Export market exit and financial health in crises periods

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Abstract

This paper uses rich firm-level data for the UK to investigate the link between firms' financial health and export exit, paying attention to the ERM currency crisis and the global financial crisis. Our results show that deterioration in the financial position of firms has increased the hazard of export exit during the 2007-09 crisis but has no significant effect on the early 1990s crisis. We also explore the extent to which firms in financially vulnerable industries face greater sensitivity of export exit to financial conditions. We conclude that firms in sectors with great reliance on external finance experience higher hazards of exiting the export market during the 2007-09 crisis.

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1. Introduction

It has been well documented that trade declined very strongly as a result of the recent global financial crisis. For example, data in the World Trade Report 2012 show that the average export growth was around 2% and -12%, respectively, in 2008 and 2009, and rebounded to + 14 and + 5% in 2010 and 2011, respectively (WTO (2012)). There have been various explanations for this trade collapse during the crisis, attributing it to strong fall in demand, a rise in protectionism, a domino effect because of global value chains, or restrictions in the access to finance for exporters (e.g., Baldwin and Evenett (2009), Chor and Manova (2012) and Bricongne *et al.* (2012)).

In this paper we are concerned with the implications of this crisis for export market exit of firms. While studies based on firm-level data (see Bricongne *et al.* (2012), Paravisini *et al.* (2015)) generally conclude that most of the changes in export performance during the crisis are due to adjustments at the intensive margin, adjustments along the external margin may, in contrast to the intensive margin, have severe prolonged consequences for a country's export performance. Given that there are substantial sunk costs for (re-)entering export markets, firms exiting from the export market during the crisis are unlikely to re-enter again immediately after the negative shock disappears. Instead, it is likely that they will remain out of the export market. This is the phenomenon known as "Hysteresis" in exports (Baldwin (1990), Roberts and Tybout (1997)).[1] If hysteresis is important (and empirical estimates of sunk costs of exporting, such as by Das *et al.* (2007) or Roberts and Tybout (1997) suggest that it is), then the exit triggered by the crisis may lead to a permanent reduction of the number of exporters in a country even after the crisis, i.e., export activity may become more concentrated among a smaller number of firms.

This has potentially important policy implications for countries engaged in promoting export performance. The British government agency UK Trade & Investment, for example,

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[1]Impullitti *et al.* (2013) have recently embedded this idea in a general equilibrium model with heterogenous firms, where sunk costs of export entry and uncertainty about firm efficiency lead to hysteresis in firms' export market participation.

appears to have a strong focus on assisting firms to start exporting, i.e., increase the number of firms exporting rather than just the overall quantity of exports.[2] In this case, firms dropping out of the export market should be of high concern to policy makers.

One important factor that might be held accountable for the decrease in the number of exporters is access to external finance. As Amiti and Weinstein (2011) discuss, exports are highly dependent on access to finance, much more so than domestic operations of firms. Hence, a lack of finance may also cause firms to exit the export market. Of course, corporate funding (or the lack thereof) has been a major concern for policy makers during the recent financial crisis. Serious concerns have been raised regarding the ability of banks to continue lending to firms after the massive losses that they incurred with the collapse of the financial market. Published evidence in the Quarterly Bulletin of the Bank of England (Bell and Young (2010)), reveals a substantial tightening in credit supply in Britain from mid-2007 and documents an increase in loan spreads on small and medium enterprises (SMEs).

In this paper we investigate whether export market exit has increased during the crisis, whether a firm's financial position can explain firm export exit, and whether the importance of financial health was more pronounced during the crisis period. In order to help identification of such effects, we also make use of a sector level measure of financial vulnerability in the spirit of Manova et al. (2015), which allows us to compare the importance of firms' financial health in sectors with different levels of financial vulnerability.

The analysis is conducted using firm level data for the UK. The focus on the UK allows us to examine one other episode in recent economic history, namely the 1991-1993 ERM currency crisis, as a comparison to the global financial crisis (GFC). In the early 1990s, the UK entered a recession. As the UK was a member of the European Exchange Rate Mechanism (ERM), interest rates were maintained at unsustainably high rates, which eventually led to the UK suspending its ERM membership. This led to a drop in interest rates and a strong devaluation of Sterling. We investigate whether this crisis also had implications for export

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[2]See their information at `http://www.ukti.gov.uk/de_de/export.html`

market exit.

While both crises meant a recession for the UK, a distinct difference is that the ERM crisis was not a global phenomenon - in contrast to the 2007 financial crisis. Also, and more importantly from our point of view, there is no indication that the ERM crisis led to a severe cut in access to finance, again a strong difference with the financial crisis.

If the reduction in the supply of funding and the increase in the cost of borrowing during the 2007-09 crisis have played an eminent role, we might expect firms' financial health to be a more important predictor of export market exit during that crisis than out of it. This, however, would not be expected during the ERM crisis as the financial environment for firms was not altered during that period. Hence, we can use this episode as a sort of placebo test of the plausibility of the results we obtain for the importance of financial variables during the GFC crisis.

Our paper relates to the literature studying the link between exports and finance, and the economic crisis in particular. Amiti and Weinstein (2011) present a comprehensive study of the link between firms' exports at the intensive margin and finance, focusing on the health of the bank providing access to credit. They look at the Japanese financial crisis from 1990 to 2010. Chor and Manova (2012) use product level data on US imports, investigating the role of credit conditions as the main culprit for reducing trade during the crisis. Due to the nature of their data they cannot look at intensive vs extensive margins at the firm level, however.

More closely related to our work is Bricongne *et al.* (2012), who also investigate the effects of the crisis, and focus on financial variables at the firm level. However, they strongly focus on the intensive margin in their empirical analysis, while we concentrate on the extensive margin. Studies by Askenazy *et al.* (2011) and Engel *et al.* (2013) also consider the role of financial indicators in exporting. The former study assesses theoretically and empirically the role of credit constrains in export market entry and exit, while the latter investigates the characteristics of companies deciding to participate in foreign markets and engage in

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exporting or foreign direct investment.[3] Both studies use French firm-level data to look at the extensive margin but neither of them assess the impact of firm-specific interest rate on the hazards of export exit or consider the role of the recent financial crisis.[4]

We contribute to this literature by specifically focusing on export market exit of firms, an issue that is highly relevant also from a policy point of view. We are the first to compare and contrast the determinants of export market exit, and in particular the role of financial health at the firm level, during the GFC and ERM crises. As discussed above, we would expect to find differences for these two crises, and this is what is reflected in our empirical results. We also look at the re-entry of export market exiters, an issue that, to the best of our knowledge, has not been considered in the previous literature.

To preview our findings, we find indeed that export market exit has increased during economic crises. This holds for the ERM as well as the GFC crises. We also find that the role of firms' financial status in export failure is significantly more important in the 2007-09 crisis compared to the pre-crisis period. This, however, does not appear to be the case for the ERM crisis. Hence, in line with our expectations, access to finance was important during the financial crisis, but did not appear to be a major issue during the ERM crisis. We also find that only about 21% of exiters re-enter export markets during our period of observation. These are firms that are more profitable and less indebted than permanent exiters.

