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Offshoring and the effect on firms' performance

A study of the European manufacturing sector

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Abstract

Title:	Offshoring and the effect on firms' performance: a study of the European manufacturing sector.
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Authors:	Per Berthsson & Jean Gombya
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Key words:	Offshoring, internationalisation, FSTS, manufacturing, eclectic paradigm, three-stage model, relocation, financial performance, ROA, net profit margin, cost efficiency, operating expense ratio, Euro crisis, difference-in-difference.
Purpose:	To empirically investigate the relationship between offshoring activities and the financial performance of manufacturing firms. The study also investigates the impact of the Euro crisis in combination with offshoring activities.
Theoretical perspective:	The theoretical framework is composed of influential theories on offshoring and internationalisation and relevant research on the area. The main theories are transaction cost theory and the resource based view.
Methodology:	Quantitative approach using panel data regressions with the financial measurements return on assets, net profit margin and operating expense ratio was the dependent variables, controlled by a number of independent variables
Empirical data:	The study is based on a sample containing of 244 listed firms, which is split into two subsamples of 120 manufacturing firms and 124 peer firms. The financial data is collected from S&P's Capital IQ and covers the period of 2003-2013.

Conclusion: The results and findings of this study indicate that offshoring has a significant negative effect on financial performance as measured by return on assets and net profit margin.

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List of Abbreviations

BPG - *Breusch-Pagan-Godfrey*

CEO – *Chief Executive Officer*

DOI – *Degree of Internationalisation*

EMEA – *Europe Middle East Africa*

EMCC – *European Monitor Centre on Change*

EU – *European Union*

FDI – *Foreign Direct Investment*

FSTS – *Foreign Sales to Total Sales*

IP – *Internationalisation Performance*

MNE – *Multi National Enterprises*

OER – *Operating Expense Ratio*

OLI – *Ownership Location Internalisation*

OLS – *Ordinary Least Squares*

ROA – *Return on Assets*

RBV – *Resource Based View*

R&D – *Research & Development*

USA – *United States of America (US)*

SME – *Small and Medium Enterprises*

S&P – *Standard & Poor's*

TCE – *Transaction Cost Economics (Transaction Cost Theory)*

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1. Introduction

1.1 Background

The emergence of international business begun after World War I and grew as a result of the global demand for food and raw materials, growing national activities, the rise of global capital markets, the development of international laws as well as the advances in technology and infrastructure (Marinova & Marinov, 2012). Throughout the years we have seen shifts in demand and an increasingly competitive environment (Fonfara, et al., 2013), whilst the growth in international activities has continued. It has now become the standard rather than the exception for firms to engage in international activities and it has been noted that the most successful multinational corporations have gained their competitive advantage by dispersing their business activities around the globe, in order to improve their cost efficiency whilst also exploiting the opportunities found in developing economies (Rodriguez & Carter, 1979).

The positive outlook on international trade suddenly changed by the global financial crisis which started in the Unites States of America (US) in 2007 (Reinhart & Rogoff, 2008). The crisis supposedly led to turmoil in the international trade market, and in the US, trade with most parts of the world fell by double digits and some of the industries with the greatest drop were the automobile and durable industrial supplies (Levchenko, et al., 2010). Nevertheless, firms continued utilising the global economies to their advantage, possibly because internationalisation is no longer just a way for firms to enter new markets, but it has also opened up several new ways of doing business. For instance, it is now possible to perform some, if not all business functions in a different location (Sara & Newhouse, 1995). Additionally, the development in IT technology such as flexible and integrated manufacturing systems has further contributed to the growth of these new ways of doing business. This has also allowed firms to have a dispersed corporate structure (Coulter, 2008), thus making outsourcing and vertical integration a lot easier. Consequently, there has been a rise of new business models adapted to the new environment, but also an increased presence of existing business models, processes and strategies. One of the strategies that have come to grow in popularity over the years is the concept known as offshoring.

In the context of this research offshoring refers to *"the relocation of organisational activities such as manufacturing, IT and back office, to a wholly owned subsidiary or an independent service provider in another country"* (Oshri, et al., 2009). It is believed that offshoring started in the late 1970's as a result of large American companies moving parts of their business functions to low cost countries such as India (Lewin & Peeters, 2006; D'Attoma & Pacei, 2014). The manufacturing sector has been one of the sectors with the greatest level of internationalised production, and the one in which internationalised production plays a big role for the success of companies (Lipsey, 1998).

Cost cutting is often viewed as a way to gain a competitive advantage (Coulter, 2008), and during a recession, as the competition gets fiercer firms often seek to adopt cost cutting strategies such as offshoring (Lewin & Peeters, 2006). During such times manufacturing firms may be disadvantaged due to the capital intensive nature and high overhead costs, and also high level of asset specificity (Lipsey, 1998). Considering these factors, manufacturing firms in particular, are forced to seek cost minimizing strategies (Miller & Vollman, 1985). Consequently, the question is then how, when and where firms can cut costs.

1.2 Problem Discussion

There is a general public interest in offshoring, yet there has been little empirical research with sound econometric studies on the topic (Wagner, 2011), and much of the offshoring research has looked at offshoring and the effect on labour rather than on the firm level itself (Grossman & Rossi-Hansberg, 2008). Little research has investigated the link between offshoring and performance, and the few that have, have not been consistent in their findings (Hsu, 2003; Hsu & Pereira, 2008; Fonfara, et al., 2013; Jabbour, 2010). Consequently, recent research by Jabbour (2010) and D'Attoma & Pacei (2014) have tried to fill in the gap in knowledge about offshoring as an internationalisation strategy and its effect on firms' performance by looking at French and Italian manufacturing firms' performance, respectively. However, these studies did not take into account the effect that the recession might have had on the performance.

There is a common perception that offshoring leads to cost reductions (Vagadia, 2012; Leibl et al, 2009), and research has shown that offshoring decisions are primarily for cost saving reasons (Kinkel & Maloca, 2009). However, this perception has recently been challenged and numerous studies have shown that many of the offshoring decisions lead to back-shoring a few years after,

which in itself could defeat the initial return on the investment that offshoring is (Kinkel, 2012; Dachs, et al., 2006). Leibl et al (2009) stated that the way in which firms make these decisions could also affect their success, suggesting that many firms take the offshoring decision in a rush without properly analysing the potential costs and risks. The on-going discussion about the cost versus the benefit of offshoring is the key motive for investigating if and how offshoring affects a firm's financial performance. Also, no research has sought to examine offshoring and its effect on firms' performance, with a focus on the Euro crisis and looking at a sample consisting of companies from different countries (European region). This is the research gap that this research will seek to address.

