***	0.20***	0.29***	0.27***	1.00	
17. No. of export dest.	0.07***	-0.03	0.12	-0.08***	0.29***	0.02***	-0.06***	0.17***	0.02***	-0.01***	0.70***	0.66***	0.53***	0.71***	0.83***	0.24***	1.00

N

53894

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Leverage ratios for exporting and non-exporting firms

	Full						Exporters						Non-exporters						Full(interaction)					
	TOT		LT		ST		MAT		TOT		LT		ST		MAT		TOT		LT		ST		MAT	
	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Group	-0.009** (0.004)	-0.008*** (0.002)	-0.002 (0.003)	-0.034*** (0.008)	-0.002 (0.003)	-0.033*** (0.008)	-0.013* (0.007)	-0.012*** (0.004)	-0.001 (0.005)	-0.009** (0.004)	-0.008*** (0.003)	-0.002 (0.003)	-0.009** (0.004)	-0.008*** (0.003)	-0.002 (0.003)	-0.034*** (0.016)	-0.009** (0.004)	-0.009** (0.004)	-0.008*** (0.003)	-0.008*** (0.003)	-0.002 (0.003)	-0.009** (0.004)	-0.008*** (0.003)	-0.034*** (0.016)
Volatility	-0.370*** (0.036)	-0.154*** (0.022)	-0.221*** (0.028)	-0.360*** (0.093)	-0.246*** (0.032)	-0.350*** (0.102)	-0.228*** (0.067)	-0.098*** (0.043)	-0.133*** (0.045)	-0.098*** (0.043)	-0.166*** (0.024)	-0.246*** (0.032)	-0.228*** (0.067)	-0.098*** (0.043)	-0.133*** (0.045)	-0.380** (0.198)	-0.371*** (0.036)	-0.371*** (0.036)	-0.154*** (0.022)	-0.154*** (0.022)	-0.221*** (0.028)	-0.221*** (0.028)	-0.356*** (0.093)	-0.356*** (0.093)
Profitability	-0.361*** (0.015)	-0.084*** (0.008)	-0.272*** (0.011)	0.276*** (0.043)	0.272*** (0.011)	0.296*** (0.046)	-0.376*** (0.016)	-0.083*** (0.009)	-0.288*** (0.013)	-0.083*** (0.009)	-0.083*** (0.009)	-0.288*** (0.013)	-0.303*** (0.027)	-0.092*** (0.016)	0.178* (0.098)	-0.362*** (0.015)	-0.362*** (0.015)	-0.362*** (0.015)	-0.084*** (0.008)	-0.084*** (0.008)	-0.273*** (0.011)	-0.273*** (0.011)	0.277*** (0.042)	0.277*** (0.042)
LT collateral	0.454*** (0.014)	0.300*** (0.010)	0.153*** (0.010)	0.486*** (0.028)	0.153*** (0.010)	0.493*** (0.031)	0.445*** (0.016)	0.293*** (0.011)	0.151*** (0.011)	0.293*** (0.011)	0.293*** (0.011)	0.151*** (0.011)	0.486*** (0.022)	0.323*** (0.018)	0.477*** (0.047)	0.453*** (0.014)	0.453*** (0.014)	0.453*** (0.014)	0.300*** (0.010)	0.300*** (0.010)	0.152*** (0.010)	0.152*** (0.010)	0.488*** (0.028)	0.488*** (0.028)
ST collateral	0.221*** (0.010)	0.019*** (0.005)	0.200*** (0.008)	-0.242*** (0.021)	0.200*** (0.008)	-0.268*** (0.023)	0.242*** (0.011)	0.019*** (0.005)	0.220*** (0.009)	0.220*** (0.009)	0.019*** (0.005)	0.220*** (0.009)	0.145*** (0.015)	0.020** (0.008)	-0.129*** (0.039)	0.143*** (0.015)	0.143*** (0.015)	0.143*** (0.015)	0.015* (0.008)	0.015* (0.008)	0.130*** (0.012)	0.130*** (0.012)	-0.132*** (0.036)	-0.132*** (0.036)
Size	0.022*** (0.003)	0.008*** (0.002)	0.014*** (0.002)	0.004 (0.006)	0.014*** (0.006)	0.002 (0.007)	0.022*** (0.003)	0.006*** (0.002)	0.015*** (0.002)	0.015*** (0.002)	0.006*** (0.002)	0.015*** (0.002)	0.028*** (0.005)	0.016*** (0.003)	0.016 (0.013)	0.023*** (0.003)	0.023*** (0.003)	0.023*** (0.003)	0.008*** (0.002)	0.008*** (0.002)	0.014*** (0.002)	0.014*** (0.002)	0.004 (0.006)	0.004 (0.006)
Growth	0.060*** (0.007)	0.033*** (0.005)	0.027*** (0.006)	0.056*** (0.017)	0.027*** (0.006)	0.053*** (0.019)	0.058*** (0.009)	0.029*** (0.005)	0.029*** (0.006)	0.029*** (0.006)	0.029*** (0.005)	0.029*** (0.006)	0.061*** (0.013)	0.042*** (0.010)	0.071** (0.033)	0.060*** (0.007)	0.060*** (0.007)	0.060*** (0.007)	0.033*** (0.005)	0.033*** (0.005)	0.026*** (0.006)	0.026*** (0.006)	0.057*** (0.017)	0.057*** (0.017)
Export	0.010** (0.004)	-0.004 (0.002)	0.014*** (0.003)	-0.012 (0.009)	0.014*** (0.003)	-0.012 (0.009)	0.010 (0.009)	0.010 (0.005)	0.010 (0.006)	0.010 (0.006)	0.010 (0.005)	0.010 (0.006)	0.010 (0.013)	0.010 (0.010)	0.033 (0.033)	-0.015*** (0.006)	-0.015*** (0.006)	-0.015*** (0.006)	-0.005 (0.004)	-0.005 (0.004)	-0.009** (0.004)	-0.009** (0.004)	0.024* (0.014)	0.024* (0.014)
Export x ST collateral																								
Constant	-0.266*** (0.043)	-0.092*** (0.024)	-0.161*** (0.034)	0.275*** (0.098)	-0.165*** (0.039)	0.302*** (0.109)	-0.245*** (0.048)	-0.068*** (0.026)	-0.165*** (0.039)	-0.165*** (0.039)	-0.068*** (0.026)	-0.212*** (0.050)	-0.344*** (0.077)	-0.212*** (0.050)	0.099 (0.199)	-0.247*** (0.042)	-0.247*** (0.042)	-0.247*** (0.042)	-0.091*** (0.024)	-0.091*** (0.024)	-0.144*** (0.033)	-0.144*** (0.033)	0.243** (0.098)	0.243** (0.098)
time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	30253	30253	30253	22406	24784	18587	24784	24784	24784	24784	24784	24784	5469	5469	3819	30253	30253	30253	30253	30253	30253	30253	22406	22406
No. of firms	5994	5994	5994	5113	4904	4219	4904	4904	4904	4904	4904	2257	2257	2257	1753	5994	5994	5994	5994	5994	5994	5994	5113	5113
F	72.183	41.654	40.369	24.376	58.973	22.001	34.457	34.673	34.673	34.673	34.457	16.490	28.092	16.490	7.869	40.754	40.754	40.754	40.754	40.754	39.934	39.934	24.126	24.126
Adjusted R ²	0.262	0.242	0.177	0.131	0.257	0.133	0.257	0.231	0.182	0.182	0.231	0.287	0.302	0.287	0.121	0.264	0.264	0.264	0.242	0.242	0.180	0.180	0.132	0.132