The paper is structured as follows. The next section discusses in more detail the link between finance and exit from the export market during extreme economic events. Section 3 presents the firm level data and Section 4 outlines the methodology. Section 5 discusses our econometric results, robustness checks are reported in Section 6, while Section 7 presents an extension where we look specifically at export exiters that re-enter export markets. Section

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[3]There are also other studies which suggest that firm financial health matters in exporting decisions, see for example Minetti and Zhu (2011), Berman and Hericourt (2010), Forlani (2010), Bellone *et al.* (2010), and Greenaway *et al.* (2007). At the bank-level, Paravisini *et al.* (2015) shows that negative credit shocks reduce the volume of exports for firms that continue exporting to a given product-destination market.

[4]There are also a number of papers that have investigated firm exit from export markets in general (e.g., Girma *et al.* (2003) and Harris and Li (2011) for the UK, Ilmakunnas and Nurmi (2010) for Finland, Hiller *et al.* (2013) for Denmark, and Alvarez and López (2008) for Chile).

8 concludes.

2. Background

The ERM crisis during 1991 to 1993 and the global financial crisis between 2007 and 2009 had dire effects for the UK economy but international trade responded to the downturns in a strikingly different manner. In the early 1990s, the UK entered a recession. As the UK was a member of the European Exchange Rate Mechanism (ERM), interest rates were maintained at unsustainably high rates, which eventually led to the UK suspending its ERM membership. This led to a drop in interest rates and a strong devaluation of Sterling. The low value of sterling provided a strong boost to the UK total trade balance. Most of the UK's main trading partners were experiencing moderately strong growth meaning that UK exports were supported by foreign demand. Growth in the exports of goods picked up, particularly in capital goods, motor vehicles and other consumer goods (see Fender (2011)). Surpluses in business and financial services also increased significantly.

The global financial crisis originated in the US but quickly spread to other economies with second-round effects in the UK. The effective sterling exchange rate fell during the 2007-09 financial crisis narrowing the trade deficit. The level of sterling and the global demand affected the exporting behaviour of firms. In particular, the fall in export demand was outweighed by the depreciation of sterling, thus, affecting positively UK goods exports which have been broadly stable (Kamath (2011)).

To provide a simple visual account of the response of firms' exporting during different economic periods we present Figures 1 to 3, based on our data that we describe in more detail in the next section. Figure 1 shows the share of exporters in our data throughout the sample period. We observe that this share rose steadily during the 1990s and early 2000s, even through the ERM crisis period. We do, however, see a severe drop in the share during the GFC 2007 - 2009. This picture is mirrored somewhat in Figure 2, which depicts the share of export exiters in total exporters. This share increased dramatically between 2007

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and 2009, while there is no corresponding increase during the ERM crisis in 1991 to 1993. Finally, Figure 3 shows the export intensity of the average exporting firm. This has increased steadily over the period analysed, and only dipped slightly during the GFC. This indicates the growing dependence on foreign market.

Insert Figures 1 - 3 here

Overall, these figures support the narrative we provided in the introduction, namely, that the global financial crisis may have had severe implications for the exit of exporters, while there may be no corresponding evidence suggesting similar effects during the earlier ERM crisis.

To further fill out the picture of the two downturns we should also note that external finance responded differently to the events. This makes each crisis distinct with respect to financial structure. In the UK, business lending, which had been falling steadily since 2008, plunged below £400 bill. by the beginning of May 2013. That is 20% below its level four years prior. Participants in the Funding for Lending Scheme group, which includes all of the big high-street banks except HSBC, cut credit by £300 mill. in the first quarter of 2013 (The Economist (2013)). Bell and Young (2010) find evidence of a substantial tightening in credit supply in the UK economy from mid-2007. They argue that loan spreads on SMEs rose during the crisis period, with syndicated loans presenting a sharp increase from mid-2008.[5] On the other hand, there is no indication that the ERM crisis led to a severe cut in access to finance, which is a strong difference to the recent financial crisis.

In sum, the background of the two crises episodes suggests that they display striking

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[5]The UK was no exception during the crisis. A recent US study shows that banks with less deposit financing and more credit lines outstanding reduced the number of loans and cut their lending during the crisis (Ivashina and Scharfstein (2010)). Further evidence is provided by Santos (2011), who finds that loan spreads increased during the crisis whereas the size of loans decreased. In addition, banks with larger losses during the crisis increased the spreads on their loans to bank-dependent borrowers only. Evidence for Europe provided by Iyer *et al.* (2014), also shows that banks decreased their credit supply to firms during the 2007-09 crisis. The drop in credit supply was stronger for small firms which could not compensate the reduction in loan supply via other sources of debt.

differences in exporting and access to finance. By using a rich firm level data-set we provide compelling evidence for the differential effect of these crises on export exit.

3. Data and summary statistics

3.1. Data and variables description

To assess the link between firms' financial conditions and their probability to exit the export markets, we construct our dataset from the profit and loss and balance sheet data gathered by Bureau Van Dijk Electronic Publishing in the FAME database. Firms are included in the database if they have a turnover of at least £1.5m, pre-tax profits of £150,000 or more, or shareholders funds of at least £1.5m, and provided that the accounts are within the last five years (live or dissolved).[6]

To construct our dataset, we use the FAME October 2010, October 2008, February 2005 editions and archived FAME 1998 and 1994. In line with Javorcik and Li (2013) and Guariglia *et al.* (2016), we take this approach to address potential attrition bias since FAME keeps only firms that have not been inactive for more than four years. For example, if only the 2010 version of FAME were used, we would miss firms that exited by 2006 or possibly 2005. Thus, our data-set is able to track firm exits up to the earlier part of the sample period. The time period covered by our data is 1989-2009.

In addition to financial information, FAME also assigns companies a four-digit UK SIC code which we use to classify firms and construct industry dummy variables. Our sample is limited to firms that operate in the manufacturing industry. The share of exporting firms in our sample is 39% which is slightly higher than Mayer and Ottaviano (2007) and lower

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[6]A maximum of 10 years of complete data history can be downloaded at once. Note that three types of access to the FAME dataset are available. Type C gives access to all firms in the database, type B gives access to the top 322,846 firms, and type A to the top 139,901 firms. We have access to Type A. The information for public companies is collected from the annual reports as soon as they are published, rather than waiting for the accounts to be filed at Companies House. FAME has information on all UK and Irish registered companies, including recently incorporated companied who have yet to file their first set of accounts.

compared to Greenaway *et al.* (2007). Both papers employ the FAME data with the former to find that 28% of the UK firms export their products and the latter 62%.

Our database includes a majority of firms (99%) which are not traded on the stock market or which are not quoted on alternative exchanges such as the Alternative Investment Market (AIM) and the Off-Exchange (OFEX) market. This feature of the data allows for a wide degree of variation across observations in our sample. A distinctive characteristic is that not only small and medium sized firms are included in our sample but also some large firms that are more likely to export. Having such detailed financial data is of particular importance for the evaluation of firms' probability to exit the export market given the high degree of heterogeneity across firms. Private companies in our data are generally the smallest, youngest, and most-bank dependent firms. They are therefore more likely than public companies to face financial constraints and difficulties in accessing bank finance.

In order to clean our data we apply selection criteria that are common in the literature, and exclude firm-years with negative sales. To control for the potential influence of outliers, we drop observations in the 0.5 percent from the upper and the lower tails of the distribution of the regression variables. These cut-offs are aimed at eliminating extraordinary firm shocks, or coding errors. Next, we delete from our sample firms that report only consolidated accounts, to avoid double-counting firms and subsidiaries or operations abroad. Our final panel has an unbalanced structure with a total of 469,757 annual observations (firm-years) on 42,562 UK firms.