1.3 Research Purpose

This study aims to investigate the effect of an offshoring decision on manufacturing firms' financial performance. It aims to fill the knowledge gap on how this decision affects the performance of firms in the Eurozone and if it does in fact reduce costs and thus enhances profitability, which is the popular belief of many organisational theories.

1.4 Research Contribution

This research paper contributes to the literature on offshoring and its effect on performance by using previously unexplored data from eurofound.europa.eu, which is a database that regularly collects data on large-scale restructuring activities reported in media in all EU countries (Eurofound, 2014). The collected data consists of firms located in the European Union that have pursued an offshoring strategy. It aims to further contribute to the literature by looking at firms within the European Union as much previous research has only focused on one single country, at a time. A comparative approach is taken to further review the financial benefit for a firm in pursuing offshoring as opposed to if they had not.

1.5 Scope of the Study

The total sample amounts to 244 firms, out of these 120 are non-financial corporations that have offshored as per the Eurofound database, and the remaining 124 consists of the control group which was matched based on their industry subsector and market capitalisation. A limitation of the study is that it does not look at the strategic aspect behind the offshoring decision. Also it

does not differentiate between the performance of small and large companies beyond that of using an internationalisation variable.

1.6 Outline of the Thesis

Chapter 1 gives an introduction to the subject and chapter 2 gives a review of the relevant theoretical frameworks and literature. This is then followed by a detailed outline of the methodology in chapter 3, which is used to investigate and answer the research question in order to ensure that the study is replicable. This is followed by chapter 4, which is a presentation of the findings of this study. Then an analysis of the findings is discussed in chapter 5. Lastly, chapter 6 concludes the research and proposals for future research are provided.

2. Literature Review

The following chapter presents the theoretical background as the basis for this study. The chapter begins by outlining the concept of offshoring and then the main theoretical foundations on which this research is based. Subsequently, an in-depth explanation of specific theoretical models relevant to the topic of offshoring and internationalisation is made. After, determinants of firms' performance are presented, followed by an outline of empirical findings from previous research. Lastly, Hypotheses based on theory are then developed.

2.1 Offshoring

Although offshoring has existed for a while, one single definition for it has not been established. Outsourcing is often used to explain offshoring, however it must be noted that outsourcing in itself is not offshoring. To clarify this, outsourcing refers to the use of third party for one or several parts of business activities, and offshoring may be a form of outsourcing. However, the key difference being that offshoring focuses on the completion of this process in an international environment, so in a foreign country (Berry, 2006). Furthermore, offshoring may also include an aspect of captive or assisted captive offshoring, in which the firm itself retains full control. For instance, Jabbour (2010) refers to offshoring as "the relocation of some stages of production in a foreign country" (Jabbour, 2010). Tallman (2010) defines offshoring as the relocating of one or more processes or functions to a different (and usually lower cost) foreign location, but diverging from these definitions is that of Mukherjee & Kedia (2009) who view offshoring as a strategic practice in which firm's relocate their business functions (that were previously performed in-house) to overseas locations. They further differentiate the concept into internal and external offshoring. Internal, referring to when firms set up their own centres or subsidiaries in foreign countries, but remain in full control (captive offshoring). External offshoring is then considered as the process of moving to a foreign country but also letting a foreign provider handle the business function (offshore outsourcing).

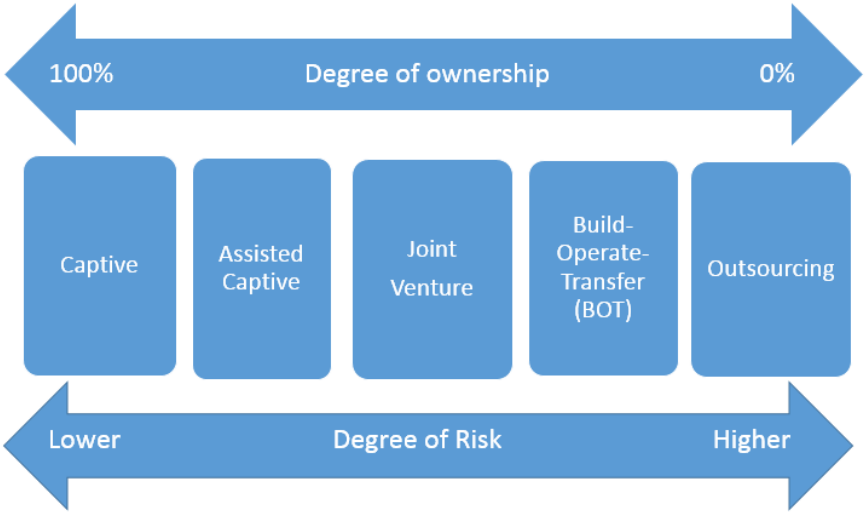

Figure 1 - Variations of offshoring

Source: (Deloitte & Touche USA LLP, 2008)

Captive	Assisted Captive	Joint Venture	Build-Operate-Transfer (BOT)	Outsourcing
• The offshoring facility is wholly owned by the company	• Wholly owned but an experienced partner assists the company in managing the offshore entity	• Facility set up with a 3rd party partner. The partner is often one with local knowledge	• The 3rd party partner manages the facility which is later transferred to full ownership	• Facility is completely in the control of a 3rd party provider
			• The 3rd party may have ownership over the people and the assets from the beginning	

Table 1 – **Description of the types of offshoring**

Source: (Deloitte & Touche USA LLP, 2008)

In this study offshoring is defined as:

"…the relocation of organisational activities such as manufacturing, IT and back office, to a wholly owned subsidiary or an independent service provider in another country" (Oshri, et al., 2009).

This definition of offshoring is in line with that of Jabbour (2010) and Tallman (2010) it is quite broad and covers both internal and external offshoring, which is suitable for the research purpose of this paper.

Offshoring is considered to be "an internationalisation strategy that can take place within the boundaries of the firm (vertical FDI) or through market transactions (international outsourcing)" (Jabbour, 2010). The concept of offshoring emerged in the 1970's as a result of increasing globalisation in which large organisations in countries such as the USA realised the production costs and sought to minimize this by moving production to lower cost countries. This was the beginning, however the phenomenon has now grown and is no longer limited to multinational enterprises (MNE's) but small and medium enterprises (SME's) have also begun adopting it (D'Attoma & Pacei, 2014; Dach et al, 2006). However, Wagner (2011) and D'Attoma & Pacei (2014) all found that offshoring firms tend to be larger than non-offshoring firms even before pursuing the offshoring strategy. An offshoring strategy would require changes in a firm's business model, and although it has been seen to be successful for many, several firms have failed, and unfortunately the failure can affect a firm's competitive advantage as well as its reputation in the long-term (Vagadia, 2012). It is for this reason that there has been an increase in the amount of research exploring how offshoring affects financial performance.