Note: This table contains the results for pooled OLS regressions of the determinants of the capital structure and debt maturity for the full matched sample and for the subsamples of exporters and matched non-exporting firms separately. The dependent variables are TOT (total financial debt/total assets), LT (long-term financial debt/total assets), ST (short-term financial debt/total assets) and MAT (long-term financial debt/total financial debt). All independent variables are one-period lagged ones. Industry (at the 2-digit NACE-BEL level) and year dummies have been included in all regressions. The (unreported) coefficients are available upon request. All continuous variables have been winsorized at the 1%-level. Robust standard errors (clustered at firm-level) are reported in parentheses. ***, ** denotes significance at 1%, ** denotes significance at 5% and * denotes significance at 10%.

Table 5: Leverage ratios for exporting and non-exporting firms

	Model1				Model2				Model3				Model4				
	TOT	LT	ST	MAT	TOT	LT	ST	MAT	TOT	LT	ST	MAT	TOT	LT	ST	MAT	
Group	-0.008** (0.004)	-0.008*** (0.002)	-0.001 (0.003)	-0.035*** (0.008)	-0.008** (0.004)	-0.008*** (0.002)	-0.001 (0.003)	-0.035*** (0.008)	-0.008** (0.004)	-0.008*** (0.002)	-0.001 (0.003)	-0.035*** (0.008)	-0.009** (0.004)	-0.008*** (0.002)	-0.002 (0.003)	-0.034*** (0.008)	
Volatility	-0.385*** (0.036)	-0.157*** (0.022)	-0.232*** (0.028)	-0.345*** (0.093)	-0.386*** (0.036)	-0.158*** (0.022)	-0.232*** (0.028)	-0.344*** (0.093)	-0.389*** (0.036)	-0.158*** (0.022)	-0.235*** (0.028)	-0.341*** (0.093)	-0.378*** (0.036)	-0.154*** (0.022)	-0.228*** (0.028)	-0.344*** (0.093)	
Profitability	-0.363*** (0.015)	-0.084*** (0.008)	-0.274*** (0.011)	0.279*** (0.043)	-0.362*** (0.015)	-0.084*** (0.008)	-0.273*** (0.011)	0.279*** (0.043)	-0.361*** (0.015)	-0.084*** (0.008)	-0.271*** (0.011)	0.278*** (0.043)	-0.364*** (0.015)	-0.084*** (0.008)	-0.274*** (0.011)	0.281*** (0.042)	
LT collateral	0.454*** (0.014)	0.300*** (0.010)	0.152*** (0.010)	0.486*** (0.028)	0.455*** (0.014)	0.300*** (0.010)	0.153*** (0.010)	0.485*** (0.028)	0.455*** (0.014)	0.300*** (0.010)	0.153*** (0.010)	0.485*** (0.028)	0.454*** (0.014)	0.300*** (0.010)	0.153*** (0.010)	0.487*** (0.028)	
Size	0.021*** (0.003)	0.007*** (0.002)	0.013*** (0.002)	0.005 (0.006)	0.020*** (0.003)	0.007*** (0.002)	0.012*** (0.002)	0.006 (0.006)	0.020*** (0.003)	0.007*** (0.002)	0.012*** (0.002)	0.006 (0.006)	0.021*** (0.003)	0.008*** (0.002)	0.012*** (0.002)	0.007 (0.006)	
Growth	0.059*** (0.007)	0.033*** (0.005)	0.026*** (0.006)	0.057*** (0.017)	0.060*** (0.007)	0.033*** (0.005)	0.026*** (0.006)	0.057*** (0.017)	0.060*** (0.007)	0.033*** (0.005)	0.027*** (0.006)	0.056*** (0.017)	0.060*** (0.007)	0.033*** (0.005)	0.026*** (0.006)	0.057*** (0.017)	