Looking at the quartile distribution of various size measures in Table A1, we observe the variation over firms in terms of turnover, total assets and number of employees. The median UK firm in our sample has an average of 83 employees, £2.6 m. assets and £6.5 m. turnover which falls in the small and medium-sized enterprise category.[7]

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[7]In the UK, sections 382 and 465 of the Companies Act 2006 define a SME for the purpose of accounting requirements. According to this, a small company is one that has a turnover of not more than £6.5 m., a balance sheet total of not more than £3.26 m. and not more than 50 employees. A medium-sized company has a turnover of not more than £25.9 m., a balance sheet total of not more than £12.9 m. and not more than 250 employees.

We define *Export Exiters* as those firms that exported in t-1 and t-2 but not in t. In order to correctly identify firms which definitely exit the foreign market and do not start exporting again during our sample period, export re-entrants do not count as exiters.[8]

In the econometric analysis we model firms' export market exit conditional on a number of firm level covariates, where we are particularly interested in the impact of financial variables which are proxies for the firm's financial health. To do so, we follow the literature on export participation (Greenaway *et al.* (2007), Bellone *et al.* (2010) and Bricongne *et al.* (2012)) and employ a debt variable ($DEBT$), which is measured as the firm's short-term debt to current liabilities. A high debt ratio is associated with a worse balance sheet situation. This may increase moral hazard and adverse selection problems, and lead to the inability of firms to obtain external finance at a reasonable cost. In addition, high debt values may become obstructive for the operation and eventually for the existence of firms in the export market. We should expect then highly indebted firms to be less capable of attracting investment capital hence, facing a higher probability of exiting the export market.

We also include the profitability ratio ($PROFIT$) defined as the ratio of firm's profits before interests and tax to its total assets. This measures the importance of internal funds for the operations of a firm.[9] We anticipate more profitable firms to be more likely to survive in the export market, as they are less reliant on external finance.

When regressing export market exit on firm's financial health the latter is likely to be endogenous, as badly performing firms are likely to be exiters, which in turn may impact on their credit worthiness. In order to identify an effect from financial health on export market exit more convincingly, we follow Manova *et al.* (2015) and employ two measures of sectors' financial vulnerability which can be considered exogenous to firms. We interact these with the firm level indicators of financial health. The idea is that if poor financial health increases the risk of export market exit, we would expect higher exit risks in financially more

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[8]However, we also look in an extension at differences between these permanent exiters and those firms that exit and re-enter the export market during our sample period.

[9]It can also proxy for a firm's efficiency.

vulnerable sectors. This effect should be higher for firms with poorer financial health than for those with a good financial situation in the same sector.

As in Manova et al. (2015) we use two measures of sectors' financial vulnerability. Firstly, the external finance dependence of a sector which measures the share of capital expenditure in a sector not financed from cash flow over total sectoral capital expenditure.[10] Secondly, the ratio of inventories to sales. Note that both proxies come from Kroszner *et al.* (2007) who in turn follow the methodology of Rajan and Zingales (1998). As pointed out in these earlier studies, the basic idea is that these measures reflect technological features of the production process in a given industry, which are beyond the control of individual firms and thus exogenous. We calculate these measures for our analysis using Compustat data for all publicly traded US companies. They are available for 36 ISIC three-digit sectors, which we match to UK SIC 2007 four-digit sectors.

To further aid identification of an effect of financial health, we also control for firm size and age, as suggested by e.g., Greenaway *et al.* (2007), Bellone *et al.* (2010) and Bricongne *et al.* (2012). $SIZE$ is defined as the firm's real total assets whereas, AGE is defined as the difference between the current year and the date of incorporation. Small firms may face higher restrictions on capital markets leading to a higher risk of insolvency and illiquidity and young firms have to achieve an efficiency level to keep pace with competitors. As time goes by, firms go through a process of learning about their relative efficiency and market competitiveness.

3.2. Statistics

Table 1 presents descriptive statistics of all variables used in our empirical models for the entire sample. Means and standard deviations of the main variables of interest are reported for the entire sample (column 1), exiters and non-exiters (columns 2 and 3); and crisis and tranquil periods (columns 5, 6, 8 and 9). We define the GFC as 2007 - 2009 and the ERM

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[10]Specifically, cash flow from operations is defined as the sum of funds from operations, decreases in receivables, decreases in inventories, and increases in payables. Capital expenditures is defined as the ratio of capital expenditures to net property, plant and equipment.

crisis as 1991-1993. To avoid overlap between 'normal times' and credit crunch periods, we exclude the 2007-09 years from the ERM dummy and the 1991-93 years from the GFC dummy.

Insert Table 1 here

In columns 4, 7 and 10 we report p-values of a test for the equality of means. Starting with proxies for firms' financial condition, we observe that export exiters are more indebted, less profitable and they are more likely to operate in sectors with high external finance dependence compared to non-exiters.[11] Exiters are also larger firms. There is not statistically significant difference in age between exiters and non-exiters. This preliminary evidence points to the fact that export market exit and a deterioration in a firm's financial health are correlated.

When comparing the 1991-93 and 2007-09 crisis periods with the tranquil years of our sample (columns 5, 6, 8 and 9), it can be seen that firms operating in highly financial vulnerable sectors are in greater external finance need during the 2007-09 crisis compared to the remaining period. The exit rate is also higher during the GFC than out of the crisis. These differences are statistically significant at the 1% level (column 10). It is noteworthy that there are no significant differences in these two variables between the 1991-93 crisis and the rest of the sample. This preliminary evidence is in line with the idea that during the GFC the tightening in credit supply might have had a detrimental impact on the decision of firms to continue their operations in export markets given the excess need for external finance of particular manufacturing sectors.

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[11]We have considered whether export exit is related to firm exit or firm death. In line with the relevant literature (see for example Guariglia *et al.* (2016)), we define a firm as failed in a given year when its status is that of receivership, liquidation, or dissolved. A simple correlation statistic between exit from the export market and failures shows a positive but weak correlation equal to 0.02. In addition, Figure A1, shown in the Appendix, depicts the evolution of the above variables over time. We can observe that there is a mild relation between export exit and failure but the former shows a steeper increase in the later part of the sample period. We conclude that export exit and failure are only mildly positively correlated.

Focusing on the remaining proxies for financial health, we note that profitability is lower during crises than in other times. In addition, we find that the value of debt ratio is similar in GFC period and in normal times but higher during the ERM crisis. This is consistent with the notion that firms took a substantial amount of short-term debt in the pre-crisis period and perhaps were unable to extend it further in the later years of our sample. Bank lending was not affected by the ERM crisis and access to short-term finance was not an issue for firms during the early 1990s. Mean differences are statistically significant in all cases.

Figures 4-5 depict the evolution of debt and profit for export exiters and non-exiters. It is clear that firms exiting the export market have a higher debt ratio and lower profits compared to their counterparts. This indicates that exiters are in bad financial shape as they are more indebted and less profitable. The gap in the level of indebtedness and profitability between the two groups of firms widens during the 2007-09 crisis. It is noteworthy that the lowest debt level and the highest profit level are observed after the suspension of the ERM membership. This is a time when interest rates fell and the exchange rate depreciated leading to an increase in export growth and firms' surpluses.

Insert Figures 4 - 5 here

To summarise, two points can be highlighted from these preliminary statistics. First, a firm's financial health appears to be correlated with export market exit. Second, sectors' financially vulnerability also seem to be related to the probability that a company will exit the export market. In the following sections we provide formal econometric evidence to account for the confounding effects of financial and other factors that may influence the incidence of export exit.