Offshoring has been considered a low cost strategy, and in pursuit for cost cutting, many firms have ignored the potential for hidden costs that may be incurred, such as the initial preparation costs of choosing a location and the potential legal costs of setting up an offshore location (for captive offshoring) (Oshri, et al., 2009). Secondly, many companies do not consider the risk of offshoring activities, but the decision is often based solely on a cost-benefit analysis. However, recent trends in back-shoring activities have challenged the cost reduction postulation, as firms tend to not account for the possibility of back-shoring. But often the cost of back-shoring might outdo the benefits of the initial strategy (Vagadia, 2012). As more and more companies have come to realise this, a more flexible option such as selective offshoring, which is defined as relocating 20-80% of a firm's business activity, has become increasingly popular (Vagadia, 2012).

Some empirical research has attempted to highlight the hidden costs of offshoring that decision makers tend to ignore. For instance, Schulte (2002) as cited by (Leibl, et al., 2011) identified two types of hidden costs (see Figure 2). They recognised that there were both direct and indirect costs, and addressed costs that may be more easily identified such as transportation and

travel costs as well as other costs that may not occur apart from in special circumstances such as quality problems or the potential cost incurred due to cultural differences.

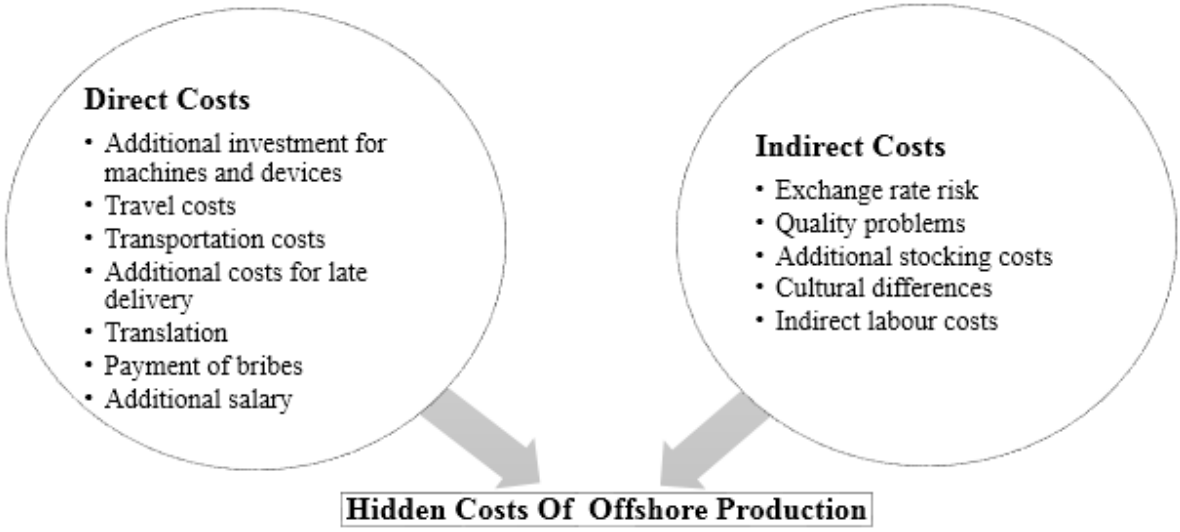

Figure 2 – Hidden costs of offshore production

Source: (Schulte (2002) as cited by Leibl, et al., (2011))

In addition to these costs, Overby (2003) identified additional costs of offshoring activities that involve partners. One cost was relating to the cost of transitioning between the domestic and the foreign entity, arguing that it could take between three to twelve months to complete a transition period. In addition to this the author argued that there may be costs associated with having to maintain the offshore contract, for instance a firm would have to do regular audits to ensure that the entity is run accordingly or even additional administration costs may be incurred due to new cost centres. Furthermore, Ritter & Sternfels (2004) argued that many manufacturing firms have sought to use offshoring as a way of saving labour costs, by moving production to low cost regions such as Eastern Europe and Asia, despite that labour costs often only represents 7-15% of the overall cost of goods sold and that these costs are quickly declining in previously called high-cost countries such as Western Europe. Therefore, a firm might actually end up incurring more costs as the costs of logistics might exceed that of the saving on labour costs (Ritter & Sternfels, 2004).

Data from the European manufacturing survey showed that offshoring was a popular strategy (Dachs et al, 2006), particularly amongst firms in Western Europe in which one quarter to half of the manufacturing firms in Western Europe had offshored between 2002 and 2003. They

also found that the main offshoring destinations where low cost countries in Eastern Europe and Asia (Dachs, et al., 2006). The danger of basing an offshoring decision solely on cost reduction benefits is that the firm will fail to consider other aspects of the decision such as quality assurance that may in fact have a long-term effect on the firm. For instance supplier capabilities and competencies have been seen to be of great importance in this matter (The Economist, 2013). An example of this was the recent scandal of the food manufacturing company Findus. In this case, as competition got fiercer the firm sought to lower costs down the supply chain, which proved to be a decision they would regret (Neville, 2013). This is because horsemeat was found in their products, which lead to a widespread scandal across Europe, and putting a dent in the company's reputation. Although the company was predicted to be able to recover from this, the incident gave rise to doubts about the food industry's supply chain management (The BBC, 2013). This example of the Findus scandal shows that there is an additional risk relating to quality problems that may prove to be rather costly for a firm. Although this cost may not be directly observable, it may have a long-term and quite substantial effect on the company's reputation, and should therefore be considered more carefully. Therefore, offshoring is often not a suitable strategy for companies whose competitive advantage is derived from speed and a track record of reliability, because such firms risk losing their competitive advantage by offshoring (Ritter & Sternfels, 2004).

In keeping with this, some firms have chosen to ignore the offshoring trend, for instance the apparel manufacturing company Zara, has refrained from offshoring like many other clothing companies and instead produces their products domestically in Spain, despite that costs may be reduced by offshoring their production to i.e. China (The Economist, 2013). Arguably this decision has brought other benefits by enabling the firm to quickly adapt top changes in the industry environment, and by doing so perhaps gaining a competitive advantage and greater financial performance (The Economist, 2013). Also, despite that many firms may favour offshoring there is a general public dislike of offshoring, thus questioning whether an offshoring firm may be disadvantaged to a firm that does not offshore, in the eyes of the public. If so, there is a chance that it could affect the firm's performance; however there is no proof that consumers are more likely to pay a premium for domestic products (Vagadia, 2012). Also, recent findings have shown that a firm may actually benefit from retaining their manufacturing domestically as innovation and R&D is likely to be more effective if combined with manufacturing (The Economist, 2013).

