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Exporting by Private Equity Backed Portfolio Companies

Abstract: Private Equity (PE) funds typically invest in and aquire established companies (via buyout mechanisms) and implement value creation strategies that realize efficiency improvements and exploit entrepreneurial growth opportunities. This paper explores the relationships between PE backing of bought out companies and their post acquisition strategy to stimulate sales growth through exporting. Importantly, we explore the routes through which PE funds, as 'active investors', effect the acquired companies ability to enter and expand export markets. First, through providing access to financial resources, increasing capital and operational expenditure, to boost both efficiency and improve managerial processes; and second, by bringing expertise and relational capital via managerial change and board representation to their acquisitions. Using a panel dataset covering the period 1998-2013 involving 2.6 million company-level observations of which around 10% are actively engaged in exporting, we find that PE backed firms are more likely to engage in exporting (export propensity) and be internationalised post buyout than a control sample and that the effect is larger than for listed companies. Moreover, in relation to export performance we find a positive export performance differential (export intensity) for PE-backed buyouts.

Keywords: Private Equity; Portfolio Companies; Internationalisation; Export.

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1. Introduction

Private equity (PE) investors typically invest in and aquire established companies and implement value creation strategies that realize efficiency improvements and exploit entrepreneurial growth opportunities. The goal is to provide returns to their portfolio investors and the realisation of share value gains on exit. In doing so PE investors choose targets that have potential for performance improvement and post buyout growth. The PE firm, as an 'active investor' i.e. a majority shareholder often with board representation, has a close involvement in both strategy development and implementation, process improvement and the day to day monitoring of management post-buyout. Along with capital investment in the firm, PE investors bring financial, operational and managerial expertise along with the accumulated knowledge and networks gained from their previous and current experience of portfolio firms. This paper provides novel evidence on how management, operational and governance changes, implemented by PE investors, can facilitate the acquired firm's expansion into international markets and generate sales growth and value in their portfolio firms.

PE investment has risen significantly over the recent years and has attracted attention of both academics and practitioners (Wood and Wright, 2009). As a result, a number of studies have examined various aspects of PE such as the development of PE funds (Cumming and Johan, 2007), post investment governance (Cumming, Siegel and Wright, 2007), portfolio firm innovation (Cumming, Peter and Tarsalewska, 2020; Amess, Stiebale and Wright, 2015), risk and financial distress (Tykvova and Borell, 2012; Wilson and Wright, 2013), efficiency and the spillover effect (Aldatmaz and Brown, 2020), exit decisions (Cumming, 2008; Cumming and MacIntosh, 2003; Uddin and Chowdhury) and performance and productivity; (Wilson et al., 2012; Davis et al 2014; Cumming and Zambelli, 2013; Braun, Jenkinson and Stoff, 2017;

Harris, Siegel and Wright, 2005; Braun, Jenkinson and Schemmerl, 2020; Bernstein, Lerner and Mezzanottie, 2019). Recently, Wright et al. (2019) provide comprehensive evidence on PE research focusing on its effect on performance, employment and employee relations, innovation, investment and longevity and survival. Although there is a study by Lockett et al (2008) which explores the exporting activities by venture capital backed firms, to our knowledge, there is no such study that has examined exporting activities by PE backed firms. This is an important omission as Wright et al. (2019) point out that PE backed firms are increasingly involved in cross-border investments and have the potential to expand internationally. This paper extends this literature following calls for further research by Wright et al. (2019) and Cumming, Knill, and Syvrud, (2016) to empirically explore pre and post buyout dynamics of internationalisation and by considering a wider set of resources and expertise that PE investors bring.

Export is considered as the natural, convenient and quicker way to expand into new markets and enhance performance (Johanson and Vahlne, 1977; Wang and Ma, 2018). Drawing upon resource-based view (RBV), Tseng et al. (2007) state that resource availability plays an important role in determining firm's international growth. RBV argues that distictive firm level resources and capabilities provide much needed competitive advantage to the firms and eventually help them to increase export and improve performance (Wang and Ma, 2018). Exporting firms face higher level of challenges and uncertainty encapsulated in the term 'liability of foreignness' (Eden and Miller, 2004; Zaheer, 1995). To face these challenges, firms need to have adequate resources to develop relevant competencies to gain international sales and overcome liability of foreignness (Barney, 1991; Johansen and Vahlne, 1977). In this context, Tseng et al. (2007) point out that foreign expansion requires more resources to buffer the costs and risks arising due to the required managerial complexity and liability of foreignness.

In line with arguments put forward by RBV, PE firms would help their portfolio companies to expand internationally by providing knowledge, expertise and networks. PE firms can be a source of distnctive skills and tacit knowledge (Castanias and Helfat, 2001) and can provide complementary resources and capabilities (Zahra and Filatotchev, 2004) that may be missing in the existing management teams of their portfolio companies and/or transfer this expertise across their portfolio firms. PE firms are more skilled and competent in advising and monitoring roles that create such distictive organisational capabilities (Barney, Wright and Ketchen, 2001). Meuleman et al. (2009) argue that PE firms are considerably different in terms of their accumulated experience, specialisation, network and investment style. As a result, having PE investors active on the board can help portfolio companies to realise previously untapped growth opportunities.

The aim of this paper is to understand the association of PE involvement and exporting post buyout. The focus is on analysing the determinants of both exporting propensity and export performance (intensity) within the subsets of private equity backed companies and comparable non-PE backed private and public companies utilising a database of all UK limited companies of which PE backed firms are a subset. Moreover, within the PE subsample of firms we include both pre and post investment company year observations to ascertain the extent of export uplift from PE investment. We utilise a large sample of company types across time (1998-2013) and sectors comprising the population of UK firms, whilst controlling for a wide range of firm-specific, industry and macro-economic factors that have been found to be associated with export performance. The main findings of our study include (i) PE involvement increases the propensity and intensity of export for the portfolio companies compared to non PE backed firms. (ii) the better export performance of PE portfolio companies is driven by certain board characteristics, expertise and diversity. For example, smaller focused boards with more foreign nationals as directors would help to improve export performance. Moreover, age

and experience of board members enhance export performance of PE backed portfolio companies. We also find that representation from ethnic minority in the board and inclusion of female board members do not help to increase export propensity and intensity. Our results are robust when we control for firm level efficiency (total factor productivity) in a two stage model and for alternative specifications of models determining export propensity and intensity used in the paper.

The reminder of the paper is organised as follows: Section two presents a brief and relevant literature along with hypotheses to be tested in the paper. Section three provides descriptions of data and methodology used in the paper to analyse data. Section four presents results and discussion. Section five provides a brief conclusion of the paper.

2. Literature and Hypotheses

2.1 Determinants of export:

Exporting is considered as the first step to internationalisation and serves the purpose of inceasing sales, achieving growth and ensuring diversification (Fryges and Wagner, 2010). Determining exporting performance, both the propensity and intensity (extensive and intensive margin), focuses on two main factors, productive efficiency (Bleaney and Wakelin, 2002) and the costs (finance requirements) associated with entering export markets (Manova, 2013). The first hypothesis argues that 'better' firms in terms of profitability and productivity performance self-select into exporting. Such firms are argued to be better placed to overcome the barriers to exporting in terms of the costs and risks associated with transportation and distribution as well as asymmetry of information about foreign markets (Bernard and Wagner, 1997; Bernard and Jensen, 1999). Several studies analysing *pre-entry* performance suggest exporters outperform non-exporters, reporting higher labour productivity, total factor productivity and employment (e.g. Girma, Greenaway and Kneller, 2004; Greenaway & Kneller, 2008 and Greenaway & Yu,

2004). Thus evidence that firms that are more efficient and innovative are more likely to export implies that PE backed firms may improve export performance as a result of the capital investment and strategies to improve efficiency post investment. The learning-by-exporting proposition argues that having entered export markets, export intensity increases by a number of routes such as access to new knowledge and technology through greater contact with foreign customers, suppliers and competitors and economies of scale arising due to serving bigger international markets with fixed amounts of R&D investment.

A further strand of literature focuses on the costs of entering export markets and access to finance (Manova, 2013). It is evident that there are barriers and costs associated with entering and servicing export markets. The costs of entering foreign markets include the acquisition of market knowledge and the identification of customer bases, product/service customisation, regulatory compliance, transportation, local distribution, credit risks of international trade (trade debt risks and the increased working capital requirements) and uncertainties around realisable profit margins due to exchange rate risks and potential payment delays. There is empirical evidence that confirms that firms that are financially constrained and of lower productivity are less likely to enter export markets (Greenaway, Guariglia and Kneller, 2007; Bernard and Jensen, 2004; Alverez and Lopez, 2005). The PE investor can take actions to increase the firms' access to finance and provide/develop resources that help the firm overcome some or all of these constraints and increase propensity to export.

The limited analysis to date on exporting by PE backed firms has been based on a cross-sectional mailed questionnaire survey. Lockett et al. (2008), in a European study of 340 VC backed firms that included PE backed buyouts in the UK, argue and find support for the hypothesis that monitoring as opposed to value adding inputs by PE firms will be more important for PE backed firms in assisting the international expansion. The introduction of PE investment may mean that better performing firms now select into exporting and/or the PE

investor acts to increase the export intensity of buyout firms that already have some export experience via both further increases in efficiency and the exploitation of the PE representatives' wider networks of relationships overseas or through investment syndicates. Thus, we expect that PE select investees with business and financial characteristics (Wilson and Wright, 2013) that bring the potential for value and performance improvement and to exploit untapped export potential, with access to new investment and financial resource. Inititating and/or increasing export activity leads to further improvements in competitiveness (Girma, Greenaway and Kneller, 2004). This leads to our first hypothesis:

H1*: Private equity involvement in buyouts is associated with a higher likelihood of exporting (propensity) and export intensity compared to pre buyout and non-PE firms*

Empirical evidence suggests that exporting firms are more productive than non-exporting firms. Accordingly, we estimate a *two stage model* determining Total Factor Productivity (TFP) for each firm in the estimation sample and including TFP as an independent variable in models determining exports. We analyse both the pre and post buyout observations in our specification of models determining export performance in order to address issues of endogneiety and causality by specifying models inclusive of lagged sales and profitability.