4. Econometric methodology

We set out a benchmark model to estimate how firms' probability to exit the export

market (its hazard) is affected by their financial conditions:

$$h(j, X) = 1 - exp[-exp(\beta_1 X + \beta_2 Y + \gamma_j)] \tag{1}$$

The discrete-time hazard function $h(j, K)$ shows the interval hazard for the period between the beginning and the end of the jth year after the first appearance of the firm. Y denotes a vector of control variables $SIZE$ and AGE. Our model also includes a full set of time and industry dummies to control for industry and macroeconomic effects and their interactions to control for observed and unobserved heterogeneity in credit demand.[12] γ_j is the log of the difference between the integrated baseline hazard evaluated at the end and the beginning of the interval. It thus captures duration dependence.[13]

X is a vector of financial variables $PROFIT$, defined as the ratio of the firm's profits before interest and tax to its total assets[14], and $DEBT$, calculated as the firm's short term debt to current liabilities. Both variables capture different aspects of the firm's financial health. The sign and significance of β_1 shows the importance of financial health on the probability of firms to exit the export market.

As we are examining the likelihood of exiting, an OLS estimation would be inappropriate. Rather, we use a complementary log-log model (cloglog), a discrete time version of the Cox proportional hazard model.[15] We apply the Huber-White sandwich or robust estimator.

In order to examine whether the hazard of export market exit differs in crisis years compared to tranquil periods, we augment Equation 4.1 with a crisis dummy ($Crisis$), which either takes value one over the period 2007-09 or the period 1991-93. The crisis might

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[12]Ilmakunnas and Nurmi (2010) and Alvarez and López (2008) control for macroeconomic influences and they find that changes in real exchange rate and real GDP can affect firms' export exit.

[13]We do not impose any restrictions on these parameters; rather, we estimate a full set of γ_j time dummies.

[14]We should acknowledge that there is potential endogeneity between profits and export survival. Indeed, a firm can have decreasing profits and increasing debt because her products are losing competitiveness. The firm would have been anyway close to an exit, even without a negative exogenous shock. We address this issue using IV techniques in the robustness section of the paper.

[15]To capture the particular nature of the dataset, given that it is collected on a yearly basis, the cloglog model is more appropriate than the standard Cox model. See Jenkins (2005) for an excellent overview of complementary log-log and proportional hazard models.

have an indirect impact on exit by magnifying the effect of proxies for financial health on firms' likelihood to exit the export market.

$$h(j, X) = 1 - exp[-exp(\beta_1 X + \beta_2 X * (Crisis) + \beta_3 Crisis + \beta_4 Y + \gamma_j)] \tag{2}$$

Deteriorations in economic conditions increase the cost of finance, which in turn weakens firms' balance sheet positions, thus influencing their activities. In these circumstances, worsening of our proxies for financial health might increase the risk of export failure during the crisis. The sign and significance of the interacted term will reveal the extent to which the impact of financial conditions on export market exit differs during tranquil and turbulent periods. We expect the effects of changes in the level of financial characteristics on firms' export market exit to be stronger during the crisis (i.e. we expect to observe that $\beta_1 + \beta_2 > \beta_1$).

In order to help identifying an effect from financial health on export market exit more convincingly, we follow (Manova *et al.* (2015)) and include in our model a variable capturing a sectors' financial vulnerability. This can be considered exogenous to firms.[16] The idea is that if poor financial health increases the risk of export market exit, we would expect higher exit risks in financially more vulnerable sectors. This effect should be higher for firms with poorer financial health than for those with a good financial situation in the same sector.[17]

We define a dummy variable for highly financial vulnerable firms to investigate whether firms operating in manufacturing sectors with greater dependence on external finance are more likely to exit the export market if their financial condition deteriorates. A firm is defined as (HFV) if the sectoral financial vulnerability measure is above the median of the external finance dependence/inventories ratio. We then interact our financial health measures (profit and debt) with the high financial vulnerability dummy.

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[16]Financial dependence across sectors is exogenous to individual firms and although we cannot claim that we account for exogenous shocks to firms' availability of external finance (such as Paravisini *et al.* (2015) and Amiti and Weinstein (2011) who use matched firm-bank data), this partially mitigates endogeneity concerns.

[17]A recent study by Fontagnè and Gaulier (2009) finds that the crisis hit exporting firms in sectors relying on external finance more severely.

As pointed out above, following Manova *et al.* (2015), we employ two measures of sectors' financial vulnerability, namely the external finance dependence and the ratio of inventories to sales to capture different aspects of firms' sensitivity to the availability of outside capital.

We intend to assess whether changes in the financial condition of firms in and out-of-the crisis will have a differential impact on their probability to exit the export markets, taking into account sectors' financial vulnerability. We anticipate more financially constrained firms, which operate in highly financial vulnerable sectors, to face a greater probability of export exit during the recent global crisis.

We modify equation 4.2 to contain interaction terms between the HFV dummy, the $Crisis$ dummy and vector X. This yields the following empirical model:

$$h(j, X) = 1 - exp[-exp(\beta_1 X * Crisis * HFV + \beta_2 X * HFV + \beta_3 X * Crisis$$
$$+ \beta_4 X + \beta_5 Crisis + \beta_6 HFV + \beta_7 Crisis * HFV + \beta_8 Y + \gamma_j)] \quad (3)$$

This makes our analysis akin to a difference-in-differences approach in a linear model, as we compare HFV and non-HFV firms before and during the crisis.

The sign and significance of the triple interaction term reveals whether firms in high financially vulnerable sectors are more or less likely to survive in the export market during the crises compared to low financially vulnerable sectors during tranquil periods. If the credit supply and the cost of external finance matter, then included interaction terms should be statistically significant and important for the 2007-09 crisis. Should the reduction in the supply of funding and the increase in the cost of borrowing during the GFC crisis have played an eminent role, we might expect a higher probability of exit for exporters. However, results should be less significant during the ERM crisis, as this did not affect access to finance.

5. Econometric results

5.1. Survival in the export market during two crises periods

In order to provide a benchmark we estimate the most parsimonious model without interaction terms. Before we delve into the results, we report the profile of the estimated γ_js in Figure A2 to see the trend in the hazard rate of exiting the export market for the average firm. It paints a similar picture to Figure 2, since there is a steady increase in the average hazard rate of export market exit, which becomes more pronounced in the later part of the sample period. In addition, in Table A2 we report the estimated γ_js for various industries during the crises years along with the measure of external finance dependence.[18] We observe a correlation between these figures (correlation coefficient is 0.42), especially for the most recent financial crisis.

The results of estimating equation 4.1 are presented in Table 2. Note that the predicted probability of exiting the export market evaluated at the mean of the independent variables, is 19%.

Insert Table 2 here

The first column of the Table presents the direct effect of the financial variables without considering crises. Columns 2 and 3 report the direct and indirect effects of the ERM and the GFC on the hazard of export market exit.

To start with, column 1 shows that profitability negatively affects the likelihood of firms exiting the export market. As expected, more profitable firms are more likely to continue financing their operations in the export market. The level of debt is found to exert a positive effect on the hazard of export market exit. High levels of debt may make it more difficult to obtain additional external finance, and may lead to a higher probability of export failure. This is in line with expectations since evidence presented by other studies (Greenaway *et al.* (2007), Bellone *et al.* (2010) and Bricongne *et al.* (2012)) reveal a negative impact of debt on export entry and export performance.