2.2 Theoretical Foundations

The two most common theories in organisational research and particularly when studying what factors and situations that will give a firm the best possible outcome in any form of outsourcing; including offshoring - are the transaction cost theory (Transaction Cost Economics - TCE) and the resource based view of the firm (RBV) (Luvison & Bendixen, 2010). Whilst TCE gives an indication of the economic trade-offs and the potential contracting styles that can be used by an outsourcing firm (Williamson, 2008), as cited by (Luvison & Bendixen, 2010). RBV on the other hand can be used as a way to determine how firms' unique resources can be used and potentially outsourced in order to gain a competitive advantage (Luvison & Bendixen, 2010), and how this competitive advantage can play a part in a firm's performance (Coulter, 2008, p. 40).

2.2.1 The Resource Based View

The resource based view is one of the most prominent theories for international business studies. It emphasises on the importance of gaining a comparative advantage by exploiting the firm's key resources and capabilities Coulter (2008), and states that by doing so the firm is able to gain a comparative advantage and thus better their performance (Hsu & Pereira, 2008). Resources can be of different types, including: human resources, financial assets, intangible and physical assets. A firm may have several resources but only the ones that are unique are said to be able to provide a competitive advantage (Coulter, 2008). The RBV argues that a firm's decision to pursue foreign expansion is dependent on the home economy's resources which could provide opportunities for gaining and strengthening the competitive advantage at a country or firm-level (Barney, 1991). Rodrigues and Carter (1979) stated that the primary economic reason for international investment is the possibility of a comparative advantage. Dunning (1998) as cited by Tallman (2004) argued that the concept of competitive advantage has evolved and is no longer focused on just resources, but rather knowledge and intellectual capital. There are also other factors that may affect a firm's competitive advantage, for example, a firm's external environment is important in developing and determining resources that may

give a firm a competitive advantage. Take for instance, a harsh external environment which may lead to greater uncertainty and thus making it harder for a firm to find and control key resources (Coulter, 2008). Research by Crozet and Trionfetti (2013) on firm-level comparative advantage supported this assumption as they found that a firm's comparative advantage is affected by a country's comparative advantage.

2.2.2 Transaction Cost Theory

The transaction cost theory (TCE) has become an important theoretical framework for analysing strategic and organisational issues (Ghoshal & Moran, 1996). Additionally, Yang et al (2012) argues that it is the most suitable framework when determining the most effective institutional structure and the related governance mechanism in supply-chain transactions. TCE is grounded in Coase's (1937) theory of the firm, and was further developed by Williamson (1979). The underlying assumption is that the purpose of the firm is to economise on the costs of business transactions over time (Teece, 1986), and it seeks to address the question of how the governance of a transaction can achieve efficiency. The theory argues that the alignment of transactions attributes (asset specificity, uncertainty and transaction frequency) and the institutional structure leads to high transaction efficiency (Yang & et al, 2012; Williamson, 1979).

Key assumptions of the TCE theory and the internationalisation theories include bounded rationality and opportunism. Bounded rationality argues that agents with bounded rationality can conduct economic exchanges by using contracts; however it was then found that an incomplete contract would actually be the best option. This is as contracts are complex in nature and it is perceived that agents would not be able to deal with the complexity. Nevertheless, incomplete contracting is not ideal and quite irrational due to the presence of opportunism. Opportunism in relation to transaction cost theory refers to that partakers of an exchange may attempt to expropriate the composite quasi rent that was the initial reason for other parties to participate in the exchange (Hill, 1990; Alchian & Woodward, 1988). Composite quasi rent exists when the joint rent of two resources that are specific to one another but are separately owned, is greater combined, than it would be if the resources where used independently (Hill, 1990). Thus, opportunism is increasingly important for firms with high asset specificity, as the risk of opportunistic behaviour increases with the level of asset specificity (Williamson, 1979; Hill, 1990).

2.2.3 TCE and Offshoring

D'Attoma & Pacei (2014) argue that TCE is the main theoretical reference for offshoring as it focuses on the trade-off between costs and benefits related to the different governance structures, i.e. markets, hierarchies and hybrids. Thus, according to TCE offshoring would only be attractive to firms when the transaction costs incurred from asset specificity, incomplete contracting and search efforts are lower than the production cost advantage. In other words, firms would only choose to relocate their production abroad to countries in which production costs would be lower than that of producing in-house. Firms would also consider the ownership structure when relocating and in this case preference would also be given to captive offshoring ownership structures (Teece, 1986). Captive ownership structures refer to when the firm maintains the control over the offshoring unit, thus the risk of opportunism and other costs related to business relationships would be minimized. Firms would therefore favour this as it would allow the firm to shield and protect the transaction and ensure that it is utilised to the fullest (Teece, 1986). It is for this reason that potential transaction costs related to a specific governance structure are vital in determining the level of offshoring. Evidence of this is found in MacCarthy & Atthirawong's (2003) study on factors affecting location decisions, which found that cost was the most important factor in making that decision. Studies on offshoring such as Kinkel & Maloca's (2009) study on the drivers of offshoring and back-shoring in German manufacturing companies, and D'Attoma & Pacei's (2014) research on offshoring and firms' performance have sought to explain the offshoring phenomenon using the transaction cost theory and the theory of internationalisation.

2.3 Internationalisation

"To survive, standing still was not an option" - (Vagadia, 2012)

As offshoring is an internationalisation strategy, understanding this concept is seemingly important in explaining offshoring. The essence of international business has existed for centuries (Coulter, 2008). It begun after World War I, and has steadily increased due to the growth of national activities, the rise of global capital markets, the development of international laws as well as the advances of technology and infrastructure and the diminishing constraints

from national borders (Marinova & Marinov, 2012; Coulter, 2008). The international environment has then led to shifts in demand, a different competitive environment and new ways of doing business (Fonfara, et al., 2013), allowing firms to create and exploit different competitive advantages (Coulter, 2008). The competitive environment forces firms to develop unique resources in order to be successful in the international market (Hsu & Pereira, 2008). The result of this has then been new and increased presence of existing business models and processes, and offshoring was one of them. The development in IT technology has also unlocked opportunities for firms to have a dispersed structure and to globally coordinate the organisation (Oshri, et al., 2009).

Internationalisation refers to the process of moving firms' operations outwards (Turnbull, 1987 as cited by Calof & Beamish, 1995). It is perceived that internationalisation activities have several advantages, including lower operational costs, potential economies of scale, and an increased competitive position (Coulter, 2008; Hsu & Pereira, 2008; Oshri et al., 2009). It is also believed that they may lead to improved financial performance as it can increase foreign sales and also minimize the risk of economic downturn in the firm's home market (Hsu & Pereira, 2008). Thus, it has been argued that the most successful companies are MNE's as they gain competitive advantages that allows them to increase profitability by for instance cutting costs (Rodriguez & Carter, 1979). Perhaps, this is an indication of a link between offshoring and a firm's financial performance.