2.2 Exporting by PE backed firms and board characteristics:

Generally, limited resources may retard internationalisation, especially among private firms and SMEs (Bonaccorsi 1992; Wright, Westhead and Ucbasaran, 2007) with limited knowledge of exporting and export networks. There is considerable uncertainty and risk involved in exporting activities which is commonly known as liability of foreignness (Wang and Ma, 2018; Zaheer, 1995). To overcome these uncertainty and risk in foreign markets, firms need to have distinctive resources which will make them competitive compared to their competitors (Barney, 1991). As such, RBV has become an important cornerstone in explaining

firm's exporting activities (Barney, 1991). Based on a review of RBV and export activities, Ipek (2018) and Ipek and Bıçakcıoğlu-Peynirci (2020) have identified several important resources that act as determinants of exporting by firms. Notable among those are managerial resources such as the managers' international outlook, management attitude, management characteristics, and management know-how, relational resources such as network and relationship quality and human resources such as knowledge, experience and the (language) skill of managers. Corporate boards as a collection of human and social capital can provide these necessary resources to the firm for dealing with strategic change such as internationalisation (Aguilera, Marano and Haxhi, 2019; Haynes and Hillman, 2010). Oxelheim et al. (2013) argue that effective and diverse board facilitate internationalisation by reducing external uncertainty and ensuring institutional legitimacy. However, boards of entrepreneurial firms may not possess all these required resources and capabilities to make use of growth opportunities. PE investors may be able to provide these necessary resources as they are indeed better in developing specialist skills from investment experience that potentially help firms to grow (Meuleman et al., 2009; Castanias and Helfat, 2001) and identify opportunities for value creation. Meuleman et al. (2009) emphasised the capacity of PE firms to learn from their networks, relationships and experience. As such, having PE investors as board members, or in appointing experienced directors (with exporting expertise), guides portfolio companies to realise growth opportunities.

The effectiveness of board for firms that are involved in internationalisation depends on board capital (Puthusserry et al. 2021) which is composed of breadth and depth where breadth refers to education, skills, experience, network and reputation and depth refers to managerial experience in primary industry and interlocking directorship (Haynes and Hillman, 2010). Ben-Amar et al. (2013) argue that demograpgic diversity such as gender, nationality and directors' tenure improves knowledge base, creativity and the quality of decision making

and the monitoring process. PE firms are better positioned in establishing and ensuring diversity in boards of their portfolio companies having created an experienced pool of directors with track records of success from which to choose. PE firms do not have to face shareholders' pressure in selecting board members for their portfolio companies and have the governance advantages of shareholder/manager alignment. Moreover, PE firms generally have substantial investments in portfolio companies and as a result can exert pressure on portfolio companies in selecting board members (Stafford, 2020). Thus, PE firms can help internationalisation by ensuring a diversity of skill and knowledge in the boards of their portfolio companies. There are several diversity measures such as board size, age, education, profession and experience of board members, foreign nationality, gender and ethnic origins that are of importance for board effectiveness and internationalisation activities of firms (Anderson et al., 2011; Ben-Amar et al., 2013; Bernile, Bhagwat and Yonker, 2018). Sanders and Carpenter (1998) suggest that larger board would be helpful for international activities. However, later evidence suggest that board size is negatively related to corporate performance (Bennedsen, Kongsted and Nielsen, 2008). In this context, Jensen (1993) argue that larger boards may lead to ineffective coordination, communication and decision making. Oxelheim et al. (2013) argue that boards with foreign national directors or directors with international experience help to overcome the challenges of internationalisation. Foreign directors are better able to assess the prospect of international markets, contribute more in networking with global suppliers, buyers and finance providers and help in securing international legitimacy for the firms and access to various necessary resources including access to foreign capital.

Although there are explicit benefits of including foreign directors in boards, the financial and nonfinancial costs of inclusion could be higher. Therefore, having local directors with international experience could be a cost effective solution to encourage firms' internationalisation (Oxelheim et al., 2013). Experienced directors with longer tenure within

the board would better able to contribute to strategic decision making as they have better understanding of firms' resources and operations (Ben-Amar et al., 2013). Although there is some literature on the effects of board size, foreign directors and international experience on export performance, the effect of board level gender diversity, ethnicity and the age variation of directors remains largely unexplored (see Harjoto et al., 2018). PE investors can bring this diversity on the board to improve export performance. Moreover, PE investor may be able to draw on the pool of experience and expertise in their other current and previous portfolio firm investments in devising an export strategy and/or from syndicate members if they are a co-investor. PE investors may be located or have offices in other countries and are therefore able to identify exporting opportunities or transfer sales to their home markets. The participation of PE investors in the board of portfolio companies enrich the effectiveness of the board and therefore create valuable resource that help to make those firms competitive and perform better in the exporting activities. The second hypothesis to be tested is, therefore:

H2: *PE firms as 'active investors' bring diversity, networks and experience in boards of portfolio companies that will enhance board and management (operational) effectiveness to increase export propensity and intensity.*

3. Data and methodology

3.1 Data:

Our analysis utilises a panel database of the UK corporate sector covering the period 1998-2013 from which we select companies that have reported both balance sheet and profit and loss data in their financial statements (full accounts). For the companies that report sales turnover figures and export sales we, of course, are able to identify exporters (non-exporters) and the amounts and proportion of sales exported. The core data used in the study is derived from annual returns and accounts and document filings at Companies House. It covers the

population of limited companies in the UK including all exits via insolvency or dissolution and all new entrants. This data source includes financial statements, auditor information, industry sector, company age, director and shareholder information that is filed at least annually. The dataset was constructed from bulk supply of data from credit reference agencies (ICC Credit to 2010 and Creditsafe, 2011-2014). These agencies provided the authors with bulk data on all companies, updated weekly from 1995 to 2015[1]. The Credit Reference Agencies (CRA) source their data from Companies House and pre-process and check the data fields for the purpose of reporting of constructing and reporting risk scores and providing clients with credit reports and/or due diligence data. Data fields are analysed and checked against other proprietary data sources for which we have access (e.g. FAME, Datastream, Companies House).

In order to profile the characteristics of PE companies in relation to exporters we identify known PE invested companies in our database using data from CMBOR[2] and select and flag their company year observations within the population database including company-year observations *pre- and post-* PE investment. Thus the periods where the firms have an active PE investor are identified. These observations are coded as PE period. For a large subsample of PE invested firms we are able to analyse their characteristics and performance pre investment as well as post investment. Of course, it may be the case that PE firms target companies that already have some export presence when constructing their portfolio of investments and we wish to control for this potential selection bias.

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[1] One of the authors ran a University spin-out company (2001-2010) involved in corporate risk modelling, in association with ICC Credit, and developed the company panel data base via bulk access to the processed Companies House filings. ICC operated a 'disaster recovery service' for Companies House and therefore retained all filed information. Companies now submit their financial statements, annual returns and other required filings electronically (since around 2005) but historically this data resided on paper and microfiche. Hence Credit Reference Agencies had to extract the data manually and process it before storing it in databases and creating added value services (e.g. credit reports, calculation of performance ratios, credit scores). Individual CRA's differentiate themselves by the added value services they provide but process data from the same source. The authors continue to update the data panel using bulk feeds from a CRA but no longer has access to CMBOR data.

[2] Centre for Management Buy-Out Research, previously Imperial College, London.

The goal is to identify the export performance of these companies compared to a large control group of other non PE backed companies. An important feature of the comparative analysis is in the construction of a large control group from the active company population . In order to achieve this we run a screening procedure to identify a large control group of companies that fit broadly the sector, age and size profile of the pool of known buyouts transactions during the time period. For the population control group we include all firms that are required submit full accounts based on size and exclude firms with less than £50000 of real assets and over £500m (which is outside the size band for the pool of known buyouts) and include firms that have filed at least three sets of financial statements and annual returns, fit the sector (4-digit SIC codes), age and assets size profile of all known buyouts (PE-backed and other) during the time period based on the CMBOR surveys. This generates a reduced sample from the population database on PE invested companies, other buyouts and the population control group of firms. The final sample used for estimation is reported in Table 1. Thus we have 2.6 million company-level observations of which around 10% are actively engaged in export. The PE subsample is 21,134 company-years of which around 23% are actively engaged in export. Descriptive statistics are provided in Table 2 for the range of variables used in the multivariate estimation.

3.2 Methodology

The modelling strategy involves the estimation of multivariate models determining firm level propensity to export and export intensity. Multivariate models are specified with a binary dependent variable measuring whether a firm is an exporter or not within a company-year observation and with a dependent variable capturing the percentage of sales that are exported in each period i.e. export intensity. The latter is a dependent variable that is constrained to zero for non-exporters i.e. a limited dependent variable. Appropriate estimators (logit, tobit) are

used for each dependent variable and the panel nature of the data set. A wide range of independent variables capturing firm and industry specific characteristics, based on theory and extant empirical studies, are constructed to determine firm level variations in exporting. Of primary interest in this study is the relative export performance of PE backed enterprises compared to the large sample of non-PE limited companies.