ST collateral	0.198*** (0.011)	0.017*** (0.005)	0.180*** (0.009)	-0.222*** (0.024)	0.187*** (0.012)	0.020*** (0.006)	0.167*** (0.010)	-0.197*** (0.026)	0.175*** (0.013)	0.021*** (0.006)	0.154*** (0.010)	-0.183*** (0.029)	0.160*** (0.014)	0.021*** (0.007)	0.140*** (0.011)	-0.143*** (0.032)	
Export intensity	0.002 (0.012)	-0.000 (0.007)	0.004 (0.008)	0.002 (0.026)	0.002 (0.026)	0.002 (0.026)	0.002 (0.026)	0.002 (0.026)	0.002 (0.026)	0.002 (0.026)	0.002 (0.026)	0.002 (0.026)	0.002 (0.026)	0.002 (0.026)	0.002 (0.026)	0.002 (0.026)	
Export intensity x ST coll	0.114*** (0.036)	0.004 (0.017)	0.104*** (0.030)	-0.098 (0.062)	0.084*** (0.023)	-0.005 (0.011)	0.085*** (0.019)	-0.114*** (0.042)	0.169*** (0.065)	-0.028 (0.018)	0.189*** (0.054)	-0.226* (0.125)	0.037*** (0.008)	-0.001 (0.004)	0.037*** (0.006)	-0.060*** (0.015)	
Export diversity					0.003 (0.008)	0.004 (0.005)	0.000 (0.006)	0.016 (0.018)	0.038* (0.022)	0.020 (0.014)	0.019 (0.015)	0.012 (0.050)	0.012 (0.050)	0.003 (0.003)	0.002 (0.002)	0.002 (0.006)	0.012* (0.006)
Export diversity x ST coll					0.084*** (0.023)	-0.005 (0.011)	0.085*** (0.019)	-0.114*** (0.042)	0.169*** (0.065)	-0.028 (0.018)	0.189*** (0.054)	-0.226* (0.125)	0.037*** (0.008)	-0.001 (0.004)	0.037*** (0.006)	-0.060*** (0.015)	
Export diversity sq																	
Export diversity sq x ST coll																	
No. of destinations																	
No. of destinations x ST coll																	
Constant	-0.237*** (0.043)	-0.088*** (0.024)	-0.137*** (0.034)	0.253** (0.099)	-0.222*** (0.043)	-0.087*** (0.024)	-0.123*** (0.033)	0.235** (0.099)	-0.219*** (0.043)	-0.088*** (0.024)	-0.120*** (0.033)	0.232** (0.099)	-0.220*** (0.043)	-0.095*** (0.024)	-0.112*** (0.034)	0.208** (0.100)	
time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Observations	30253	30253	30253	22406	30253	30253	30253	22406	30253	30253	30253	22406	30253	30253	30253	22406	
No. of firms	5994	5994	5994	5113	5994	5994	5994	5113	5994	5994	5994	5113	5994	5994	5994	5113	
F	71.102	40.733	39.945	24.442	71.546	40.890	40.284	24.786	69.908	39.353	39.551	23.970	71.370	41.050	40.461	24.768	
Adjusted R ²	0.265	0.241	0.182	0.132	0.266	0.241	0.184	0.132	0.268	0.242	0.187	0.133	0.265	0.241	0.183	0.133	

Note: This table contains the results for pooled OLS regressions of the determinants of the capital structure and debt maturity for the full matched sample of exporters and non-exporters. The dependent variables are TOT (total financial debt/total assets), LT (long-term financial debt/total assets), ST (short-term financial debt/total assets) and MAT (long-term financial debt/total financial debt). All continuous variables have been winsorized at the 1%-level. All independent variables are one-period lagged ones. Industry (at the 2-digit NACE-BEL level) and year dummies have been included in all regressions. The (unreported) coefficients are available upon request. Robust standard errors (clustered at firm-level) are reported in parentheses. *** denotes significance at 1%, ** denotes significance at 5% and * denotes significance at 10%.