2.3.1 Internationalisation Frameworks and Models

Several theories have tried to explain the internationalisation concept; some of the most recognised are the Uppsala Model, the networking model and the eclectic paradigm/OLI approach. Another theory that will be discussed is the three-stage model, which is a type of process model of internationalisation.

The Uppsala Model

The Uppsala model states that it is a company's experiential knowledge that determines their international behaviour, thus a firm's international activities are expected to grow stage wise in line with their knowledge of the foreign markets. A key concept in the model is the importance of physical distance in internationalisation, as it argues that firms seek to expand to markets

that are physically close to them and successively work their way out (Whitelock, 2002). On the other hand, Eriksson et al (1997) as cited by (Steen & Liesch, 2007) stated that in light of the Uppsala model, the lack of knowledge about international environment including competitors, client, foreign markets and legislations may increase the perceived costs of internationalisation. Consequently, the Uppsala model has been particularly useful in explaining early internationalisation activities (Whitelock, 2002). Critics of the Uppsala model have stated that some modern firms may pursue internationalisation activities in several foreign countries simultaneously, rather than waiting to learn from one venture (Oviatt & McDougall, 1994 as cited by Bolaji & Chris, 2014).

The Three-Stage Model

The three-stage model of internationalisation explains the internationalisation-performance (IP) relationship by stating that MNE's may go through three different stages in which their performance will also vary. In stage one which is characterised by low performance and also related to a low degree of internationalisation (DOI). When a firm increases their DOI to a moderate level it is expected that performance increase, but in the final stage, if a firm reaches a high level of DOI, a downturn is expected (Ruigrok, et al., 2007). The model states that there is a point in which the incremental costs of internationalisation will offset the benefits of internationalisation. This tends to occur somewhere between the second (moderate DOI) and third (high DOI) stage of the model and is therefore referred to as the internationalisation threshold (Geringer et al,. 1989 as cited by Ruigrok, et al., 2007). This stage is often characterised by a DOI of 40-70% (measured by foreign sales to total sales in the research by Ruigrok et al, 2007) and also by a downturn in performance. Contractor, et al (2003) proposed a further explanation of the model stating that stage one is negatively sloped due to that firms incur large learning costs as a result of unfamiliarity of the new market and environment. Nonetheless, this stage is not expected to last for too long and is shorter than stage two. Stage two is considered to be positively sloped as it is believed that an increased degree of internationalisation would enable a firm to gain advantages in the form of improved efficiencies which may then result in better performance. Additionally, it is believed that this stage is when firms may be able to exert a greater market power and also the stage in which firms that are rather resource dependent may benefit from lower costs in their inputs, for instance in terms of labour. The third and final stage suggests that the benefits in the preceding stage do not last forever but that there is an optimum point and an optimum amount of countries until the costs of coordination and governance begin to outweigh the benefits of continued international

growth (Contractor, et al., 2003). Although the final stage may initially be viewed as negatively sloped the authors argue that firms may still pursue a strategy of continued international growth, as it may be part of a more long-term strategy. For instance firms seeking a greater market share or to gain global knowledge may pursue this despite the potential of reduced performance, as suggested by the model. Arguably, the firm's market performance may still consider this long-term strategy and reward the firm for it whereas non-market performance measures would not reflect this (Contractor, et al., 2003).

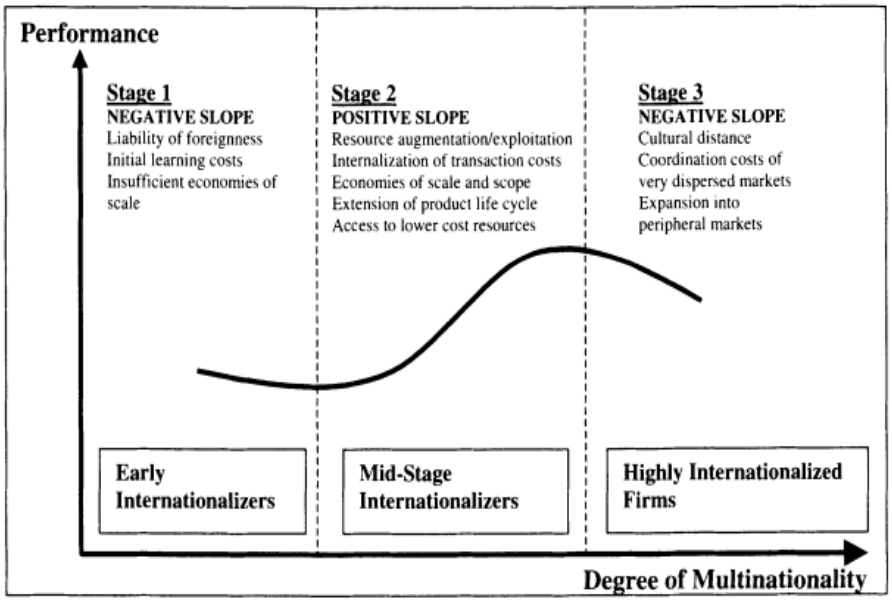

Figure 3 – Three- stage model

Source: (Contractor, et al., 2003)

The Network Model

In difference to the preceding model, the network model looks at internationalisation from a relationship point of view (Fonfara, et al., 2013). It suggests that internationalisation refers to the establishment, maintenance and development of key relationships within the foreign environment. These relationships are key determinants of a firm's behaviour in the international environment and may include the suppliers, competitors and customers (Fonfara, et al., 2013). The model has been recognised as a good framework for explaining internationalisation decisions as it takes potential external influencers into account. It also considers the ever-changing environment of a firm which may affect its position in a network of firm. By taking a network approach to internationalisation a firm may be able to gain an understanding of how it may use its network to exploit international opportunities (Hadley & Wilson, 2003).

The Eclectic Paradigm

The eclectic paradigm's view of internationalisation is based on the transaction cost economics. It assumes that internationalisation decisions are made in a rational manner in which a firm weighs up the costs and benefits of the transaction. Moreover, it looks at the advantages relating to ownership for firms seeking to adopt and international strategy (Whitelock, 2002) as one of the basic assumptions is that resources owned by a firm are controlled and coordinated whilst the market mechanism governs the other resources (Vahlne & Johansson, 2013). The three main concepts of the model that are used to determine a firm's decision to go international are the OLI factors: ownership, location and internalisation.