In order to control for the effects of variations in firm level productive efficiency, and potential endogeneity, we derive a measure of total factor productivity for all firms in the sample. We specify a production function model using the firm level panel data. In this model we relate total output (value added) to labour and capital inputs, together with controls for age of the company, time period, sector and competition. Value added is derived from financial statements as trading profit plus wages and salaries. The model allows us to isolate productivity differentials for companies. The production function specification is Cobb-Douglas. In equation (1) the dependent variable, output, is real value added (deflated using GDP deflator). The following estimation equation was used:

$$\log(Y_{i,t}) = \beta_0 + \beta_1 \log(L_{i,t}) + \beta_2 \log(K_{i,t}) + \beta_3 C_{i,t} + u_{i,t} \quad (1)$$

where *Y* stands for real value added, *L* for number of employees, *K* for real total assets and *C* for the control variables (age, sector, competition, time) The residual u_{it} from the basic production function isolates the efficiency differences, total factor productivity, in firms. TFP is attributed to technological progress, knowledge and know-how, management practices and other factors that increase efficiency. Thus TFP is a more holistic measure of performance that takes into account inputs in the production process. The variable TFP is saved for each firm-year and is employed as an independent variable, proxying relative efficiency, in the analysis of export propensity and export intensity. We have controlled for firm level performance by

including both the efficiency (TFP) measure and lagged profitability, measured as return on assets (ROA).

To model the decision to export we identify firms with a positive value for export sales in their annual accounts and code the observation as 1, for exporter, and 0, for a non-exporter. We are then able to relate this outcome to firm and sector characteristics. The decision to export depends on the ability of firms to overcome barriers to enter export markets, specifically, sunk costs and the costs associated with acquiring foreign market knowledge. Clearly age, size and sector specialisation, innovation, financial strength and efficiency are important proxies for these costs (Hypothesis 1). We specify a probability model to identify the factors that influence the decision to export. The model includes a range of firm level and industry specific characteristics.

$$P(Export_{i,t+1} = 1|\Omega_t) = 1/\{1 + \exp\left[-\left(\beta_0 + \beta_1 F_{i,t} + \beta_2 S_{i,t} + \beta_3 PE_{i,t} + u_{i,t}\right)\right]\} \quad (2)$$

Thus in equation 2 we relate the probability of a firm being an exporter to firm characteristics (F) which includes size (log of assets and sales); asset intangibility (fraction); age (log of age); whether the company is diversified (more than one SIC code); efficiency (total factor productivity, TFP) and profitability (return on assets). Included are dummy variables for foreign parents and listed companies. We expect that foreign ownership is an advantage for export performance and that listed companies are more likely to have established international markets. Sector level variables (S) include a competition index (Herfindahl-Hirschman Index for the firms SIC code and company-year); industry risk (log odds of failure in the firms SIC code); and technology level of the firms SIC code based on NACE codes. NACE codes can be used to identify knowledge intensive sectors (K-I). The sub-classification based on two-digit NACE codes was performed using the Eurostat indicators on High-tech industry and

Knowledge-intensive services. The classification used by the Eurostat and the European Commission is similar to the older classification used by OECD. Innovative firms are more likely to gain export markets based on both cost and product/service advantages.

We identify firms that have received private equity backing in the panel and code these firms as PE backed firms (PE). Two dummy variables are constructed. The first identifies the period in the panel when the firm has private equity as an active investor (Private Equity Backed, 1,0) and the second identifies the period pre private equity investment (Pre PE Investment 1,0), for firms where we have pre investment observations. We are interested in the sign and significance of these dummy variables. From our previous discussion we identify two main routes for PE investors to improve the export performance of their portfolio firms. The *first route* (H1) is by taking post investment actions (capital and operating expenditures) that improve the efficiency (productivity) of the firm. Thus, in addition to the PE dummies we control for TFP as a measure of relative efficiency. Moreover, PE investors may target firms that have (potential) export markets and thus we control for pre PE years of the invested companies. The *second route* (H2) to improving export performance is by appointing directors with knowledge and experience of export markets and relevant networks. PE investors are likely to appoint experienced directors to the board alongside incumbent board members. These appointments are likely to have established business networks and in the case of divestments from foreign parents may continue and/or develop trading relationships with other overseas customer bases.

For firms that export, we construct a variable measuring export intensity, that is, the percentage of company sales in a given year that are classified in the accounts as export sales. Of course, for non-exporters this variable is always zero. In order to further explore the determinants of export sales we estimate a Tobit model using the panel estimator that deals with random effects. The Tobit model (3) has the general specification as equation 2 but here

the dependent variable is not binary but in the range of 0-100 with non- exporters constrained to zero.

$$Export\ (\%) = \beta 0 + \beta 1\ (F) + \beta 2(S) + \beta 3\ (PE) + \mathcal{u} \quad (3)$$

We estimate models (2) and (3) using the full panel 1998-2013[3].

To the models (2) and (3) we add a range of governance variables that reflect the characteristics of the boards of directors of these firms. These variables are included to control for the *route 2* influences on export performance discussed above. These variables are constructed from a unique database[4] of directors derived from the history of company annual returns. The director database is built to facilitate the tracking of individual directors' involvements with current and previous UK companies. The information includes director age and reported nationality, tenure in their current appointments, date of first director appointment and characteristics of the firms in which they have acted as a director. Thus, for each company board in each year we measure *board size* (number of directors); the number of *multiple directors* held by board members; the *proportion of foreign nationals on the board*; the *proportion of female directors*; the *incidence of family members* (common surnames) on the board; the *average age of directors; the average number of years of experience of directors*; and the variation of *tenure of directors* (coefficient of variation in tenure years of board members). These variables proxy for: board experience and diversity (age, experience, tenure and nationality); family and director networks (foreign and domestic). Clearly firms with stronger networks and foreign representation are likely to have more export success (H2).

[3] As a robustness test we reestimate all models using a sample period 2006-2013 because of changes in financial reporting standards but find that the results are consistent with the full sample estimates.

[4] The authors have access to data on all UK directors including the history of current and previous director appointments. This database has been built over many years with the involvement of a UK credit rteference agency and access to Companies House bulk data.

However, recorded nationality may not reflect the ethnic origin of individual directors particularly those who have been naturalized or those born in the UK of immigrant parents. Of course, directors recording a non-UK nationality may be associated with foreign owned companies or their subsidiaries in the UK. These directors may not be resident or permanent residents of the UK. We are able to identify both foreign companies and UK subsidiaries of foreign parents in the database.

A further novel feature of the director and board level data for the panel companies is based on a unique analysis of directors' names, surname and forename. Analysis of individual names allows us to identify the cultural, ethnic and linguistic background of directors regardless of registered nationality. The latter approach uses the 'onomap' coding algorithms[5]. The software algorithms classify individuals according to most likely 'cultural–ethnic–linguistic' (CEL) characteristics, identified from forenames, surnames and forename–surname combinations. The algorithms work by reference to the structural similarities and differences between name families, which reflect underlying cultural, ethnic and linguistic features. Moreover, it is apparent that there are 'distinctive naming practices in cultural and ethnic groups are persistent even long after immigration to different social contexts' (Mateos, Longley and O'Sullivan, 2011, p. e22943).

The use of this classification system is preferable to using the directors' recorded

[5] *Onomap* is a name-classification system and ethnicity-coding (cultural-ethnic-linguistic) tool developed at University College London (Mateos et al., 2007,2011). Ethnicity measures used in this study are based on twelve geographical origin zones, where this origin is taken as a proxy for 'roots'. These are: British Isles; South Asia; Central Europe; East Asia; Southern Europe; Eastern Europe; Middle East; Northern Europe; Rest of World; Africa Central; Asia; Americas. A more detailed set of 68 CEL 'subgroups' within these broad classifications are available. The onomap matching allocates director names to 14 Onomap groups based on ethnicity. These are: African; Celtic; East Asian and Pacific; English; European; Greek; Hispanic; International; Japanese; Jewish and Armenian; Muslim; Nordic; Sikh and South Asian. A further dimension is a classification based on nine 'macro-ethnic' categories similar to those used by the UK Office of National Statistics (ONS). These are: White; Indian; Pakistani; Bangladeshi; Black-Caribbean; Black-African; Chinese and other ethnic groups. ONOMAP is developed from a names database extracted from Electoral Registers and telephone directories, covering 500,000 forenames and a million surnames across 28 countries.

nationality since directors recording a non-British nationality are likely to be either recent immigrants and/or directors of large foreign owned companies or their UK registered subsidiaries. Directors of the latter may not be permanent residents of the UK. Thus, the CEL approach captures a wider range of minority sub-groups within the population of registered directors. These nationalities are coded into world regions using 27 groupings based on those used by the World Bank. The grouping used in the study, however, separates original EU member states from the new members. However, initially, for this study we create a single variable, proportion of directors on the board of ethnic origin. This variable is used in addition to a variable that identifies the proportion of foreign nationals on the board. Of course, companies that have a board that is knowledgeable of foreign markets and languages and has relationships with overseas companies is more likely to be successful at exporting. Each individual director is matched to a directorship (limited company)[6]. The dates of an individual director's appointment and resignation from a company can be used as a means of identifying a company's board composition within a given accounting year and the constructed variables reflect the board characteristics. For the PE subsample we identify firms that have the involvement of foreign PE investors and syndicates and identify the number of changes to the board post investment.