Table 5: Leverage ratios for exporting and non-exporting firms

	Model5			Model6			Model7			Model8							
	TOT	LT	ST	TOT	LT	ST	TOT	LT	ST	TOT	LT	ST	TOT	LT	ST	MAT	
Group	-0.010** (0.004)	-0.008*** (0.002)	-0.002 (0.003)	-0.034*** (0.008)	-0.008** (0.004)	-0.001 (0.003)	-0.035*** (0.008)	-0.008*** (0.002)	-0.001 (0.003)	-0.007*** (0.002)	-0.008* (0.004)	-0.002 (0.003)	-0.008** (0.004)	-0.007*** (0.002)	-0.002 (0.003)	-0.035*** (0.008)	-0.030*** (0.009)
Volatility	-0.374*** (0.037)	-0.158*** (0.022)	-0.221*** (0.028)	-0.358*** (0.094)	-0.384*** (0.036)	-0.232*** (0.028)	-0.345*** (0.093)	-0.156*** (0.022)	-0.226*** (0.028)	-0.376*** (0.036)	-0.419*** (0.043)	-0.261*** (0.033)	-0.376*** (0.036)	-0.159*** (0.026)	-0.261*** (0.033)	-0.350*** (0.094)	-0.319*** (0.111)
Profitability	-0.363*** (0.015)	-0.084*** (0.008)	-0.274*** (0.011)	0.290*** (0.043)	-0.363*** (0.015)	-0.273*** (0.011)	0.279*** (0.043)	-0.084*** (0.008)	-0.272*** (0.011)	-0.361*** (0.015)	-0.349*** (0.017)	-0.264*** (0.013)	-0.349*** (0.017)	-0.080*** (0.010)	-0.264*** (0.013)	0.277*** (0.043)	0.305*** (0.052)
LT collateral	0.452*** (0.014)	0.300*** (0.010)	0.151*** (0.010)	0.486*** (0.028)	0.455*** (0.014)	0.153*** (0.010)	0.485*** (0.028)	0.300*** (0.010)	0.153*** (0.010)	0.455*** (0.014)	0.447*** (0.016)	0.155*** (0.011)	0.447*** (0.016)	0.290*** (0.011)	0.155*** (0.011)	0.485*** (0.033)	0.483*** (0.008)
Size	0.022*** (0.003)	0.007*** (0.002)	0.014*** (0.002)	0.003 (0.006)	0.021*** (0.003)	0.013*** (0.002)	0.005 (0.006)	0.007*** (0.002)	0.013*** (0.002)	0.022*** (0.003)	0.005 (0.006)	0.014*** (0.002)	0.005 (0.006)	0.007*** (0.002)	0.010*** (0.002)	0.005 (0.006)	0.008 (0.008)
Growth	0.061*** (0.008)	0.033*** (0.005)	0.027*** (0.006)	0.055*** (0.017)	0.059*** (0.007)	0.026*** (0.006)	0.057*** (0.017)	0.033*** (0.005)	0.026*** (0.006)	0.059*** (0.007)	0.052*** (0.009)	0.026*** (0.006)	0.052*** (0.009)	0.028*** (0.006)	0.024*** (0.007)	0.052*** (0.006)	0.052*** (0.021)
ST collateral	0.217*** (0.010)	0.022*** (0.005)	0.194*** (0.009)	-0.226*** (0.022)	0.199*** (0.011)	0.181*** (0.009)	-0.225*** (0.024)	0.017*** (0.005)	0.181*** (0.009)	0.205*** (0.010)	0.188*** (0.012)	0.175*** (0.009)	0.194*** (0.012)	0.018*** (0.006)	0.175*** (0.009)	-0.230*** (0.023)	-0.228*** (0.027)
Cultural distance	0.051** (0.025)	0.028* (0.016)	0.023 (0.018)	0.052 (0.061)	-0.000 (0.002)	0.000 (0.001)	0.000 (0.004)	-0.000 (0.001)	0.000 (0.001)	-0.000 (0.004)	-0.000 (0.002)	0.000 (0.001)	-0.000 (0.004)	-0.000 (0.002)	0.000 (0.001)	0.000 (0.004)	0.000 (0.009)
Cultural distance x ST coll	0.081 (0.077)	-0.064* (0.037)	0.138** (0.065)	-0.301** (0.147)	0.019*** (0.006)	0.017*** (0.005)	-0.014 (0.010)	0.019*** (0.003)	0.017*** (0.005)	0.081*** (0.024)	0.062*** (0.019)	-0.014 (0.043)	0.062*** (0.019)	0.014 (0.024)	0.062*** (0.019)	-0.058 (0.043)	-0.058 (0.043)
Geographic distance																	
Geographic distance x ST coll																	
Political risk																	
Political risk x ST coll																	
Exchange exposure																	
Exchange exposure x ST coll																	
Constant	-0.247*** (0.043)	-0.083*** (0.024)	-0.152*** (0.034)	0.275*** (0.099)	-0.238*** (0.043)	-0.089*** (0.024)	0.253** (0.099)	-0.137*** (0.034)	-0.137*** (0.034)	-0.250*** (0.043)	-0.091*** (0.024)	-0.147*** (0.034)	-0.260*** (0.099)	-0.229*** (0.052)	-0.116*** (0.040)	0.260*** (0.099)	0.231** (0.125)
time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	29020	29020	29020	21512	30229	30229	22391	30229	30229	30240	30240	30240	22396	20545	20545	20545	15039
No. of firms	5908	5908	5908	5037	5994	5994	5113	5994	5994	5994	5994	5994	5113	4708	4708	4708	3953
F	70.132	39.967	39.537	24.159	70.872	40.672	24.345	39.821	39.821	70.430	40.701	39.617	24.381	54.129	30.002	34.098	18.794
Adjusted R ²	0.262	0.241	0.179	0.133	0.265	0.241	0.132	0.181	0.181	0.263	0.241	0.179	0.132	0.262	0.224	0.191	0.128