- *Ownership:* Refers to that firms may develop asset or transactional advantages at home which gives them a unique competitive advantage in the foreign markets. The advantages are said to be derived from the ownership structure. For instance, a firm owning unique assets may safeguard it from structural market distortions or allow it to capture value by owning a network of assets in different locations.
- *Location:* These factors may include factors in the foreign markets that may make the country more attractive for production. For instance cheaper labour, trade barriers and shipping costs.
- *Internalisation:* Are factors that are often linked to an industry and that may transfer ownership advantages to foreign markets and consequently lead to market failure.

(Tallman, 2004)

As the model allows one to investigate MNE's from an organisational and strategic point of view it has become increasingly popular in the field of international business (Tallman, 2004). The inclusion of ownership as a factor puts the model close to the resource based view of strategy. As it includes both ownership and location in the decision process, the model argues that although transactional efficiency is necessary in the decision process, it is not the sole condition that needs to be considered by firms when choosing whether to go international, thus TCE alone cannot explain international activities. Consequently, a firm will only choose to expand internationally when all three factors are favourable (Tallman, 2004). Although the paradigm is a good framework for describing the existence of MNE's, it is not suited to evaluate internationalisation activities on a firm level (Tallman, 2004). For instance, research by Benito et al in 2009 (cited by Vahlne & Johansson, 2013) failed to analyse changes in foreign operation approaches with the transaction cost theory although they found that changes and combinations

of different approaches such as having a fully owned subsidiary, a joint venture or a licensing contract were of great importance to the firm's position. This shows that the transaction cost theory approach may not be a good theory when completing studies on a firm-level (Vahlne & Johansson, 2013). However, Tallman (2004) argues that it is a useful framework when looking at macro-level, national differences and industry effects on international business strategy and behaviour, and arguably making it a suitable framework for offshoring research.

2.4 Determinants of Firms Performance

There are several factors that may influence a firm's performance, and in business research there are two dominant fields that have sought to explain these factors. One theoretical framework focuses on the economic factors such as the external market conditions and the other field highlights the influence that organisational factors may have on a firm's performance (Hansen & Wernerfelt, 1989).

Region and Internationalisation

Whilst internationalisation may refer to the process of making something internationally, research has come to find that it is not only the degree of internationalisation (DOI) that may determine a firm's performance but that the region in which they choose to pursue the internationalisation activities is also of importance. Chen & Tan (2012) researched the regional effects on the internationalisation and performance relationship (IP) with a focus on firms from China. Their findings showed that the country region may in fact have a substantial impact on the results of research on internationalisation and performance. De Jong & Van Houten (2014) examined European MNE's and how cultural diversity affects their IP relationship. The study found that firms that operated in culturally similar regions were seen to have a positive correlation for the IP relationship whereas the opposite was found for firms that operated in regions that differed in terms of culture. Qian, et al. (2013) studied how the cost of differences in geographic diversification may vary in terms of the cost and the impact it may have on a firm's performance. They found that if a firm seeks to pursue international diversification activities in another region they may lack the regional commonalities in terms of economics, culture and politics, that another firm from the same region would have. This may the result in higher costs or liabilities. In addition to this they also found that even if a foreign firm was to apply country specific knowledge or experience, they may still remain disadvantaged (Qian, et al., 2013).

The External Environment

The preceding sections of this chapter show that it is a firm's internal strategies and resources that are important determinants of its success. However, the substantial effect that the external environment may have on a firm's performance should not be underestimated (Coulter, 2008; Fonfara, et al., 2013). Environmental, institutional factors, as well as an economic crisis in particular may have a significant impact on firm's internationalisation and relocation strategies (Hutzschenreuter, et al., 2007; Kinkel, 2012). The complexity of the international environment forces firms to adapt to different factors such as the economic environment, legal and social influences. Porter's Five Forces is one model that looks at the way in which an environment can affect an industry's potential for long-term profits. In his latest work Porter (2008) also identified the government as an additional external force that can either positively or negatively affect an industry and firm's performance (Porter, 2008). The government's actions become increasingly important when a nation is experiencing a crisis. This is due to that the government may work on different levels and use policies that may affect a firm's strategy (Porter, 2008).

The Euro crisis changed the entire European trade environment, forcing governments across Europe to rethink their policies, and thus pushing firms to reposition themselves. It has been found that economic and national turmoil contributes to more back-shoring activities by firms. Vagadia (2012) uses the example of Egypt and Tunisia, stating that the political unrest in these countries negatively affected trade and business and that if firms had been more careful in their offshoring decisions they may have been able to change their financial position by avoiding the costs incurred due to these events. Also, Kinkel (2012) used the transaction cost theory to explain the reason for why the economic crisis may result in less relocation decisions, stating that it is due to the rise in the degree of vertical and spatial integration which increases with market uncertainty.

The Euro crisis affected the performance of firms operating in the Eurozone, and contributed to a declining investment environment due to economic policy decisions (Gonchar, 2013). It has also been found that recessions negatively affect firm's assets (Kaya & Banerjee, 2012). It has steered business focus towards cost cutting which has been evident in the increased level of offshoring activities (Vagadia, 2012). Many companies stopped seeking low cost alternatives during the recession but instead kept their production in their existing location (Kinkel, 2012). In many cases offshoring decisions are made in a rush as a reaction to the crisis which meant

that firms were less inclined to consider the long-term effects of the decision (Vagadia, 2012). Although cost reduction has been the aim, Vagadia (2012) argues that firms should take great care in choosing their offshoring strategy as there has been a costly trend of reversing an offshoring decision by bringing it back in-house, which is also known as back-shoring.

Nevertheless, offshoring could potentially have a positive effect on an organisation's financial situation as it can lead to reduced costs, increased quality and give the firm access to a large employee pool. However, the strategy is certainly not risk free, and many firms have been found to underestimate the uncertainties and risk aspects of offshoring (Kinkel & Maloca, 2009; Ritter & Sternfels, 2004). Research has found that larger firms perform better than the average firm during recessions, and (Filbeck, et al., 2013) found a decrease in ROA for many firms after the crisis and that many firms moved their sales out of Europe. Gonchar (2013) argued that company size is an important determinant of a firms performance during a recession due to the competitive advantage of economies of scale, the larger reserves in relation to smaller firms, and also because larger firms may have the advantage of political capital. The research by Gonchar (2013) also found that different company sectors performed differently during the recession, for instance agriculture, financial services and forestry were some of the sectors that benefited from the recession and grew. Nevertheless, the crisis could have exposed a lot of fragile and inefficient firms that may have only been surviving due to protection from low competition or even just as a means to keep labour in a country (Gonchar, 2013).