4. Results and Discussions:

Details of the estimation panel and descriptive statistics are provided in Table 1 and Table 2. The panel detail is provided in table 1 that lists the number of company years for each sub-sample. The panel consists of 2.6 million company year observations from 1998-2013 of which an average of 9% are identified as exporters. This reduces to around 2.3 million observations after missing values. The proportion of companies that are exporters increases

[6] A directorship can be allocated to a company or organization e.g. a trust rather than a named individual. These are excluded from the analysis.

from around 8% to 12% during the sample period. The PE subsample has 21,134 company year observations of which around 23% are identified as exporters post investment. This is a relatively constant proportion throughout the sample period and considerably higher than the population proportions. Table 2 presents descriptive statistics (mean and standard deviation) for the range of independent variables and t-tests for subsample differences between exporters and non-exporters. The t-tests show significant differences in most variables due to sample size but amongst the strongest differences are size variables (turnover, assets, board) suggesting, as one would expect, that larger firms are more likely to be exporters as are listed companies and foreign owned companies (ultimate parent is foreign). Firms with high levels of intangible assets are more likely to export perhaps reflecting the strong export performance of business services in the pre-crisis period. Knowledge intensive companies show strong export sales along with more general business services. The higher technology end of manufacturing has a strong incidence of exporting. Boards with foreign nationals as directors and directors with experience and networks (multiple directorships) are more likely to be exporters. Smaller, younger and family companies are less likely to export. In terms of industry, the highest percentages of export sales are found in manufacturing (8-14%), wholesale and agriculture and mining. PE backed firms are exporting, on average, around 10% of sales, again, higher than the population average. Amongst manufacturing, the largest percentage exports are in chemicals and medical, electrical and other equipment.

Insert Table 1 and Table 2 here

The results of the panel logit estimations are reported in Table 4 and Table 5. Panel tobit estimations (random effects) are presented in Table 6 . In Table 7, we have presented both logit and tobit estimations to examine the pre and post PE investment situation using PE backed firms only in the estimation. We identify whether the PE investor is foreign and whether

a syndicate is involved. For all firms and the PE subsample we identify the number of board level changes in a particular year and construct interaction terms for PE backed firms. We construct PE backed dummies for size bands of PE backed firms (£10-50m sales; £50m plus; less than £10m).

The estimations to derive the measure of total factor productivity are reported in Table 3. The model in Table 3 contains labour and capital inputs and control variables for age, sector competition and time dummies. The Cobb Douglas specification generates reliable total factor productivity residuals. The results show that the estimated coefficients have expected signs and are highly statistically significant. Moreover, they are within the expected interval[7] and their sum is nearly exactly equal to 1, so the returns to scales are approximately constant. The control variables have expected signs with higher productivity in more competitive sectors and productivity negatively related to sector failure rate. There is a quadratic relationship between productivity and company age suggesting diminishing productivity as age increases. The time dummies show a steady increase in productivity until the global financial crisis in 2008 and then a sharp fall to 2012. The saved residual from this specification is used as the measure of total factor productivity in the second stage estimation. However, because not all firms provide financial data that facilitates the calculation of value added (the dependent variable in the production function) the sample size reduces for multivariate models where this is among the independent variables which is why we estimate models with and without productivity.

Insert Table 3 here

4.1 Export propensity

The estimation of equations determining the likelihood of firms being exporters are reported in table 4. Table 4 reports models for the estimation sample 1998-2013. The models

[7] The neoclassical theory of production function assumes that the marginal product of labour and capital are positive (hence the coefficient should be positive) and subject to law of diminishing returns (hence the coefficient should be smaller than one). Returns to scale is given by the sum of the input coefficients.

include controls for size, both total assets and lagged sales turnover (log); and age of company, Age (log). We include a measure of asset intangibility as the fraction of intangible assets (1-(Fixed Assets/Total Assets)). For company type we have dummy variables for listed companies; companies with an ultimate foreign parent; and PE Backed companies. For some private equity backed companies we can identify observations on the firm prior to the PE investment (Pre PE). Controls for sector and competition include the HHI and Industry risk variable and diversification dummy variable (diversified=1 or not=0). Industry dummies reflect the level of technology for manufacturing firms and knowledge intensity for service sectors. Eight specifications are reported of the logit equation. Column 1 has the control variables discussed above and the PE backed dummy. Column 2 adds pre PE investment. Column 3 includes lagged return on assets only but column four presents both pre PE investment and lagged return on assets. Column five includes TFP without pre PE investment but column six includes TFP with pre PE investment. Column seven includes both TFP and lagged ROA but without pre PE investment but column eight includes TFP, lagged ROA and pre PE investment. The basic model specification in column one shows positive and significant associations between export propensity and size (assets), age, and asset intangibility. The reported coefficients can be converted into odds ratios (exp(b)) and marginal effects. For example, a unit increase in size, age or asset intangibility would increase the likelihood of export by 1.07, 1.3 and 3.8 cet par. All these results are significant at 1% level. These results confirm that mature and established companies are more likely to export. Listed companies are more likely to be in export markets and are internationalised compared to private companies. The coefficient for listed companies is positive and significant at 1% level. The coefficient of foreign parent is also positive and significant at 1% level as one would expect given foreign parentage provides more opportunity to service overseas market. In terms of sector dummies again, as one would expect, the higher technology manufacturing and knowledge intensive

service firms are more likely to be exporters. The positive and statistically significant coefficient values for high-tech manufacturing sector (1.951) and high-tech services (1.122) are clearly indicating this fact. The PE dummy variable (PE Backed) is *positive and strongly significant* suggesting that PE backed firms are more likely to be internationalised than the control sample and the coefficient is larger than the listed company dummy. In all the models presented in Table 4, it is evident that PE backing would increasee the export propensity, the odds ratios being in the range 1.4 to 1.5. All the PE backed coefficients are statistically significant at 1% level and are significantly larger than listed company dummies. This lends strong support for our first hypothesis which says that PE backed firms have more export propensity than non PE backed firms. We report evidence that PE firms are likely to select buyout targets that already have some export activity through the coefficient on the pre buyout dummy. Pre PE investment coefficients are all positive across all models in Table 4 (0.234; 0.250; 0.202 and 0.208) and are statistically significant at 1% level. However, Pre PE investment coefficients are substantially lower than PE backed coefficients which ranges between 0.359 and 0.425. This lends further support to our first hypothesis as PE investment managed to increase the export propensity of self selected firms. The coefficients on all other variables are consistent across all specifications in table 4 although the controls for competition and industry risk are less stable. With regard to the latter it seems that exporters are more likely in less competitive sectors (although the magnitude of the coefficient is small). This is expected since firms that have established a competitive advantage and stability and maturity are more likely to be in export markets.

Insert Table 4 here

When performance variables are added to the equation, we find a positive and significant relationship between TFP and export propensity (column 5 to 8). The results show that one

unit increase in TFP would lead to increase in export propensity with an odds ratio of 1.05 to 1.07. All coefficients are significant at 1% level. These results are consistent with our predictions that firms with more knowhow, innovation and expertise are more likely to be exporters. This lends further support to our first hypothesis which says PE investment helps to increase export propensity by increasing productivity of portfolio companies . However, we have found a negative relationship between lagged ROA and export propensity which indicates that export is not positively associated with ROA. Although this result is unexpected but not surprising as Vogel and Wagner (2010) and Temouri et al. (2011) find evidence that exporters underperform in terms of profitability compared to non-exporters. Wagner (2012) argue that the underperformance by exporters might be because of the fact that any productivity advantage of exporting firms might be eaten up by extra costs related to selling and buying on foreign markets. Comparing the coefficients for pre PE dummy with PE backed coefficients, it is apparent that PE backing has stronger support for the firms to be exporters as coeeficients are larger and statistically significant.

Table 5 repeat the baseline analysis presented in Table 4 but include additional variables reflecting board characteristics in each specification in order to provide evidence for our second hypothesis. There are some consistent and significant results across the specifications. Column 4, which includes all the variables, clearly shows that percentage of foreign nationals on the board is positive and significant along with the average experience of the board directors. An increase in percentage of foreign directors increases the export propensity (odds ratio 1.01, $p < 0.01$). Similarly, the average experience of board members would increase the export propensity (odds ratio 1.23, $p < 0.01$). The variable measuring director tenure variation and average number of multiple directorships (are positive and significant whereas the board size is suggesting that focussed directors are more effective in driving export performance. The results in Table 5 also indicate that percentage of female

directors in board and inclusion of directors from ethnic minority do not help to increase the export propensity of PE backed firms. Reuber and Fischer (1997) state that international knowledge and experience are important for export propensity but gender diversity is less likely to bring related foreign market experience to the firm. In relation to ethnic minority directors in borad, the negative relation is due to the fact that the majority group may exclude minorities from information sharing activities which eventually limit minority directors' ability to monitor effectively (Guest, 2019). Inclusion of the board variables does not impact on the significance and magnitude of the PE backed dummy. The results in Table 5 support our hypothesis 2 which says that selected board characteristics of PE backed firms will increase the export propensity for the whole sample period of 1998 to 2013. The results for sub-sample are also similar and supportive of our hypothesis 2. These results are not presented here but are available on request.

Insert Table 5 here

4.2 Export intensity

Tables 6 reports estimates using the same specification for whole sample period but here the dependent variable is export intensity, estimated with panel Tobit. The dependent variable is the percentage of sales that are exports and therefore is allowed to vary between 0 and 100%. This is, of course, a limited dependent variable constrained to zero for non-exporters and varying up to 100% for exporters and is estimated using the Tobit panel estimator (xttobit). The results are consistent with the logit estimation with a positive and significant coefficient on PE backing confirming an uplift in export performance of firms post private equity investment. The coefficients on the PE dummy (4.248; 4.290; 4.630 and 4.649) which are significant at 1% level suggest a percentage export differential of more than 4% over the control group controlling for other factors. This lends strong support to our first hypothesis which says

PE investment will lead to an increase in export intensity among the portfolio companies. In tables 6, all models are re-estimated inclusive of variables reflecting the characteristics of the board of directors. The results suggest that export intensity is positively associated with foreign nationals as directors (0.185; $p<0.01$), multiple directorship (1.182; $p<0.01$), average age (0.0570; $p<0.01$), tenure variation (0.00736; $p<0.01$) and average experience (0.286). These results are in line with our expectations that knowledge, skills and experience that are brought in by the borad help to improve export performance measured by export intensity. However, as we find in Logit estimation, Tobit results also show that directors from ethnic origin (-0.0279; $p<0.01$) and female directors in board (-0.0951; $p<0.01$) are negatively related to export intensity. A subsample analysis of PE boards suggests that PE backed firms do not generally have a higher incidence of foreign and ethnic directors but have more experience than the control sample. We should note that although PE firms do not have a significantly higher incidence of foreign nationals, they do have significantly more directors from North America. PE directors have more average years of experience and (variation i.e. more new appointments) and more multiple directors but significantly fewer females. The results in Table 6 support our second hypothesis which says that selected board characteristics of PE backed firms will increase the export intensity for the whole sample period of 1998 to 2013.