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[18]These are recovered from estimations of equation 4.1 for each sector separately.

In columns 2 and 3 we include the interactions between the financial health measures and the crisis terms in order to assess the differential impact of the 1991-93 and the 2007-09 crises, respectively, on the hazard of export exit. We also include a crisis dummy on its own. Note that in both cases this dummy returns a positive coefficient, indicating that both types of crises increased the overall hazard of exiting the export market for firms.

Considering the interaction terms we find, as expected, an important difference between the two crises. We do not find any change in the impact of the proxies for financial constraints during the 1991-93 crisis. As argued above, this crisis did not lead to reductions in the supply of finance available to firms and, hence, should not be expected to show up in the interactions.

This is different for the 2007-09 financial crisis, which clearly cut access to finance for businesses. This is reflected in our results, as we find statistically significant interactions in column 3. This implies that the importance of profitability, i.e, access to internal funding, has increased during the crisis. During economic downturns the external finance premium increases for some firms and access to external funding might become prohibitively expensive. Therefore, profitable firms are more likely to overcome financial problems and continue operating in international markets. Taking the point estimate at face value, our estimation suggests that a one-percent reduction in profitability increased the hazard of exiting export markets by roughly 12.6 percentage points during the crisis compared to 4.6 percentage points outside the crisis.[19]

Similarly, the adverse effect of high debt levels has become stronger during the crisis, suggesting that highly leveraged firms face greater difficulties obtaining funds on the markets, especially during extreme economic conditions. A one-percent increase in debt is associated with a rise in the predicted exit probability of around 6.9 percentage points in 2007-09 and 1.3 percentage points in tranquil years.

5.2. Financial vulnerability, crises periods and export exit

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[19]This is calculated at the mean exit probability of 19%, using the exponentiated coefficients [exp(0.216+0.295)-1]*19 and [exp(0.216)-1]*19 respectively.

In this section we set out to investigate whether firms with different industry affiliation exhibit different effects of the proxies for financial health on their survival in the export market in and out of crises years. *A priori*, we would expect changes in firms' financial conditions to make firms operating in financially dependent industries more vulnerable during the GFC crisis, as business lending was affected. This should not be the case during the ERM crisis which had no impact on lending conditions.

In order to look at these issues we estimate equation (4.3) where we interact our financial health indicators with the crisis dummy and the HFV dummy to gauge the extent to which the effects of firms' financial condition on the likelihood of export exit differ for firms with high compared to low sectoral dependence on external finance in and out of crisis periods.

The empirical results are reported in Table 3. In columns 1-2 we compare the ERM with the GFC crisis for firms in sectors with high external finance dependence and in columns 3-4 a similar comparison is carried out for firms in sectors with high inventories ratio. In both samples, we find that firms in sectors with great reliance on external finance also experience higher hazards of exiting the export market. A high sectoral financial vulnerability also exacerbates the importance of profitability for such exit. Our results do bring to the fore an important difference between the two crises, however. During the 2007-09 financial crisis, the triple interaction term shows that the importance of profitability is higher during the crisis, and that this crisis effect is higher for firms in financially more vulnerable sectors. During the 1991-93 crisis, there is no such magnifying effect - all firms are affected, irrespective of whether they are in or out of crisis times. This again indicates the difference between these two crises.

Insert Table 3 here

We see a very similar picture when looking at the interactions involving the debt variable. High debt is associated with high likelihood of exiting the export market. This is particularly

the case for HFV firms, and even more so for HFV firms during the financial crisis. The interactions are statistically insignificant for the ERM crisis.

During the financial crisis, access to capital markets was likely to be prohibitively expensive for firms that face credit constraints and which are more likely to depend on banks for external finance. It is in fact documented that during the crisis, loan spreads increased (Santos (2011) and Bell and Young (2010)) leading to a drop in the demand for loans and a shift to alternative sources of finance. It is also noteworthy that banks tightened lending standards as they changed their risk appetite. As a consequence of this, those bank-dependent firms had to scale back their investment projects and restrain their activities. Therefore, it is not surprising that firms in financially dependent industries faced an increase in the risk to exit the export market during the financial crisis. This was not the case during the ERM crisis.

In sum, the greater sensitivities of export exit to changes in financial conditions documented for HFV firms during the GFC crisis suggest that exporters in financially vulnerable sectors were affected much more than those in other sectors. This suggests that finance matters for export market exit.

6. Robustness checks

In this section we provide a series of robustness checks. Firstly, we limit our sample to firms that start to export over the period we analyze. Secondly, we examine whether our findings remain persistent when we control for possible endogeneity problems using an instrumental variables approach. Finally, we slightly change the definition of the crises periods.

6.1. Using only firms that start to export over the period we analyze

To start with, we follow Ilmakunnas and Nurmi (2010) and estimate an alternative model where we only consider new exporters. This allows us to avoid one possible aspect of firm heterogeneity, namely, differences between new and continuous exporters, which may otherwise

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bias our results (Görg and Spaliara (2014)). Hence, we evaluate the role of firms' financial condition and sectors' financial vulnerability in export exit probability of firms that started exporting for the first time after 1990. The results are reported in Tables 4 and 5 (columns 1 and 2). We can see that overall our findings do not change strongly compared to Tables 2 and 3.

Insert Tables 4 and 5 here

6.2. Instrumental variables

We argue above that the use of sectoral financial indicators somewhat mitigates the problem of the endogeneity of the firm level financial variables, as in Manova et al. (2015). Still, in a further robustness check we use an instrumental variables approach (columns 3 and 4 in Tables 4 and 5). Following Duchin *et al.* (2010) we instrument for the firm level financial variables using lagged values as much as four years prior to the onset of the crisis in 2007 and two years before the 1991 crisis since data is not available before 1989. The results are robust to this modification.

In order to test the validity and the relevance of our instruments we estimate a linear instrumental variables model using the same set of instruments as in the IV probit model. The Hansen J test statistic of the overidentifying restrictions suggests that our instruments are valid and further, the Kleibergen-Paap test statistic rejects the null and suggests that the model is identified therefore the instruments are correlated with the endogenous variables.

6.3. Alternative definition of the crises

So far we have used years 2007-09 to define the GFC crisis and 1991-93 for the ERM crisis. As a robustness check, we define the GFC as 2008-09 and the ERM as 1992-93 following Buiter *et al.* (1998). Results in Tables 4 and 5 confirm the findings discussed in section 5. The sensitivity of the hazard of export exit to profitability and debt is greater during the

financial crisis. Once again the sensitivity appears to be more significant during 2008-09 for firms in financially more vulnerable sectors. Therefore, our results do not appear to be driven by the definition of the crises dummy.

7. Export market re-entry

The evidence presented clearly indicates that export market exit has increased during the 2007-09 financial crisis, and that the financial condition of the firm has become more important as a determinant of export survival during the crisis. Our analysis thus far is based on firms that exit the export market and do not re-enter during the sample period.

However, during our sample period we also observe firms that exit and subsequently re-enter into exporting.[20] We re-define *Export Exiters* as those firms that exported in t-1 and t-2 but not in t in order to account for export re-entrants. In total, we have in our sample 9,183 firms that exited the export market during our sample period. Of those, we observe for only 1,927 that they re-enter at some point.[21] For 376 firms we can see a clear single re-entry (exit-entry) while for the rest we find multiple incidences of exit and re-entry. About 70% of multiple switchers enter, exit and re-enter the export market.[22] Table 6 shows the re-entry patterns in the data. Roughly 50% of those firms that show a single re-entry are back into exporting within the first year of exiting. About 75% of exiters re-enter within the first two years. This may be related to sunk costs - the knowledge of the foreign markets does not depreciate too much over the first two years of exiting (Roberts and Tybout (1997)).