Note: This table contains the results for pooled OLS regressions of the determinants of the capital structure and debt maturity for the full matched sample of exporters and non-exporters. The dependent variables are TOT (total financial debt/total assets), LT (long-term financial debt/total assets), ST (short-term financial debt/total assets) and MAT (long-term financial debt/total financial debt). All continuous variables have been winsorized at the 1%-level. All independent variables are one-period lagged ones. Industry (at the 2-digit NACE-BEL level) and year dummies have been included in all regressions. The (unreported) coefficients are available upon request. Robust standard errors (clustered at firm-level) are reported in parentheses. *** denotes significance at 1%, ** denotes significance at 5% and * denotes significance at 10%.

Table 6: Leverage ratios for exporting and non-exporting firms

	pooled OLS						Firm FE							
	TOT		LT		MAT		TOT		LT		ST		MAT	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Post	0.010 (0.009)	0.009* (0.005)	0.001 (0.007)	0.029 (0.025)	0.009 (0.008)	0.007 (0.005)	0.002 (0.007)	0.002 (0.025)						
Export entrant	-0.020 (0.015)	0.005 (0.010)	-0.025** (0.012)	0.036 (0.039)										
Post * Export entrant	0.015 (0.011)	-0.003 (0.007)	0.018** (0.009)	-0.034 (0.031)	0.008 (0.008)	-0.004 (0.006)	0.012* (0.007)	-0.028 (0.024)						
Group	0.001 (0.011)	0.001 (0.007)	-0.001 (0.009)	-0.029 (0.026)	0.012 (0.008)	0.008 (0.006)	0.004 (0.005)	0.023 (0.026)						
Volatility	-0.351*** (0.079)	-0.137** (0.054)	-0.214*** (0.058)	-0.212 (0.374)	0.015 (0.048)	0.033 (0.035)	-0.017 (0.040)	0.066 (0.286)						
Profitability	-0.279*** (0.039)	-0.055** (0.023)	-0.224*** (0.030)	0.288** (0.131)	-0.105** (0.050)	-0.030 (0.026)	-0.075* (0.044)	0.054 (0.138)						
LT collateral	0.448*** (0.042)	0.296*** (0.032)	0.152*** (0.028)	0.495*** (0.080)	0.299*** (0.063)	0.185*** (0.046)	0.114** (0.048)	0.281* (0.154)						
ST collateral	0.169*** (0.026)	0.021 (0.013)	0.148*** (0.021)	-0.209*** (0.061)	0.037 (0.044)	-0.029* (0.037)	0.065* (0.072)	-0.031 (0.072)						
Size	0.036** (0.008)	0.017*** (0.005)	0.019*** (0.007)	0.005 (0.018)	0.072*** (0.018)	0.036*** (0.010)	0.036*** (0.014)	0.048 (0.048)						
Growth	-0.001*** (0.000)	-0.000** (0.000)	-0.001*** (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000*** (0.000)	-0.000 (0.000)	0.000 (0.000)						
Constant	-0.572*** (0.129)	-0.277*** (0.088)	-0.294*** (0.106)	0.322 (0.302)	-0.983*** (0.284)	-0.497*** (0.162)	-0.487** (0.221)	-0.412 (0.776)						
time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes						
industry FE	Yes	Yes	Yes	Yes	No	No	No	No						
Observations	2153	2153	2153	1500	2153	2153	2153	1500						
No. of firms	622	622	622	494	622	622	622	494						
F	19.788	14.302	7.760	6.623	6.014	14.389	1.246	1.134						
Adjusted R ²	0.286	0.227	0.173	0.114	0.105	0.077	0.047	0.018						

Note: This table analyzes the impact of entry into export markets on leverage and debt maturity in a difference-in-difference (DID) set-up on a matched sample of export entrants and continuous non-exporters. A propensity score matching procedure was employed to construct a control group of non-exporting firms for the treatment firms, based on a range of pre-entry characteristics. The dependent variable of the probit regression is a dummy variable equal to one for export entrants and zero for continuous non-exporters. The explanatory variables are lagged leverage ratios (both short-term and long-term debt ratios), total factor productivity, firm size (total assets), firm age, group affiliation, sales growth and profitability. After obtaining the propensity scores, every export entrant is matched with its closest non-exporting firm in terms of their propensity scores (i.e. one-to-one nearest neighbor matching with replacement) (Rosenbaum and Rubin, 1983). The dependent variables of the DID specifications are TOT (total financial debt/total assets), LT (long-term financial debt/total assets), ST (short-term financial debt/total assets) and MAT (long-term financial debt/total financial debt). Post is a dummy variable that equals one in the period following export market entry. Export entrant is a dummy variable that equals one when the firm entered export markets during the sample period and zero when the firm is a continuous non-exporter. The interaction term between both dummy variables is of main interest as it captures the actual impact of export entry on leverage and loan maturity. Industry or firm fixed effects and year dummies have been included in all regressions. The (unreported) coefficients are available upon request. Robust standard errors (clustered at firm-level) are reported in parentheses. All continuous variables have been winsorized at the 1%-level. *** denotes significance at 1%, ** denotes significance at 5% and * denotes significance at 10%.