Firm Size

Another factor that may influence firms' performance is the size of the company. Shuman & Seeger (1986) argued that small and large companies differ on many level, for instance differences may be seen in the ownership structure, management systems, the financial and human resources, or even in terms of the access to information. All these factors may be important in creating competitive advantages for a firm.

Penrose (1959) as cited by (Krist, 2009) argued that it is often firms that have surplus resources that will pursue an international strategy, and this is often the case for larger firms rather than smaller ones. However, Aldrich (1979) as cited by (Li & Tang, 2010) argued that bigger companies may find it harder to adapt to huge changes as opposed to smaller ones.

The usage of firm size as a control variable in several of the previous research on internationalisation and firms' performance also indicate the importance of accounting for firm size, for instance the following research all used firm size as a control variable (Qian, et al., 2013; Ruigrok, et al., 2007; Thomas & Eden, 2004; Hsu, 2003).

CEO Hubris

Hsu, et al. (2013) stated that, because the CEO in many cases is the final decision maker, their individual characteristics are important determinants of the firm's performance, and that it is especially important when pursuing a strategy of internationalisation. CEO hubris is one characteristic that has been defined as the exaggerated confidence or pride of a CEO (Hayward & Hambrick, 1997 as cited by Li & Tang, 2010). Despite that CEOs' may not be the only decision makers it has been argued that CEOs' influence strategic decision by prioritising certain strategies, and the way that probabilities assigned to the outcomes of certain decisions (Chatterjee & Hambrick, 2007).

Petit & Bollaert (2012) and Abdelzaher (2012) argued that CEO hubris may have a significant impact on firms' strategic decisions and that it in many cases it leads to more risks being undertaken, which may affect a firm's performance. For instance, Chatterjee & Hambrick (2007) found that a high level of hubris is often correlated with highly volatile performance.

2.5 Empirical Findings of Previous Research

The interest in offshoring is widespread, yet only a few studies have deployed sound econometrics to study the subject (Wagner, 2011). Although, the research on internationalisation is a popular research subject, there is a not sufficient or consistent findings on the internationalisation-performance (IP) relationship, nor on how offshoring impact a firm's performance (Hsu, 2003; Hsu & Pereira, 2008; Fonfara, et al., 2013; Jabbour, 2010). Instead many have focused on its effect on the labour market (Grossman & Rossi-Hansberg, 2008).

Contractor et al (2003) studied the IP relationship and identified that the three-stage model was more dynamic than initially proposed, and argued that the different stages last for different amounts of time. However, they investigated companies from eleven of the world's largest service industries. Thus the findings may be hard to generalise to other sectors. Another study is that of Lu and Beamish in (2004) in which a twelve-year longitudinal study was conducted.

They studied the relationship between geographic diversification and firms' performance using a sample of 1489 Japanese firms of different asset sizes. Their findings indicated a horizontal and S-curved relationship between the two. Ruigrok et al (2007) also investigated the S-curve relationship between internationalisation and performance, using only Swiss MNE's with a sample totalling to 87, over an eight-year period. Their findings supported the S-shape theory but also found that the curve tends to shift to the right and that internationalisation firms are often characterised with a period of high performance prior to pursuing internationalisation activities. Another study addressing the IP relationship was that of Bolaji & Chris in (2014), however their sample only included Nigerian banks and covered a shorter period of three years. Findings of this study showed a mild and positive relationship between internationalisation and performance.

Recent studies have tried to address the same issue as stated above but with a focus on offshoring. In attempt to close this gap, research has examined how offshoring affects firms performance, on French manufacturing firms (Jabbour, 2010) and Italian manufacturing companies (D'Attoma & Pacei, 2014). The study by Jabbour (2010) looked at offshoring activities that where completed in developed as well as developing countries, and concluded that the performance outcome of offshoring is determined by the governance structure as well as the location that the relocation occurs to. They found a positive and significant effect on profitability for offshoring in developing countries, but the results where insignificant for develop countries. The author argued that the results show that developing countries provide the opportunity for firms to lower their production costs, and when that exceeds the transaction costs it leads to a positive effect on the firm's performance.

The study by D'Attoma & Pacei (2014) used a survey method in which they investigated a sample of 4342 Italian manufacturing firms and out of those, 294 had engaged in an offshoring activity. Their findings where mild and indicated an insignificant but positive effect on profitability by offshoring. Additional findings of the study was that offshoring had a significant and positive effect on productivity.

Leibl, et al. (2009) studied offshoring of manufacturing for cost reduction purposes and found that the offshoring decisions are often made in a rush, which also meant that firms did not really analyse the real risks involved. The article's concluding remarks are that offshoring leads to lower costs, but that a firm should carefully weigh up the costs and benefits of locating the manufacturing or product development abroad and assess whether it actually will lead to

increased profitability, considering the presence of hidden costs and potential risks. Similarly, Tallman (2010) stated that current scholars encourage cost efficiency strategies throughout a firm's value chain; however a company should consider both risks and benefits of offshoring. They go on to recommend that further research should look at the strategic aspects behind the decisions.

Other research has investigated the decision process, back-shoring and also challenged the perception that offshoring leads to cost saving. For instance (Kinkel & Maloca, 2009), studied 1663 German manufacturing companies and found that companies that every fourth to sixth company that offshored eventually back-shored within a four year period. One reasons being due to quality problems. They further extended their study by including a qualitative analysis of 39 German manufacturing firms, in which they found that firms do in fact look beyond cost saving when considering whether or not to offshore. Consulting firms such as Deloitte (2008) and the Boston Consulting Group (2005) completed reports on offshoring and concluded that there are hidden risks and costs attached to offshoring that may result in a lesser cost saving, and in fact there is no evidence of the magnitude of cost saving as a result of offshoring (Houseman, et al., 2011).

In addition to this, Arlbjørn & Mikkelsen (2014) studied 843 manufacturing companies of different sizes, from Denmark, using a questionnaire survey. They found that 9,1% of the sample had engaged in an offshoring activity and that out of this sample, 2,1% of them had back-shored. Furthermore, they found this pattern to be consistent for firms of all sizes. Fratocchi, et al. (2014) completed a similar study and investigated the decision to reverse and offshoring decision in manufacturing, but with a focus on the financial crisis.

Consequently, there is a range of research on the IP relationship and less on the offshoring subject. Despite that there has been a great interest in the internationalisation and performance relationship in recent years' research, findings are inconsistent (Li, 2007). Nonetheless, no research to our knowledge has combined this and looked at offshoring in particular and its effect on firms' performance whilst also focusing on the Euro crisis and looking at a sample consisting of companies from different countries, thus presenting a potential research gap. Therefore the research question will aim to address how offshoring has affected the financial performance of firms in the Eurozone by using the Euro crisis as an exogenous factor.