Insert Table 6 here

Export re-entrants are arguably firms capable of switching their export status easily.

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[20]We are not able to observe a possible re-entering for all firms (see Greenaway *et al.* (2007)). In particular, those firms that exit towards the end of our period may only re-enter after 2009. Hence, our analysis can only be interpreted as a first stab at this issue.

[21]We exclude exporters who display a multiple entry pattern but end up exiting the sample.

[22]We have 1,927 exporters that re-enter, while total export entry is 21,306 over the period analysed, so re-entry is a share of 9 percent of total new entry.

Thus, they are likely to be associated with higher levels of flexibility and adaptability which also suggests good financial health and, hence, less susceptibility to financial constraints (Görg and Spaliara (2014) and Harris and Li (2010)). To test whether exporter re-entrants are indeed different from those exiters that stay out of export markets permanently we construct a dummy which takes the value one if the firm is a re-entrant and zero if it is a permanent exiter.[23] We then regress these on firm characteristics, including the financial variables, as in the previous part.

Results on the probability to re-enter exporting in and out of the GFC crisis are presented in Table 7. In column 1, we observe that profitable and low indebted firms are more likely to be re-entrants. In the next column we are interested in whether re-entry determinants are different in and out of the crisis. We find that the coefficients on interacted terms are not significantly different from each other indicating the financial flexibility of re-entrants independent of whether there is a crisis or not. However, we do find that the crisis dummy on its own returns a positive coefficient, i.e., re-entry is more likely during bad than good times, all other things equal.

In column 3, results indicate that profitability and debt remain important factors of export re-entry but the interactions with the external finance dependence dummy appear to be insignificant. In the final column, we interact our health measures with the GFC dummy and sector level financial vulnerability. Results are largely insignificant, however. The only finding is that the negative impact of debt is strengthened during the GFC crisis, as was also found in the earlier part of the analysis.

Insert Table 7 here

Our results show that compared to permanent exiters (which was the focus of our earlier analysis) re-entrants are less affected by a crisis or by the financial vulnerability of the sector.

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[23]To avoid double counting, we have made sure that an exiting firm is not a re-entrant or an export starter at the same time.

This may suggest that they are in better financial health and less receptive to financial constraints than permanent exiters.

8. Conclusion

The analysis is motivated by the observation that, if sunk costs to exporting matter, then firms that exit the export market may be likely to remain out of the export market even after the negative shock disappears.

We use a rich and extensive data for the UK which spans two major episodes: the ERM crisis of the 1990s and the global financial crisis of the 2000s. These downturns share some similarities given that they both were recessions in the UK and that the effective sterling exchange rate fell markedly, but they also display striking differences. The former crisis was different in that the recession was not global, and also access to finance was not curtailed.

Our results for the 1991-93 period show that the role of financial variables was not stronger during the ERM crisis in export exit. By contrast, the global financial crisis in 2007-2009 had a marked impact, exacerbating the importance of firms' financial health for export market exit. When we account for the operation of firms in sectors of different financial vulnerability, we document greater sensitivities of export exit to changes in financial conditions for firms based in high financially vulnerable industries. This effect was also stronger during the GFC but not during the ERM crisis. The importance of firm and sector level financial variables, and the different role of the two crises are novel findings.

An increase in the number of firms dropping out of export markets during crises episodes should be of concern to policy makers. These firms are unlikely to simply re-enter export markets after the crisis, since sunk costs are important for export decisions. Instead, they may behave just like first time exporters, relying on the same export promotion policies as firms that have never exported before. Given that the crises periods analysed in the present study are very different from each other they elicit different policy responses.

If access to finance is severely restricted, as it was during the GFC, then a policy response

may be to alleviate the dearth of available funding. This may be done through focused loan programmes, subsidies towards payment of higher interests, or grants to severely affected firms. Such policies include the £190 billion Project Merlin, the National Loan Guarantee Scheme the Funding for Lending Scheme (FLS), and the Discount Window Facility (DWF) which were implemented in the UK in the aftermath of the most recent crisis.

Acknowledgments

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Table 1: Summary Statistics

	Total Sample (1)	Exiter=1 (2)	Exiter=0 (3)	Diff. (4)	ERM=1 (5)	ERM=0 (6)	Diff. (7)	GFC=1 (8)	GFC=0 (9)	Diff. (10)
$Profit$	0.081	0.074	0.083	0.000	0.069	0.082	0.000	0.071	0.082	0.000
	(0.16)	(0.17)	(0.16)		(0.15)	(0.16)		(0.16)	(0.17)	
$Debt$	0.384	0.396	0.380	0.000	0.393	0.382	0.000	0.389	0.382	0.105
	(0.26)	(0.27)	(0.26)		(0.25)	(0.26)		(0.26)	(0.26)	
$Vulnerability$	-0.003	0.031	-0.017	0.000	-0.005	-0.004	0.654	0.027	-0.003	0.000
	(0.41)	(0.43)	(0.40)		(0.41)	(0.40)		(0.42)	(0.41)	
$Size$	4.016	4.262	3.960	0.000	3.764	4.024	0.000	4.233	4.024	0.000
	(1.51)	(1.50)	(1.51)		(1.64)	(1.52)		(1.26)	(1.52)	
Age	26.398	26.544	26.365	0.163	25.822	26.337	0.002	27.537	26.337	0.000
	(22.26)	(22.60)	(22.18)		(22.99)	(22.28)		(21.23)	(22.28)	
$Export\ Exiters$	0.121	0.00	0.00		0.116	0.110	0.095	0.139	0.110	0.000
	(0.33)				(3.20)	(3.16)		(3.46)	(3.20)	
$Observations$	203,499	37,650	165,849		22,750	160,953		160.953	19,976	

Notes: The table presents sample means. Standard deviations are reported in parentheses. $Diff.$ is the p-value of the test statistic for the means. $Profit$ is measured as the ratio of firms' profits before interests and tax to its total assets. $Debt$ is defined as the ratio of firms' short term-debt to current liabilities . $Vulnerability$ is captured by the external finance dependence measure defined as the share of capital expenditures not financed with cash flows from operations. $Size$ is given by the log of firms' real assets measured in thousands of UK sterling. Age is defined as the difference between the present year and the firm's date of incorporation. ERM takes value 1 in the years 1991-1993, and 0 otherwise (excluding 2007-09 years). GFC takes value 1 in the years 2007-2009, and 0 otherwise (excluding 1991-93 years). $Export\ Exiters$ are firms that exported in t-1 and t-2 but not in t. Export re-entrants do not count as exiters. The time period is 1989-2009.