Table 7: Leverage ratios for exporting and non-exporting firms

	pooled OLS						Firm FE									
	TOT		LT		ST		MAT		TOT		LT		ST		MAT	
Post	-0.003 (0.031)	-0.003 (0.017)	-0.001 (0.021)	0.178 (0.119)	-0.008 (0.016)	0.013 (0.052)	-0.003 (0.031)	-0.003 (0.017)	-0.001 (0.021)	0.178 (0.119)	-0.008 (0.016)	0.013 (0.052)	-0.003 (0.031)	-0.003 (0.017)	-0.001 (0.021)	0.178 (0.119)
ST collateral	0.122 (0.158)	-0.093* (0.049)	0.202 (0.130)	-0.038 (0.387)	-0.093* (0.048)	0.080 (0.328)	-0.188 (0.145)	-0.093* (0.049)	0.202 (0.130)	-0.038 (0.387)	-0.093* (0.048)	0.080 (0.328)	-0.188 (0.145)	-0.093* (0.049)	0.202 (0.130)	-0.038 (0.387)
Post * ST collateral	0.028 (0.094)	0.026 (0.039)	0.015 (0.070)	-0.496 (0.355)	0.017 (0.026)	-0.145 (0.188)	0.028 (0.094)	0.026 (0.039)	0.015 (0.070)	-0.496 (0.355)	0.017 (0.026)	-0.145 (0.188)	0.028 (0.094)	0.026 (0.039)	0.015 (0.070)	-0.496 (0.355)
Arab Spring country exporter	-0.039 (0.060)	-0.026 (0.036)	-0.015 (0.043)	0.121 (0.180)	-0.026 (0.043)	0.121 (0.180)	-0.039 (0.060)	-0.026 (0.036)	-0.015 (0.043)	0.121 (0.180)	-0.026 (0.043)	0.121 (0.180)	-0.039 (0.060)	-0.026 (0.036)	-0.015 (0.043)	0.121 (0.180)
Post * Arab Spring country exporter	-0.054 (0.046)	0.004 (0.029)	-0.056* (0.032)	-0.111 (0.169)	-0.054* (0.032)	-0.111 (0.169)	-0.054 (0.046)	0.004 (0.029)	-0.056* (0.032)	-0.111 (0.169)	-0.054* (0.032)	-0.111 (0.169)	-0.054 (0.046)	0.004 (0.029)	-0.056* (0.032)	-0.111 (0.169)
Arab Spring country exporter * ST collateral	0.013 (0.185)	0.087 (0.087)	-0.062 (0.153)	-0.209* (0.501)	0.087 (0.087)	-0.062 (0.153)	0.013 (0.185)	0.087 (0.087)	-0.062 (0.153)	-0.209* (0.501)	0.087 (0.087)	-0.062 (0.153)	0.013 (0.185)	0.087 (0.087)	-0.062 (0.153)	-0.209* (0.501)
Post * Arab Spring country exporter * ST collateral	0.221 (0.136)	-0.012 (0.077)	0.220** (0.099)	0.062 (0.454)	-0.012 (0.077)	0.220** (0.099)	0.221 (0.136)	-0.012 (0.077)	0.220** (0.099)	0.062 (0.454)	-0.012 (0.077)	0.220** (0.099)	0.221 (0.136)	-0.012 (0.077)	0.220** (0.099)	0.062 (0.454)
Group	-0.009 (0.025)	-0.003 (0.013)	-0.006 (0.019)	-0.080 (0.065)	-0.003 (0.013)	-0.006 (0.019)	-0.009 (0.025)	-0.003 (0.013)	-0.006 (0.019)	-0.080 (0.065)	-0.003 (0.013)	-0.006 (0.019)	-0.009 (0.025)	-0.003 (0.013)	-0.006 (0.019)	-0.080 (0.065)
Volatility	0.138 (0.278)	0.022 (0.136)	0.117 (0.250)	-0.877 (0.831)	0.022 (0.136)	0.117 (0.250)	0.138 (0.278)	0.022 (0.136)	0.117 (0.250)	-0.877 (0.831)	0.022 (0.136)	0.117 (0.250)	0.138 (0.278)	0.022 (0.136)	0.117 (0.250)	-0.877 (0.831)
Profitability	-0.383*** (0.093)	-0.130*** (0.045)	-0.253*** (0.073)	0.017 (0.283)	-0.130*** (0.045)	-0.253*** (0.073)	-0.383*** (0.093)	-0.130*** (0.045)	-0.253*** (0.073)	0.017 (0.283)	-0.130*** (0.045)	-0.253*** (0.073)	-0.383*** (0.093)	-0.130*** (0.045)	-0.253*** (0.073)	0.017 (0.283)
LT collateral	0.434*** (0.073)	0.286*** (0.045)	0.149*** (0.048)	0.285 (0.199)	0.434*** (0.073)	0.286*** (0.045)	0.434*** (0.073)	0.286*** (0.045)	0.149*** (0.048)	0.285 (0.199)	0.434*** (0.073)	0.286*** (0.045)	0.434*** (0.073)	0.286*** (0.045)	0.149*** (0.048)	0.285 (0.199)
Size	0.004 (0.021)	-0.017* (0.009)	0.020 (0.017)	-0.027 (0.050)	-0.017* (0.009)	0.020 (0.017)	0.004 (0.021)	-0.017* (0.009)	0.020 (0.017)	-0.027 (0.050)	-0.017* (0.009)	0.020 (0.017)	0.004 (0.021)	-0.017* (0.009)	0.020 (0.017)	-0.027 (0.050)
Growth	0.138* (0.074)	0.068** (0.033)	0.070 (0.060)	-0.014 (0.167)	0.138* (0.074)	0.068** (0.033)	0.138* (0.074)	0.068** (0.033)	0.070 (0.060)	-0.014 (0.167)	0.138* (0.074)	0.068** (0.033)	0.138* (0.074)	0.068** (0.033)	0.070 (0.060)	-0.014 (0.167)
Constant	-0.002 (0.354)	0.312** (0.155)	-0.311 (0.289)	0.861 (0.818)	0.312** (0.155)	-0.311 (0.289)	-0.002 (0.354)	0.312** (0.155)	-0.311 (0.289)	0.861 (0.818)	0.312** (0.155)	-0.311 (0.289)	-0.002 (0.354)	0.312** (0.155)	-0.311 (0.289)	0.861 (0.818)
industry FE	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes
firm FE	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Observations	402	402	402	279	402	402	402	402	402	279	402	402	402	402	279	279
No. of firms	159	159	159	120	159	159	159	159	159	120	159	159	159	159	120	120
F	7.777	5.909	5.867	3.910	7.777	5.867	7.777	5.909	5.867	3.910	7.777	5.867	7.777	5.909	5.867	3.910
Adjusted R ²	0.277	0.307	0.202	0.117	0.277	0.202	0.277	0.307	0.202	0.117	0.277	0.202	0.277	0.307	0.202	0.117