Insert Table 6 here

Table 7 presents additional results involving only PE backed firms. We have provided analysis on export propensity and export intensity for a subsample of PE backed firms both at pre and post investment period. The results in table 7 show that the coefficients for export propensity (-0.174; -0.194; -0.181) and export intensity (-4.675; -5.450; -4.196) in pre PE buyout phase are all negative and statistically significant at 1% level. This is a clear indication that both export propensity and export intensity increase after the PE investment. This lend

further support to our first hypothesis. The results in Table 7 also confirm that certain board charateristics such as foreign nationals in borad, multiple directorships, foreign PE investors, PE syndicate and board changes will have positive impact on export propensity and export intensity. These results provide further support to our second hypothesis in relation to export propensity and intensity and board and management characteristics.

Insert Table 7 here

5. Conclusion

In this paper, we have examined the relationships between private equity backing of bought out companies and their exporting behaviour. More specifically, we tried to find evidence that PE-involvement in buyouts leads to improvements in exporting both in terms of the decision to begin or cease exporting (propensity) and the intensity of exporting (growth rates in amount of sales exported). The paper has further examined the role of experience and networks of PE investors and their involvement on the board post-investment on exporting performance. Our analysis shows that PE backed firms have a higher propensity to export controlling for a wide range of firm level and industry characteristics and are more export intensive. The current evidence suggests that there is a positive and significant relationship between total factor productivity (TFP) and *export propensity* and that firms with more knowhow, innovation and expertise are more likely to be exporters. The percentage of foreign nationals on the board has a positive and significant effect along with the average age and experience of the board directors on *export propensity*. Variation in director tenure and average number of multiple directorships are positive and significant whereas board size is negative suggesting that focussed directors are more effective in driving *export propensity*. With respect to *export intensity* (the share of sales that are exported), there is a positive and significant coefficient on PE backing indicating an uplift in export performance of firms post PE investment. Firms with PE backing appear to have a percentage export differential of more

than 4% over the control group of non-PE backed firms, taking other factors into account. Examining the effects of the characteristics of the board of directors, we find that *export intensity* is positively associated with foreign nationals, multiple directorships, average age and experienceand tenure variation. Enthic background of directors and female directors in borad are found to be less effective in increasing export intensity. The paper also finds evidence that foreign PE investors, PE sysdicate and board change have positive effect on export intensity of PE backed portfolio companies.

The paper investigates the determinants of exporting within a large sample of UK companies of which PE backed firms are a sub-sample. The models use a rich array of company specific variables reflecting performance and governance. Clearly the impact of PE on exporting activity can be investigated using alternative methods such as matched samples of PE and non-PE backed firms (propensity scores or difference-in-difference frameworks) to focus on the exporting uplift. This is a potentially fruitful avenue for further research. Moreover, there could be endogeneity issues that could be better handled by using more sophisticated econometric techniques such as difference in difference (DiD) method. In this paper, we could not carry out DiD test due to the fact that there was a constant change in status of our sample firms which makes it difficult to separate out the treatment group from control group. Although we have used alternative measures and a wide range of control variable to control for endogeneity, future research could use other econometric techniques and more recent data.

References

Aguilera, R. V., V. Marano and I. Haxhi (2019). 'International Corporate Governance: A Review and Opportunities for Future Research, *Journal of International Business Studies*, 50, pp. 457 – 498.

Aldatmaz, S. and G.W. Brown (2020). 'Private equity in the global economy: Evidence on industry spillovers', *Journal of Corporate Finance*, 60, pp. 1 – 23.

Alvarez, R. and R. Lopez (2005). 'Exporting and Performance: Evidence from Chilean Plants.' *Canadian Journal of Economics,* 38(4), pp. 1384-1400.

Amess, K., J. Stiebale and M. Wright (2015). 'The Impact of Private Equity on Firms' Innovation Activity.' *European Economic Review*, 86, pp. 147-160

Anderson, R., D. Reeb, A. Upadhyay and W. Zhao (2011). 'The economics of director heterogeneity', *Financial Management*, 40, pp. 5 – 38.

Barney, J. (1991). 'Firm resources and sustained competitive advantage', *Journal of Management*, 17(1), pp. 99 – 120.

Barney, J., M. Wright and D. J. Ketchen, Jr. (2001). 'The resource-based view of the firm: Ten years after 1991', *Journal of Management*, 27, pp. 625 – 641.

Ben-Amar, W., C. Francoeur, T. Hafsi and R. Labelle (2013). 'What Makes Better Boards? A Closer Look at Diversity and Ownership', *British Journal of Management*, 24, pp. 85 – 101.

Bennedsen, M., H. C. Kongsted and K. M. Nielsen (2008). 'The casual effect of board size in the performance of small and medium-sized firms', *Journal of Banking and Finance*, 32, pp. 1098 – 1109.

Bernard, A. and B. Jensen (1999). 'Exceptional exporter performance: Cause, effect or both?' *Journal of International Economics*, 47(1), pp. 1 – 25.

Bernard, A. and B. Jensen (2004). 'Why some firms export', *Review of Economics and Statistics,* 86, pp. 561-569.

Bernard, A. and J. Wagner (1997). 'Exports and Success in German Manufacturing', *Weltwirtschaftliches Archiv,* 133, pp. 134-157.

Bernstein, S., J. Lerner and F. Mezzanottie (2019). 'Private equity and financial fragility during the Crisis', *The Review of Financial Studies*, 32, pp. 1309-1373.

Bernile, G., V. Bhagwat and S. Yonker (2018). 'Board diversity, firms risk and corporate policies', *Journal of Financial Economics*, 127(3), pp. 588 – 612.

Bleaney, M. and K. Wakelin (2002). 'Efficiency, innovation and exports'. *Oxford Bulletin of Economics and Statistics,* 64(3), pp. 3-15.

Bonaccorsi, A. (1992). 'On the relationship between firm size and export intensity'. *Journal of International Business Studies*, 23, pp. 605–635.

Braun, R., T. Jenkinson and I. Stoff (2017). 'How persistent is private equity performance? Evidence from deal-level data'. *Journal of Financial Economics*, 123, pp. 273 – 291.

Braun, R., T. Jenkinson and C. Schemmerl (2020). 'Adverse selection and the performance of private equity co-investments'. *Journal of Financial Economics*, 136, pp. 44 – 62.

Castanias, R. and C. Helfat (2001). 'The managerial rents model: Theory and empirical analysis', *Journal of Management*, 6, pp. 661 – 678.

Cumming, D. (2008). 'Contracts and Exits in Venture Capital Finance', *Review of Financial Studies*, 21(5), pp. 1947 – 1982.

Cumming, D.J. and S. Johan (2007). 'Regulatory harmonization and the development of private equity markets'. *Journal of Banking and Finance*, 31, pp. 3218 – 3250.

Cumming, D.J. and J.G. MacIntosh (2003). 'A cross-country comparison of full and partial venture capital exits', *Journal of Banking and Finance*, 27(3), pp. 511 – 548.

Cumming, D.J. and S. Zambelli (2013). 'Private equity performance under extreme regulation'. *Journal of Banking and Finance*, 37 (5), pp. 1508 – 1523.

Cumming, D. J., D. S. Siegel and M. Wright (2007). 'Private equity, leveraged buyouts and governance', *Journal of Corporate Finance*, 13, pp. 439-460.

Cumming, D. J., R. Peter and M. Tarsalewska (2020). 'Public-to-private buyouts and innovation', *British Journal of Management*, forthcoming, DOI: 10.1111/1467-8551.12404.

Cumming, D.J., A. Knill and K. Syvrud (2016). 'Do international investors enhance private firms value? Evidence from venture capital', *Journal of International Business Studies*, 47(3), pp. 347 – 373.

Davis, S. J., J. Haltiwanger, K. Handley, R. Jarmin, J. Lerner and J. Miranda (2014). 'Private equity, jobs, and productivity', *American Economic Review*, 104, pp. 3956-3990.

Eden, L. and S.R. Miller (2004). 'Distance matters: Liability of foreignness, institutional distance and ownership strategy', *Advances in International Management*, 16, pp. 187 – 221.

Fryges, H. and J. Wagner (2010). 'Exports and profitability: First evidence for German manufacturing firms'. *The World Economy*, 2010, pp. 399 – 423.

Greenaway, D. and Z. Yu (2004). 'Firm-Level Interactions between Exporting and Productivity: Industry-Specific Evidence'. *Review of World Economics,* 140, pp. 376-392.

Greenaway, D., A. Guariglia and R. Kneller (2007). 'Financial factors and exporting decisions', *Journal of International Economics*, 73, pp. 377 – 395.

Greenaway, D. and R. Kneller (2008). 'Exporting, productivity and agglomeration'. *European Economic Review,* 52, pp. 919-939.

Grima, S., A. Greenaway and R. Kneller (2004). 'Does export increase productivity? A Microeconometric analysis of matched firms', *Review of International Economics*, 12(5), pp. 855 – 866.