Table 2: Crises and Export Market Exit

	Baseline	ERM	GFC
	(1)	(2)	(3)
$Profit$	-0.227***	-0.201***	-0.216***
	(-6.45)	(-3.42)	(-5.43)
$Profit*Crisis$		-0.175	-0.295***
		(-1.49)	(-2.69)
$Debt$	0.072***	0.040*	0.068**
	(3.53)	(1.73)	(2.21)
$Debt*Crisis$		-0.061	0.245***
		(-0.97)	(3.68)
$Size$	0.121***	0.134***	0.134***
	(33.20)	(32.41)	(32.46)
$Crisis$		0.486***	0.652***
		(7.76)	(8.08)
Age	-0.001***	-0.001***	-0.001***
	(-4.67)	(-3.70)	(-4.77)
$Observations$	198,803	178,827	176,776
$Log-likelihood$	-94421	-85148	-83031

Notes: All estimates are obtained using a proportional hazard model. The dependent variable is a dummy equal to 1 if a firm exits the export market in year t, and 0 otherwise. Robust z-statistics are presented in the parentheses. * significant at 10%; **significant at 5%; *** significant at 1%. Time dummies, industry dummies and their interactions are included in the models. Also see notes to Table 1.

Table 3: Financial Vulnerability, Crises and Export Exit

	External Finance Dependence ERM	External Finance Dependence GFC	Inventories Ratio ERM	Inventories Ratio GFC
	(1)	(2)	(3)	(4)
$Profit*Crisis*HFV$	-0.110	-0.352***	-0.115	-0.251**
	(-0.51)	(-2.68)	(-0.48)	(-2.21)
$Profit*HFV$	0.130*	-0.138*	-0.066	-0.169*
	(1.66)	(1.68)	(-0.81)	(-1.84)
$Profit*Crisis$	-0.155	0.177*	-0.130	-0.221*
	(-0.91)	(1.68)	(-0.63)	(-1.75)
$Profit$	-0.265***	-0.264***	-0.152**	-0.149**
	(-4.50)	(-4.49)	(-2.30)	(-2.25)
$Debt*Crisis*HFV$	-0.018	0.287***	-0.120	0.214**
	(-0.14)	(2.66)	(-0.91)	(2.10)
$Debt*HFV$	-0.069	0.119*	0.023	0.020
	(-1.51)	(1.82)	(0.50)	(0.44)
$Debt*Crisis$	-0.101	0.195**	-0.016	0.242**
	(-1.07)	(2.06)	(-0.15)	(2.31)
$Debt$	0.086***	0.084**	0.035	0.135*
	(2.61)	(2.55)	(0.96)	(1.98)
$HFV*Crisis$	0.095	0.263**	0.072	0.135
	(0.98)	(2.55)	(0.56)	(1.05)
HFV	0.200***	0.190***	0.358***	0.336***
	(5.08)	(4.83)	(8.71)	(8.17)
$Crisis$	0.419***	0.700***	0.267***	0.724***
	(4.96)	(6.72)	(2.84)	(6.60)
$Size$	0.147***	0.147***	0.150***	0.152***
	(25.92)	(25.78)	(24.63)	(24.86)
Age	-0.001***	-0.001***	-0.001***	-0.001***
	(-4.11)	(-4.86)	(-3.65)	(-4.52)
$Observations$	183,523	180,929	183,523	180,929
$Log-likelihood$	-86886	-84637	-86805	-84599

Notes: All estimates are obtained using a proportional hazard model. The dependent variable is a dummy equal to 1 if a firm exits the export market in year t, and 0 otherwise. Robust z-statistics are presented in the parentheses. * significant at 10%; **significant at 5%; *** significant at 1%. Time dummies, industry dummies and their interactions are included in the models. Also see notes to Tables 1 and 3.

Table 4: Robustness: Crises and Export Market Exit

	Re-define sample	Re-define sample	IV	IV	Alternative crisis	Alternative crisis
	ERM	GFC	ERM	GFC	1992-93	2008-09
	(1)	(2)	(3)	(4)	(5)	(6)
$Profit$	-0.028	-0.188**	-0.365***	-0.348***	-0.219***	-0.224***
	(-0.75)	(-2.29)	(-8.51)	(-7.90)	(-5.64)	(-5.74)
$Profit*Crisis$	-0.102	0.229**	-0.183	-0.230**	0.190*	-0.332***
	(-1.58)	(2.09)	(-1.46)	(2.12)	(1.69)	(-2.60)
$Debt$	0.066***	0.064***	0.034*	0.049*	0.053**	0.042*
	(2.77)	(2.71)	(1.69)	(1.89)	(2.36)	(1.86)
$Debt*Crisis$	-0.053	0.257***	0.089	0.109**	-0.071	0.228***
	(-0.80)	(3.80)	(1.61)	(2.17)	(-0.97)	(2.69)
$Size$	-0.041***	-0.040***	0.091***	0.091***	0.135***	-0.128***
	(-8.24)	(-7.99)	(27.83)	(28.23)	(33.25)	(-31.91)
$Crisis$	0.872***	0.765***	0.433***	0.289***	-0.647***	0.458***
	(12.49)	(8.87)	(7.36)	(3.77)	(-6.87)	(6.74)
Age	-0.001**	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(-2.04)	(-3.57)	(-3.03)	(-4.27)	(-4.77)	(-3.74)
$Observations$	98,043	95,610	152,401	143,214	176,776	178,827

Notes: Columns 1 and 2 present results for a shorter sample of firms that started exporting for the first time after 1990. In columns 3 and 4 the specification is estimated using instrumental variable technique for probit models. Columns 5 and 6 report results based on the 2008-09 and 1992-93 crises periods. The dependent variable is a dummy equal to 1 if a firm exits the export market in year t, and 0 otherwise. Robust z-statistics are presented in the parentheses. * significant at 10%; **significant at 5%; *** significant at 1%. Time dummies industry dummies and their interactions are included in the models. Also see notes to Table 1.

Table 5: Robustness: Financial Vulnerability, Crises and Export Exit

	Re-define sample	Re-define sample	IV	IV	Alternative crisis	Alternative crisis
	ERM	GFC	ERM	GFC	1992-93	2008-09
	(1)	(2)	(3)	(4)	(5)	(6)
Profit*Crisis*HFV	0.052	-0.290***	-0.220	-0.983**	-0.062	-0.444**
	(0.23)	(-2.86)	(-1.43)	(-2.59)	(-0.24)	(-2.52)
Profit*HFV	0.014	-0.112**	0.183**	-0.218**	0.105	-0.194*
	(0.19)	(-2.16)	(2.12)	(-2.46)	(1.34)	(-1.80)
Profit*Crisis	-0.389**	0.134	0.174	0.496	-0.294	-0.155*
	(-2.14)	(0.82)	(0.89)	(1.35)	(-1.42)	(-1.71)
Profit	-0.041	-0.141*	-0.463***	-0.465***	-0.280***	-0.270***
	(-0.72)	(-1.72)	(-7.20)	(-7.06)	(-4.70)	(-4.56)
Debt*Crisis*HFV	0.039	0.227***	-0.130	0.348**	0.038	0.294**
	(0.29)	(2.50)	(-1.05)	(2.68)	(0.26)	(2.24)
Debt*HFV	-0.106**	0.106**	-0.031	0.225*	-0.054	0.159*
	(-2.26)	(2.16)	(-0.76)	(1.89)	(-1.20)	(1.82)
Debt*Crisis	-0.073	0.245**	0.180**	0.186*	-0.088	0.134*
	(-0.73)	(2.59)	(2.02)	(2.00)	(-0.80)	(1.70)
Debt	0.122***	0.119***	0.053*	0.243**	0.073**	0.085***
	(3.56)	(3.49)	(1.79)	(2.43)	(2.21)	(2.63)
HFV*Crisis	0.134	0.149*	0.216	0.468*	0.037	0.162*
	(1.15)	(1.73)	(0.96)	(1.90)	(0.32)	(2.02)
HFV	-0.090*	0.100**	0.100**	0.086**	0.227***	0.206***
	(-1.87)	(2.08)	(2.36)	(2.18)	(5.75)	(5.20)
Crisis	0.792***	0.687***	0.309**	0.526***	0.430***	0.682***
	(8.21)	(6.01)	(2.31)	(2.97)	(4.51)	(5.39)
Size	-0.050***	-0.049***	0.101***	-0.101***	0.151***	-0.156***
	(-6.97)	(-6.82)	(16.98)	(18.33)	(26.31)	(-26.96)
Age	-0.001**	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(-2.08)	(-3.62)	(-3.11)	(-4.30)	(-3.86)	(-4.86)
Observations	98,043	95,610	152,401	143,214	178,827	176,776