Note: This table analyzes the impact of an exogenous shock in political risk (i.e. outbreak of the Arab Spring at the end of 2010) on the capital structure and debt maturity in a difference-in-difference (DID) set-up on a matched sample of Arab Spring-country (i.e. Tunisia, Egypt, Libya, Yemen, Syria and Bahrain) and non-Arab Spring country exporters during 2009-2012. A propensity score matching procedure was employed to construct a control group of non-Arab Spring country exporters for the treatment firms, based on a range of observable firm characteristics (from 2010). The dependent variable of the probit regression is a dummy variable equal to one for Arab Spring country exporters and zero for non-Arab Spring country exporters. The explanatory variables are lagged leverage ratios (both short-term and long-term debt ratios), total factor productivity, firm size (total assets), firm age, group affiliation, sales growth and profitability. After obtaining the propensity scores, every Arab Spring country exporter is matched with its closest non-Arab Spring country exporter in terms of their propensity scores (i.e. one-to-one nearest neighbor matching with replacement) (Rosenbaum and Rubin, 1983). The dependent variables of the DID specifications are TOT (total financial debt/total assets), LT (long-term financial debt/total assets), ST (short-term financial debt/total assets) and MAT (long-term financial debt/total financial debt). Post is a dummy variable that equals one in the period following the outbreak of the revolution. Arab Spring country exporter is a dummy variable that equals one when the firm continuously exported to Arab Spring countries during 2009-2013 and zero otherwise. The interaction term between both dummy variables and the continuous variable ST collateral is of main interest as it captures the actual impact of a shock in political risk on corporate leverage and loan maturity. Industry or firm fixed effects and year dummies have been included in all regressions. The (unreported) coefficients are available upon request. Robust standard errors (clustered at firm-level) are reported in parentheses. All continuous variables have been winsorized at the 1%-level. *** denotes significance at 1%, ** denotes significance at 5% and * denotes significance at 10%.

NATIONAL BANK OF BELGIUM - WORKING PAPERS SERIES

The Working Papers are available on the website of the Bank: <http://www.nbb.be>.