Guest, P. M. (2019). 'Does Board Ethnic Diversity Impact Board Monitoring Outcomes?', *British Journal of Management*, 30, pp. 53 – 74.

Harjoto, M. A., I. Laksmana and Y-W. Yang (2018). 'Board diversity and corporate investment oversight', *Journal of Business Research*, 90, pp. 40 – 47.

Harris, R., D. S. Siegel and M. Wright (2005). 'Assessing the impact of management buyouts on economic efficiency: Plant-level evidence from the United Kingdom', *Review of Economics and Statistics*, 87, pp. 148-153.

Haynes, K. T. and A. Hillman (2010). 'The effect of board capital and CEO power on strategic change', *Strategic Management Journal*, 31, pp. 1145 – 1163.

Ipek, I. (2018). 'The Resource-Based view within the export context: An integrative review of empirical studies', *Journal of Global Marketing*, 31(3), pp. 157 – 179.

Ipek, I. and N. Bıçakcıoğlu-Peynirci (2020). 'Export market orientation: An integrative review and directions for future research', *International Business Review*, 29(4), pp.

Jensen, M. C. (1993). 'The modern industrial revolution, exit and the failure of internal control systems', *Journal of Finance*, 48, pp. 831 – 880.

Johanson, J. and J-E. Vahlne (1977). 'The internationalization process of the firm: A model of knowledge development and increasing foreign market commitments', *Journal of International Business Studies*, 8(1), pp. 23 – 32.

Lockett, A., M. Wright, A. Burrows, L. Scholes, and D. Paton (2008). 'Export intensity of venture capital backed companies.' *Small Business Economics*, 31(1), pp. 39-58.

Manova, K. (2013). 'Credit constraints, heterogeneous firms and international trade', *The Review of Economic Studies*, 80(2), pp. 711 – 744.

Mateos, P., P. A. Longley and D. O'Sullivan (2011). 'Ethnicity and population structure in personal naming network', PLoS One, 6(9), p. e22943.

Meuleman, M., K. Amess, M. Wright and L. Scholes (2009). 'Agency, Strategic Entrepreneurship and the Performance of Private Equity Backed Buyouts'. *Entrepreneurship Theory and Practice*, 33, pp. 213-240.

Oxelheim, L, A. Gregoric, T. Randoy and S. Thomsen (2013). 'On the internationalization of corporate boards: The case of Nordic firms', *Journal of International Business Studies*, 44(3), pp. 173 – 194.

Puthusserry, P., Z. Khan, S. R. Nair and T. King (2021). 'Mitigating Psychic Distance and Enhancing Internationalization of Fintech SMEs from Emerging Markets: The Role of Board of Directors', *British Journal of Management*, 0, pp. 1 – 24.

Reuber, A. and E. Fischer (1997). 'The influence of the management team's international experience on the internationalization behavior of SMEs', Journal of International Business Studies, 28(4), pp. 807 – 825.

Sanders, W. G. and M. A. Carpenter (1998). 'Internationalization and firm governance:The role of CEO compensation, top team composition and board structure', *Academy of Management Journal*, 41(2), pp. 158 – 178.

Stafford, B. (2020). 'How private equity firm borads can promote diversity', Corporate compliance Insights, Accessed 12th May, 2021.

Temouri, Y., A. Vogel and J. Wagner (2011). 'Self-selection into export markets by business services firms – Evidence from France, Germany and the United Kingdom, Working Paper Series in Economics 183, University of Lueneburg: Institute of Economics.

Tseng, C-H., P. Tansuhaj, W. Hallagan and J. McCullough (2007). 'Effects of firm resources on growth in multinationality', *Journal of International Business Studies*, 38, pp. 961 – 974.

Tykvova, T. and M. Borell (2012). 'Do private equity owners increase risk of financial distress and bankruptcy?' *Journal of Corporate Finance*, 18, pp. 138 – 150.

Uddin, M. and A. Chowdhury (2021), 'Private Equity Exit Strategies and Profitability during the Global Pandemic: Evidence from Around the World', *British Journal of Management*, 32 (4), pp. 1302 - 1337.

Vogel, A. and J. Wagner (2010). 'Exports and profitability – First evidence for German business services enterprises', *Applied Economics Quarterly*, 56(1), pp. 7 – 30.

Wagner, J. (2012). 'International trade and firm performance: a survey of empirical studies since 2006', *Review of World Economy*, 148, pp. 235 – 267.

Wang, W. and H. Ma (2018). 'Export strategy, export intensity and learning: Integrating the resource perspective and institutional perspective', *Journal of World Business*, 53, pp. 581 – 592.

Wilson, N. and M. Wright (2013). 'Private Equity, Buyouts and Insolvency Risk'. *Journal of Business Finance and Accounting*, 40, pp. 49-990.

Wilson, N., M. Wright, D. Siegel and L. Scholes (2012). 'Private Equity Portfolio Company Performance During the Global Recession', *Journal of Corporate Finance*, 18, pp. 193-205.

Wood, G. and M. Wright (2009). 'Private equity: A review and synthesis'. *International Journal of Management Reviews*, 11, pp. 361 – 380.

Wright, M., P. Westhead and D. Ucbasaran (2007). 'Internationalisation by SMEs: A critique and policy implications.' *Regional Studies*, 41(7), pp. 1013–1030.

Wright, M., S. Pruthi, K. Amess and Y. Alperovych (2019). 'Private equity: where we have been and the road ahead.' *Venture Capital*, 21(1), pp. 51 – 64.

Zaheer, S. (1995). 'Overcoming the liability of foreignness', *Academy of Management Journal*, 38(2), pp. 341 – 363.

Zahra, S. and I. Filatotchev (2004). 'Governance and the entrepreneurial threshold firm: A knowledge-based perspective', *Journal of Management Studies*, 41(5), pp. 885 – 898.

Table 1

Estimation Sample

Year	Companies	Exporters	% Exporting	PE Backed	PE Exporters	% PE Exporting
1998	152672	12725	8.33	1157	325	28.09
1999	158073	13105	8.29	1217	313	25.72
2000	162117	12769	7.88	1202	303	25.21
2001	174743	14593	8.35	1248	299	23.96
2002	183937	15609	8.49	1305	306	23.45
2003	184843	14975	8.10	1277	295	23.10
2004	186529	13939	7.47	1307	286	21.88
2005	185421	13694	7.39	1320	266	20.15
2006	180406	14230	7.89	1308	270	20.64
2007	173128	15285	8.83	1358	324	23.86
2008	162470	15160	9.33	1363	336	24.65
2009	156584	15413	9.84	1376	322	23.40
2010	151659	15713	10.36	1417	328	23.15
2011	139097	15360	11.04	1425	342	24.00
2012	131720	15197	11.54	1419	341	24.03
2013	123860	14762	11.92	1435	340	23.69
Total	**2607259**	**232529**		**21134**	**4996**	

Notes: This table shows total number of registered companies with full financial accounts by year from 1998 to 2013. Column 3 and 4 show the number of exporing firms and percentage of exporting firms out of total registered firms in each year respectively. Column 5 shows the number of PE backed firms out of total registered companies. Column 6 and 7 show the number of exporting firms and percentage of exporting firms with PE backing respectively.

Table 2

Descriptive Statistics

	Exporter (N=0; Y=1)	N	Mean	Std. Deviation	T-Test[1]
Ln(Total Assets)	0	2374730	13.4328	2.02511	0.000
	1	232529	15.3981	1.64629	
Ln(Sales)	0	2373494	13.2414	2.25725	0.000
	1	232529	15.8345	1.61529	
Intangibility (Fraction)	0	2374730	0.6522	0.35199	0.000
	1	232529	0.7656	0.2308	
Ln(Age)	0	2374730	2.0054	1.06023	0.000
	1	232529	2.47	0.97755	
Return on Assets	0	2373116	14.6609	29.70008	0.000
	1	232523	7.5282	19.00238	
TFP	0	660636	-0.0140163	0.76560303	0.000
	1	180765	0.0869036	0.64942086	
Listed (dummy)	0	2374730	0.0051	0.07091	0.000
	1	232529	0.0148	0.12088	
Foreign Owned (dummy)	0	2374730	0.1591	0.36581	0.000
	1	232529	0.4671	0.49892	
Diversified (SIC Codes)	0	2374730	1.1074	0.41187	0.000
	1	232529	1.0416	0.2577	
Industry Risk	0	2374730	0.08946	0.5184256	0.000
	1	232529	-0.171602	0.4400607	
Herfindhal Hirschman	0	2374730	182.6782	208.45031	0.000
	1	232529	291.2833	309.47798	
High Tech Manuf	0	2374730	0.006	0.07707	0.000
	1	232529	0.044	0.20505	
Medium High Manuf	0	2374730	0.0142	0.11824	0.000
	1	232529	0.0946	0.29273	

Medium Low Manuf		0	2374730	0.0182	0.13368	0.000
		1	232529	0.0808	0.27259	
Low Tech Manuf		0	2374730	0.0427	0.2021	0.000
		1	232529	0.1212	0.32639	
High Tech Services		0	2374730	0.064	0.24468	0.000
		1	232529	0.0956	0.29402	
K-I Market Services		0	2374730	0.2589	0.43802	0.000
		1	232529	0.1548	0.36173	
K-I Financial Services		0	2374730	0.0009	0.02958	0.016
		1	232529	0.0007	0.02687	
Other KI Services		0	2374730	0.1156	0.31979	0.000
		1	232529	0.0308	0.17271	
Less KI Market Services		0	2374730	0.1826	0.38633	0.000
		1	232529	0.2009	0.4007	
ln (Board Size)		0	2363305	1.2463	0.61621	0.000
		1	231643	1.4335	0.50997	
Foreign Directors (%)		0	2363305	8.5716	21.26014	0.000
		1	231643	21.6423	29.74228	
Ethnic Directors (%)		0	2363305	6.9164	22.56237	0.000
		1	231643	6.2656	19.50284	
Multiple Directorships (Ave)		0	2363305	1.3729	1.54135	0.000
		1	231643	2.2955	1.05615	
Director Age (Ave)		0	2346976	49.5101	8.87126	0.000
		1	231062	49.8994	6.55211	
Director Experience (Ave Yrs)		0	2337649	3.0522	0.91908	0.000
		1	230629	3.2941	0.79379	
Femal Directors (%)		0	2363305	27.3107	26.74579	0.000
		1	231643	14.7695	20.55711	
Director Tenure (CV)		0	2363305	32.0653	36.23622	0.000
		1	231643	47.6416	37.40435	

Family Directors (Dummy)	0	2374730	0.5294	0.49914	0.000
	1	232529	0.4405	0.49645	

1 T-test significance level (assumes equal variance)

Notes: This table shows the descriptive stats for the selected varibles. The table reports mean values and standard deviations for exporters and non-exporters for all selected variables and tests the difference between exporters and no-exportes. The T-test values show that exporters are significantly different than non-exporters. NACE codes are used to define Knowledge Intensive Sectors (K-I) and High Technology.