Notes: In columns 1 and 2 the estimates are obtained using a proportional hazard model. In columns 3 and 4 the estimates are obtained using an instrumental variable technique for probit models. The dependent variable is a dummy equal to 1 if a firm exits the export market in year t, and 0 otherwise. Robust z-statistics are presented in the parentheses. * significant at 10%; **significant at 5%; *** significant at 1%. Time dummies, industry dummies and their interactions are included in the models. Also see notes to Tables 1 and 3.

Table 6: Statistics for re-entrants

Time it takes to re-enter	Number of firms	Percent of re-entrants
1	188	50.04
2	97	25.79
3	30	7.97
4	22	5.85
5	14	3.72
6	11	2.92
7	10	2.65
8	4	1.06
$Total\ single\ re-entrants$	376	100.00
$Multiple\ switchers$	1,551	

Table 7: Export Market Re-entry

	Baseline	GFC	External Finance Dependence	External Finance Dependence
	(1)	(2)	(3)	(4)
*Profit*Crisis*HFV*				0.691
				(0.93)
*Profit*HFV*			0.244	0.134
			(0.81)	(0.40)
*Profit*Crisis*		0.101		0.505
		(0.26)		(0.94)
Profit	0.196**	0.250**	0.328**	0.235*
	(2.16)	(2.28)	(2.32)	(1.97)
*Debt*Crisis*HFV*				0.467
				(1.03)
*Debt*HFV*			-0.174	-0.269
			(-0.97)	(-1.33)
*Debt*Crisis*		-0.073		-0.999***
		(-0.72)		(-3.00)
Debt	-0.207**	-0.704***	-0.320*	-0.270*
	(-2.26)	(-3.13)	(-1.92)	(-2.08)
*HFV*Crisis*				-0.439
				(-0.83)
HFV			0.829***	0.910***
			(4.19)	(4.23)
Crisis		1.557***		1.800***
		(5.19)		(4.29)
Size	0.073***	0.063***	0.019	0.031
	(3.78)	(3.05)	(0.68)	(1.07)
Age	0.008***	0.008***	0.008***	0.008***
	(7.24)	(7.24)	(7.13)	(7.14)
Observations	10,457	10,457	10,457	10,457
Log − likelihood	-4656	-4650	-4644	-4636

Notes: All estimates are obtained using a proportional hazard model. The dependent variable is a dummy equal to 1 if a firm is a switcher export, and 0 if it is an exiter exporter. Robust z-statistics are presented in the parentheses. * significant at 10%; **significant at 5%; *** significant at 1%. Time dummies, industry dummies and their interactions are included in the models. Also see notes to Tables 1 and 3.
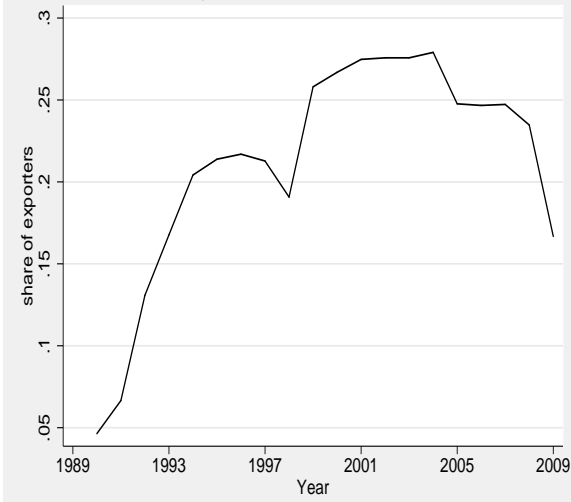
Figure 1: Share of exporters
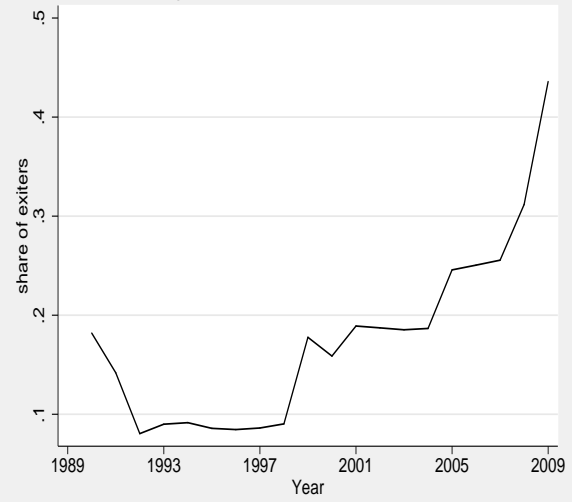

Figure 2: Share of export exiters
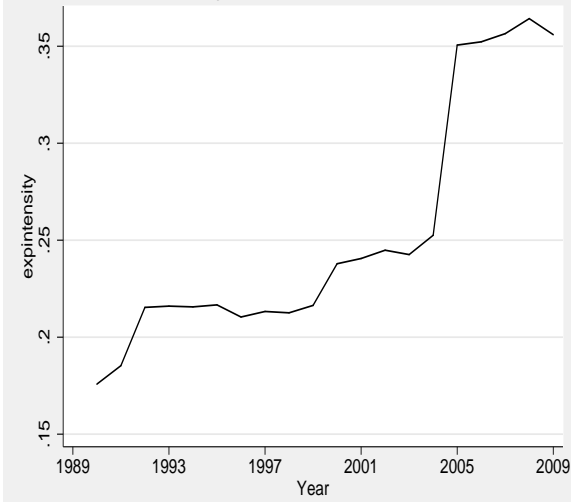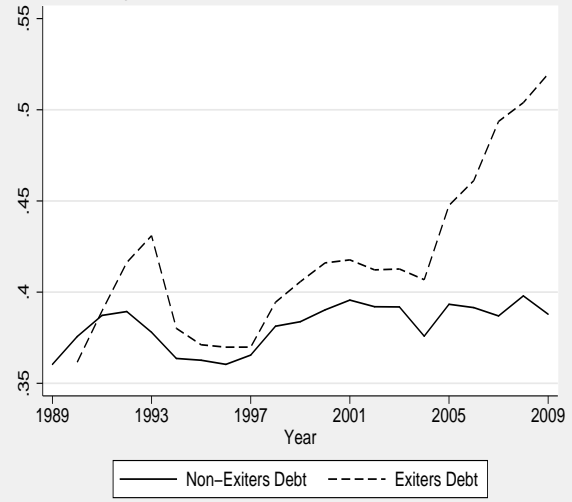

Figure 3: Export intensity

Figure 4: Debt for exiters and non-exiters

Figure 5: Profit for exiters and non-exiters

Figure A1: Evolution of failure rates

Figure A2: Evolution of gammaj