276. "How do exporters react to changes in cost competitiveness?", by S. Decramer, C. Fuss and J. Konings, *Research series*, January 2015.
277. "Optimal monetary policy response to endogenous oil price fluctuations", by A. Stevens, *Research series*, January 2015.
278. "Comparing fiscal multipliers across models and countries in Europe", by J. Kilponen, M. Pisani, S. Schmidt, V. Corbo, T. Hledik, J. Hollmayr, S. Hurtado, P. Júlio, D. Kulikov, M. Lemoine, M. Lozej, H. Lundvall, J. R. Maria, B. Micallef, D. Papageorgiou, J. Rysanek, D. Sideris, C. Thomas and G. de Walque, *Research series*, March 2015.
279. "Assessing European competitiveness: The new CompNet micro-based database", by P. Lopez-Garcia, F. di Mauro and the CompNet Task Force, *Research series*, April 2015.
280. "FloGARCH: Realizing long memory and asymmetries in returns volatility", by H. Vander Elst, *Research series*, April 2015.
281. "Does education raise productivity and wages equally? The moderating roles of age, gender and industry", by F. Rycx, Y. Saks and I. Tojerow, *Research series*, April 2015.
282. "Assessing European firms' exports and productivity distributions: The CompNet trade module", by A. Berthou, E. Dhyne, M. Bugamelli, A.-M. Cazacu, C.-V. Demian, P. Harasztosi, T. Lalinsky, J. Merikül, F. Oropallo and A. C. Soares, *Research series*, May 2015.
283. "Economic importance of the Belgian ports: Flemish maritime ports, Liège port complex and the port of Brussels - Report 2013", by F. Van Nieuwenhove, *Document series*, June 2015.
284. "Crisis-proof services: Why trade in services did not suffer during the 2008-2009 collapse", by A. Ariu, *Research series*, July 2015.
285. "The labour market position of second-generation immigrants in Belgium", by V. Corluy, J. Haemels, I. Marx and G. Verbist, *Research series*, September 2015.
286. "The implications of household size and children for life-cycle saving", by B. Capéau and B. De Rock, *Research series*, September 2015.
287. "Monetary policy effects on bank risk taking", by A. Abbate and D. Thaler, *Research series*, September 2015.
288. "The Belgian production network 2002-2012", by E. Dhyne, G. Magerman and S. Rubínová, *Research series*, October 2015.
289. "Portfolio choice and investor preferences: A semi-parametric approach based on risk horizon", by G. Hübnér and T. Lejeune, *Research series*, October 2015.
290. "Predicting Belgium's GDP using targeted bridge models", by Ch. Piette, *Research series*, January 2016.
291. "Did export promotion help firms weather the crisis?", by J. Van Biesebroeck, J. Konings and C. Volpe Martincus, *Research series*, January 2016.
292. "On the role of public policies and wage formation for business investment in R&D: A long-run panel analysis", by T. Buyse, F. Heylen and R. Schoonackers, *Research series*, January 2016.
293. "Unraveling firms: Demand, productivity and markups heterogeneity", by E. Forlani, R. Martin, G. Mion and M. Muûls, *Research series*, February 2016.
294. "Unemployment risk and over-indebtedness: A micro-econometric perspective", by Ph. Du Caju, F. Rycx and I. Tojerow, *Research series*, February 2016.
295. "International shocks and domestic prices: How large are strategic complementarities?", by A. Amiti, O. Itskhoki and J. Konings, *Research series*, March 2016.
296. "The supplier network of exporters: Connecting the dots", by E. Dhyne and S. Rubínová, *Research series*, May 2016.
297. "Does one size fit all at all times? The role of country specificities and state dependencies in predicting banking crises" by S. Ferrari and M. Pirovano, *Research series*, May 2016.
298. "Competition and product mix adjustment of multi-product exporters: Evidence from Belgium", by K. Breemersch, *Research series*, June 2016.
299. "Flemish maritime ports, Liège port complex and the port of Brussels – Report 2014", by G. Van Gastel, *Document series*, June 2016.
300. "Misalignment of productivity and wages across regions? Evidence from Belgian matched panel data", by F. Rycx, Y. Saks and I. Tojerow, *Research series*, July 2016.
301. "The European Payments Union and the origins of Triffin's regional approach towards international monetary integration", by I. Maes and I. Pasotti, *Research series*, September 2016.
302. "The transmission mechanism of credit support policies in the Euro Area", by J. Boeckx, M. de Sola Perea and G. Peersman, *Research series*, October 2016.

303. "Bank capital (requirements) and credit supply: Evidence from pillar 2 decisions", by O. De Jonghe, H. Dewachter and S. Ongena, *Research series*, October 2016.
304. "Monetary and macroprudential policy games in a monetary union", by R. Dennis and P. Ilbas, *Research series*, October 2016.
305. "Forward guidance, quantitative easing, or both?", by F. De Graeve and K. Theodoridis, *Research series*, October 2016.
306. "The impact of sectoral macroprudential capital requirements on mortgage loan pricing: Evidence from the Belgian risk weight add-on", by S. Ferrari, M. Pirovano and P. Rovira Kaltwasser, *Research series*, October 2016.
307. "Assessing the role of interbank network structure in business and financial cycle analysis", by J-Y Gnabo and N.K. Scholtes, *Research series*, October 2016.
308. "The trade-off between monetary policy and bank stability", by M. Lamers, F. Mergaerts, E. Meuleman and R. Vander Venet, *Research series*, October 2016.
309. "The response of euro area sovereign spreads to the ECB unconventional monetary policies", by H. Dewachter, L. Iania and J-C. Wijnandts, *Research series*, October 2016.
310. "The interdependence of monetary and macroprudential policy under the zero lower bound", by V. Lewis and S. Villa, *Research series*, October 2016.
311. "The impact of exporting on SME capital structure and debt maturity choices", by E. Maes, N. Dewaelheynes, C. Fuss and C. Van Hulle, *Research series*, October 2016.

National Bank of Belgium
Limited liability company
RLP Brussels – Company's number: 0203.201.340
Registered office: boulevard de Berlaimont 14 – BE-1000 Brussels
www.nbb.be

Editor

Jan Smets

Governor of the National Bank of Belgium

© Illustrations: National Bank of Belgium

Layout: Analysis and Research Group
Cover: NBB AG – Prepress & Image

Published in October 2016