Table 3

Production Function Estimates and Total Factor Productivity

Model		Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	5.818	0.009	654.962	0.000
	Labour	0.599	0.001	937.985	0.000
	Capital	0.400	0.001	675.575	0.000
	Ln(age)	0.148	0.003	49.886	0.000
	Ln(age2)	-0.036	0.001	-53.916	0.000
	Industry Risk	0.051	0.002	29.166	0.000
	Herfindal Index	-0.000012	0.000	-3.785	0.000
	y98	0.059	0.005	12.831	0.000
	y99	0.066	0.005	14.664	0.000
	y00	0.074	0.004	16.577	0.000
	y01	0.085	0.004	19.719	0.000
	y02	0.091	0.004	21.777	0.000
	y03	0.104	0.004	24.726	0.000
	y04	0.115	0.004	26.801	0.000
	y05	0.127	0.004	29.358	0.000
	y06	0.129	0.004	29.882	0.000
	y07	0.139	0.004	32.277	0.000
	y08	0.127	0.004	29.201	0.000
	y09	0.048	0.004	11.419	0.000
	y10	-0.006	0.004	-1.592	0.111
	y11	-0.008	0.004	-2.021	0.043
	y12	-0.002	0.004	-0.445	0.656

a. Dependent Variable: Ln(Value Added)

R2 0.791 0.00000

Notes: This table shows the specification and estimation of the production function (Cobb-Douglas) from which we derive the firm level measures of total factor productivity. The model is specified as firm value added as a function of labour (log employees) , capital (log total assets),firm age (quadratic), industry risk (industry log odds of failure), industry competition (Herfindahl-Hirschman index) and year time dumnmies.

Table 4

Export Propensity: Panel Logit (1998 – 2013)

	Determinants of Export Propensity (Exporter 1, 0)							
Variables	(1) EXP1 b/se	(2) EXP2 b/se	(1) EXP3 b/se	(2) EXP4 b/se	(1) EXP5 b/se	(2) EXP6 b/se	(1) EXP7 b/se	(2) EXP8 b/se
Size (ln Assets)	0.0720***	0.0716***	0.0553***	0.0548***	0.0593***	0.0587***	0.0582***	0.0575***
Lag (Ln Sales)t-1	0.360***	0.359***	0.368***	0.368***	0.138***	0.137***	0.138***	0.138***
Asset Intangibility	1.339***	1.341***	1.389***	1.391***	1.172***	1.173***	1.194***	1.195***
Age (ln Age)	0.122***	0.122***	0.114***	0.114***	0.0803***	0.0805***	0.0795***	0.0796***
Listed Company	0.212***	0.201***	0.184***	0.173***	0.0524	0.0433	0.0453	0.0359
Industry Risk Index	-0.0270	-0.0272	-0.0222	-0.0224	0.0510**	0.0507**	0.0537**	0.0535**
Herfindahl Competition Index	0.000241***	0.000241***	0.000243***	0.000243***	0.000266***	0.000266***	0.000266***	0.000267***
Foreign Parent	0.720***	0.721***	0.694***	0.695***	0.564***	0.565***	0.558***	0.560***
Diversified	-0.210***	-0.210***	-0.209***	-0.209***	-0.0794***	-0.0795***	-0.0776***	-0.0777***
High Tech Manuf	1.951***	1.950***	1.946***	1.945***	1.877***	1.876***	1.878***	1.877***

Medium High Manuf	1.845***	1.843***	1.835***	1.833***	1.862***	1.861***	1.862***	1.860***
Medium Low Manuf	1.737***	1.736***	1.728***	1.726***	1.862***	1.860***	1.862***	1.860***
Low Tech Manuf	1.315***	1.314***	1.306***	1.304***	1.332***	1.331***	1.333***	1.332***
High Tech Services	1.122***	1.121***	1.151***	1.149***	1.067***	1.066***	1.061***	1.060***
K-I Market Services	0.192***	0.192***	0.199***	0.199***	0.360***	0.360***	0.359***	0.359***
K-I Financial Services	-1.085***	-1.137***	-1.036***	-1.091***	-1.155***	-1.196***	-1.148***	-1.190***
Other KI Services	-0.462***	-0.462***	-0.469***	-0.470***	-1.019***	-1.020***	-1.015***	-1.016***
Less KI Market Services	0.344***	0.344***	0.328***	0.327***	0.344***	0.344***	0.346***	0.346***
Private Equity Backed	**0.413*** **	**0.418*** **	**0.421*** **	**0.425*** **	**0.359*** **	**0.363*** **	**0.362*** **	**0.366*** **
y00	-0.0248**	-0.0262***	-0.0274***	-0.0288***	0.117***	0.116***	0.116***	0.115***
y01	-0.0365***	-0.0377***	-0.0431***	-0.0444***	0.108***	0.106***	0.104***	0.103***
y02	-0.0372***	-0.0383***	-0.0476***	-0.0487***	0.0961***	0.0948***	0.0910***	0.0897***
y03	-0.0553***	-0.0564***	-0.0660***	-0.0673***	0.0860***	0.0846***	0.0809***	0.0795***
y04	-0.125***	-0.127***	-0.133***	-0.134***	0.0441***	0.0427***	0.0399***	0.0385***
y05	-0.144***	-0.145***	-0.143***	-0.144***	0.0382***	0.0369***	0.0370***	0.0358***
y06	-0.0718***	-0.0726***	-0.0686***	-0.0695***	0.0975***	0.0966***	0.0969***	0.0959***
y07	0.0682***	0.0677***	0.0743***	0.0737***	0.258***	0.257***	0.259***	0.258***

y08	0.0796***	0.0794***	0.0905***	0.0904***	0.286***	0.286***	0.290***	0.290***
y09	0.0172	0.0173	0.0195*	0.0196*	0.0753***	0.0754***	0.0746***	0.0748***
y10	0.0384***	0.0388***	0.0293***	0.0297***	-0.0616***	-0.0612***	-0.0679***	-0.0675***
y11	0.0179*	0.0185**	0.0141	0.0148	-0.0894***	-0.0887***	-0.0921***	-0.0915***
y12	0.0320***	0.0332***	0.0328***	0.0340***	-0.0645***	-0.0634***	-0.0651***	-0.0640***
Pre PE Investment		0.234***		0.250***		0.202***		0.208***
Lag (Return on assets(t-1)			-0.00729***	-0.00730***			-0.00369***	-0.00370***
Productivity (TFP)					0.0494***	0.0491***	0.0755***	0.0754***
Constant	-10.30***	-10.28***	-10.11***	-10.09***	-6.209***	-6.197***	-6.185***	-6.173***
N	1947223	1947223	1947062	1947062	710924	710924	710921	710921
log_likelihood	-476312.4	-476281.3	-474795.8	-474760.4	-314825.3	-314802.6	-314642.2	-314618.1
LR_chi_square	45059.8	45035.6	46889.1	46859.3	17016.7	17012.8	17285.0	17280.9
r2_pvalue	0.253	0.253	0.256	0.256	0.156	0.156	0.157	0.157

Notes: This table shows the firm and industry level determinants of export propensity. Column 1 includes all control variables but without Pre PE investment dummy. Column 2 includes Pre PE investment dummy. Column 3 includes lag values of ROA and column 4 inludes Pre PE investment dummy along with Lagged value of ROA. Column 5 and 6 include TFP and TFP along with Pre PE investment dummy respectively. Column 7 includes TFP along with Lagged ROA whereas column 8 includes full set of control variables.
*, ** and *** indicate significance at 10%, 5% and 1% level.

Table 5

Export Propensity with Board Charactertistics: Panel Logit (1998 – 2013)

Variables	**Determinants of Export Propensity (Exporter 1,0) Panel Logit Estimates 1998-2013**			
	(1)	(2)	(3)	(4)
	BEXP1	BEXP2	BEXP3	BEXP4
	b/se	b/se	b/se	b/se
Size (ln Assets)	0.0561***	0.0553***	0.0456***	0.0448***
Lag (Ln Sales)t-1	0.357***	0.357***	0.365***	0.364***
Asset Intangibility	1.267***	1.268***	1.315***	1.316***
Age (ln Age)	0.105***	0.105***	0.103***	0.103***
Listed Company	0.157***	0.145**	0.142**	0.130**
Industry Risk Index	-0.0119	-0.0121	-0.00523	-0.00539
Herfindahl Competition Index	0.000225***	0.000225***	0.000227***	0.000228***
Foreign Parent	0.457***	0.458***	0.444***	0.445***
Diversified	-0.196***	-0.196***	-0.196***	-0.196***
High Tech Manuf	1.899***	1.898***	1.895***	1.894***
Medium High Manuf	1.804***	1.802***	1.795***	1.793***
Medium Low Manuf	1.721***	1.719***	1.713***	1.712***
Low Tech Manuf	1.312***	1.311***	1.304***	1.302***
High Tech Services	1.059***	1.057***	1.078***	1.077***
K-I Market Services	0.177***	0.177***	0.183***	0.183***
K-I Financial Services	-1.032***	-1.091***	-0.989***	-1.050***
Other KI Services	-0.400***	-0.401***	-0.400***	-0.401***
Less KI Market Services	0.326***	0.326***	0.309***	0.308***
Private Equity Backed	**0.453*** **	**0.459*** **	**0.458*** **	**0.464*** **
y00	0.0336***	0.0322***	0.0292***	0.0277***
y01	0.0118	0.0105	0.00459	0.00324

y02	-0.00293	-0.00408	-0.0127	-0.0139
y03	-0.0272**	-0.0285**	-0.0368***	-0.0382***
y04	-0.102***	-0.104***	-0.109***	-0.110***
y05	-0.123***	-0.124***	-0.121***	-0.122***
y06	-0.0539***	-0.0548***	-0.0494***	-0.0504***
y07	0.0822***	0.0816***	0.0897***	0.0891***
y08	0.0938***	0.0937***	0.106***	0.106***
y09	0.0243**	0.0244**	0.0289**	0.0290**
y10	0.0395***	0.0398***	0.0330***	0.0334***
y11	-0.0304***	-0.0298***	-0.0323***	-0.0316***
y12	-0.0252***	-0.0241***	-0.0223**	-0.0211**
Board Size	-0.206***	-0.207***	-0.216***	-0.217***
Foreign national directors %	0.00967***	0.00969***	0.00948***	0.00950***
Ethnic Origin %	-0.000567*	-0.000554	-0.000654*	-0.000641*
Multiple Directorships	0.0226***	0.0231***	0.0170***	0.0175***
Average Age	0.000361	0.000430	-0.00118	-0.00111
Average Experience	0.121***	0.121***	0.119***	0.119***
Female Percent	-0.00600***	-0.00599***	-0.00568***	-0.00567***
Tenure Variation	0.00170***	0.00170***	0.00158***	0.00158***
Family Directors	-0.0375***	-0.0376***	-0.0312**	-0.0313**
Pre PE Investment		0.275***		0.288***
Lag (Return on assets(t-1)			-0.00660***	-0.00661***
Constant	-10.11***	-10.09***	-9.915***	-9.903***
N	1918035	1918035	1917881	1917881
log_likelihood	-465444.3	-465401.6	-464255.6	-464208.9
LR_chi_square	47978.3	47954.7	49455.8	49429.1
r2_pvalue	0.263	0.263	0.265	0.265

Notes: This table shows firm and industry level determinants of export propensity along with board level characteristics. Column 1 and 2 are without and with Pre PE investment dummy respectively. Column 3 and 4 are lagged ROA and lagged ROA and Pre PE investment dummy respectively.
*, ** and *** indicate significance at 10%, 5% and 1% level.

Table 6

Export Intensity: Panel Tobit (1998 – 2013) with Board Characteristics

Variables	Determinants of Export Intensity (Export-Sales %) Panel Tobit Estimates (XTTobit, Random Effects) 1998-2013			
	(1) TPEXP1 b	(2) TPEXP2 b	(1) BTPEXP1 b	(2) BTPEXP2 b
Size (ln Assets)	5.823***	5.564***	5.061***	4.880***
Lag (Ln Sales)t-1	7.507***	7.750***	7.427***	7.653***
Asset Intangibility	24.20***	24.85***	23.62***	24.21***
Age (ln Age)	1.811***	1.619***	1.624***	1.477***
Listed Company	16.46***	15.90***	16.00***	15.59***
Industry Risk Index	-1.343***	-1.286***	-1.263***	-1.202***
Herfindahl Competition Index	0.00187***	0.00184***	0.00174***	0.00171***
Foreign Parent	31.70***	31.10***	26.69***	26.26***
Diversified	-6.935***	-6.845***	-6.571***	-6.509***
High Tech Manuf	54.76***	54.68***	54.00***	53.94***
Medium High Manuf	52.60***	52.32***	51.86***	51.60***
Medium Low Manuf	45.89***	45.66***	45.57***	45.36***
Low Tech Manuf	34.08***	33.80***	34.03***	33.78***
High Tech Services	29.32***	30.17***	28.62***	29.33***
K-I Market Services	-2.260***	-2.190***	-2.266***	-2.188***
K-I Financial Services	-27.33***	-26.96***	-26.68***	-26.29***
Other KI Services	-15.64***	-15.62***	-14.95***	-14.86***
Less KI Market Services	7.956***	7.584***	8.042***	7.677***
Private Equity Backed	**4.248*** **	**4.290*** **	**4.630*** **	**4.649*** **
Year Dummies	**yes**	**yes**	**yes**	**yes**
Board Size			-0.782***	-0.943***

foreign national directors %			0.187***	0.185***
Ethnic Origin %			-0.0272***	-0.0279***
Multiple Directorships			1.256***	1.182***
Average Age			0.0677***	0.0570***
Average Experience			0.265	0.268
Female Percent			-0.0988***	-0.0951***
Tenure Variation			0.00782***	0.00736***
Family Directors			-0.306	-0.211
Lag (Return on assets(t-1)		-0.0960***		-0.0874***
Constant	-333.5***	-332.0***	-323.6***	-322.4***
sigma_u	69.51***	69.48***	68.48***	68.47***
sigma_e	31.29***	31.31***	31.11***	31.13***
N	1947223	1947062	1918035	1917881
ll	-1126760.4	-1126434.5	-1116076.4	-1115805.3
chi2	42085.0	42152.7	43092.5	43105.3

Notes: This table shows firm level and industry level determinants of export intensity in column 1 and 2. Column 1 is without lagged ROA but column 2 includes lagged ROA along with all selected firm and industry level control variales. Column 3 includes board characteristics along with firm and industry level variables but excludes lagged ROA. Column 4 includes board characteristics along with firm and industry level control variables and also lagged ROA.
*, ** and *** indicate significance at 10%, 5% and 1% level.

Table 7

Private Equity Backed Firms: Pre and Post Investment (Logit and Tobit Estimation with Board Characteristics)

Variables	Private Equity Backed Firms: Pre and Post Investment					
	Extensive Margin: Logit Models			Intensive Margin: Tobit Models		
	(1)	(2)	(3)	(4)	(5)	(6)
Model	**Export_dummy**	**Export_dummy**	**Export_dummy**	**Export_Percent**	**Export_Percent**	**Export_Percent**
Size (Ln Sales)	0.0376*	0.0482**	0.0492**	-0.0122	0.245	0.274
Asset Intangibility	0.651***	0.636***	0.626***	17.06***	16.41***	15.91***
Age (ln Age)	0.0607*	0.0512	0.0419	1.566*	1.203	1.058
Industry Risk Index	-0.723***	-0.701***	-0.699***	-14.46***	-13.79***	-13.59***
Herfindahl Competition Index	0.000781***	0.000755***	0.000767***	0.0202***	0.0191***	0.0190***
Diversified	0.100	0.0868	0.0826	-0.255	-0.609	-0.723
Board Size	-0.149**	-0.0517	-0.0533	-2.856*	-0.320	-0.258
Pre PE Buyout	**-0.174****	**-0.194*****	**-0.181****	**-4.675*****	**-5.450*****	**-4.196****
y99	0.0291	0.0630	0.0127	-0.120	1.213	0.596
y00	-0.0243	0.0104	-0.0397	-1.860	-0.634	-1.204
y01	-0.0175	0.0199	-0.0304	-1.751	-0.415	-0.978
y02	-0.0286	0.0165	-0.0322	-2.431	-0.980	-1.470

y03	-0.0346	0.00189	-0.0496	-1.712	-0.501	-1.118
y04	-0.0491	-0.0183	-0.0733	-2.747*	-1.643	-2.475
y05	-0.134**	-0.102	-0.161**	-4.512***	-3.443**	-4.447***
y06	0.0524	0.0787	0.0183	1.470	2.241	1.103
y07	0.291***	0.315***	0.250***	8.694***	9.305***	7.783***
y08	0.325***	0.351***	0.286***	10.74***	11.33***	9.817***
y09	0.108*	0.117**	0.0570	3.519**	3.582**	2.247
y10	-0.0307	-0.0416	-0.0919	-0.538	-0.949	-2.121
y11	-0.0896*	-0.101**	-0.160***	-0.600	-1.251	-2.574*
Foreign national directors %		0.00220	0.00220		0.180***	0.175***
Ethnic Origin %		-0.00579	-0.00629*		-0.191**	-0.198**
Multiple Directorships		0.104**	0.0994**		2.916***	2.962***
Average Age		0.0174***	0.0186***		0.556***	0.586***
Foreign PE Investor			0.0794			6.298*
PE Syndicate			0.0346			2.758
Board Changes			0.00611			0.327
	-2.093***	-2.959***	-2.980***			
Constant	22680	22652	21669	-39.25***	-66.04***	-67.56***

Number of Observations	22680	22572	21589	22680	22652	21669

Notes: This table shows the firm level and industry level determinants of export propensity and intensity along with board characteristics for the firms that are backed by PE investment. Column 1 to 3 presents the results for export propensity (extensive margin) and column 4 to 6 present results for export intensity (intensive margin).
*, ** and *** indicate significance at 10%, 5% and 1% level.