Summary of Previous Research	Title / Aim	Time Frame	Sample	Findings
Offshoring Research				
D'Attoma & Pacei (2014)	Offshoring and firms performance	2004-2006	4,342 Italian Manufacturing firms	- Mild and insignificant positive effect of offshoring on profitability - Significant and positive effect of offshoring on productivity.
Jabbour (2010)	Offshoring and firm performance	1999-2001	4,290 French Manufacturing Firms	- Positive and significant effect of offshoring on profitability (for international outsourcing only)
Kinkel & Maloca (2009)	Drivers and antecedents of manufacturing offshoring and backshoring	1995, 1997, 1999, 2001, 2003, 2006	1,663 German Manufacturing Firms	- Every 4th - 6th offshoring activity is then back-shored within a 4 - 5year period
Wagner (2011)	Offshoring and firm performance- self-selection	2001-2003, 2004, 2006	2,029 West German manufacturing companies	- Offshoring firms are larger, productive, and have a more foreign than domestic sales. - Offshoring has a negative and mild effect on employment of human capital in offshoring firms.

Table 2 – Summary of previous research: Offshoring

(Source: Authors' own compilation, 2014)

Summary of Previous Research	Title / Aim	Time Frame	Sample	Findings
IP Relationship Research				
Contractor et al (2003)	Three-stage theory: The link between multinationality and performance	1983 - 1988	103 firms in 11 service sector and across 12 nations	- Findings validate the three-stage model of internationalisation and firms performance
Bolaji & Chris in (2014)	Relationship between Internationalisation of Firms and Economic Performance:	2008-2010	22 Nigerian banks	- Internationalisation is positively correlated with economic performance for firms from developing countries. - Degree of internationalisation matters. Over-internationalising may have a negative impact on economic performance
Ruigrok et al (2007)	Investigation of the IP relationship: S-shape (three stage model)	1998-2005	87 Swiss MNE's	- The S-curve shifts to the right - The period before internationalisation is characterised with high performance - DOI matters, Firms performance is at its lowest when there is either very high or very low
Lu and Beamish in (2004)	Diversification and firms performance	12 year longitudinal study	1489 Japanese firms	- The IP relationship is s-shaped, thus the effect of internationalisation and performance varies in different stages

Table 3 – Summary of previous research: IP relationship

(Source: Authors' own compilation, 2014)

2.6 Hypothesis Formulation

Offshoring is believed to be a strategy for firms to cut substantial costs (Lewin & Peeters, 2006). It has been seen to be especially important for the manufacturing companies due to the typical characteristic of having to bear high costs (Miller & Vollman, 1985).

Although offshoring is not a new concept, and a lot of research has been conducted on the effect on labour in various countries, little empirical research has been conducted on the effect the strategy may have on a firm's performance. Theoretically, numerous economic benefits can be gained from internationalisation activities, i.e. economies of scale and reduced operational costs (Coulter, 2008; Hsu & Pereira, 2008; Oshri et al., 2009). Other indirect benefits may include that from having increased and more diverse revenue streams in foreign markets (Ramaswamy, 1992 as cited by Lu & Beamish, 2001), a minimized risk of economic shock from economic downturns (Hsu & Pereira, 2008) and lastly, the chance of gaining a comparative advantage which may lead to better financial performance in the long-run (Rodriguez & Carter, 1979).

Hypothesis$_{1a}$: There is a positive and significant relationship between offshoring and manufacturing firms' financial performance.

On the contrary, offshoring strategy is not a risk free strategy, yet several companies misjudge the potential risk aspects of this strategy (Kinkel & Maloca, 2009; Ritter & Sternfels, 2004). For instance, a trend in back-shoring was recently found which suggests that if offshoring is not done properly it may need to be reversed and consequently it might have a negative effect on the firm (Dachs, et al., 2006; Vagadia, 2012). Merely due to that back-shoring may actually defeat the initial cost saving benefits of offshoring due to the high costs of relocation (Kinkel & Maloca, 2009). Nonetheless, Ritter & Sternfels (2004) and Overby (2003) highlighted that there are several hidden costs related to offshoring and that these costs may exceed the benefits, which could in turn have a negative effect on the firm's performance.
Therefore, we propose the following hypothesis in regards to manufacturing firms' performance:

Hypothesis$_{1b}$: There is a negative and significant relationship between offshoring and manufacturing firms' financial performance.

The economic turmoil has been shown to have a negative impact on the majority of firms' performance especially those operating in the Eurozone (Gonchar, 2013). However, firms with

offshoring activities are said to potentially have greater opportunities of gaining a comparative advantage and thus also putting them in a better financial position. Also, the diversification aspect of internationalisation is said to minimize their exposure to economic crises (Hsu & Pereira, 2008). Therefore, we propose the following hypothesis in regards to manufacturing firms during the Euro crisis:

Hypothesis2a: There is a significant and positive relationship between offshoring manufacturing firms' financial performance and the Euro crisis.

Hypothesis2b: There is a significant and negative relationship between offshoring manufacturing firms' financial performance and the Euro crisis.

3. Methodology

This chapter will state the methodology used in order to answer the research question. Firstly an outline of the research approach is given, followed by a detailed outline of the specific data sample used, including the sources, the different variables as well as a highlight of the limitations of the sample. The statistical tests used are then presented. The chapter concludes with a justification of the quality of the study, which covers the reliability, validity and replicability of the study.

3.1 Research Approach

The methodological procedure of this thesis stems from a comprehensive literature review, concerning theoretical, as well as empirical findings. The study focuses on the manufacturing sector in Europe and uses a quantitative method in order to achieve results that are as representative, stringent and conclusive as possible. As outlined in the literature review, the relationship between offshoring activities and manufacturing firms' financial performance is quite unexplored, and the existing findings and theories differ. Therefore the primary purpose of the paper is to describe what has happened, in other words, if and how offshoring affects performance rather than why. However, due to high variance in previous research studies, it is perceived that understanding the phenomenon would be of benefit to the current literature. Therefore the study also undertook an inductive approach, which entails an analysis of the results to reach an understanding and eventually suggest a theory. Combining deductive with inductive approach has also been found to be beneficial to business studies as it allows the researcher to exploit the strengths of both approaches (Saunders, et al., 2009).

3.1.1 Deductive Approach

The prevailing theories described in the literature review have been tested by deducting a number of hypotheses. In order to contribute to current research and literature, and bridge the knowledge gap found apparent, the relationship between offshoring activities and the financial performance of manufacturing firms was orderly examined.

An assumption of the deductive approach is the existence of a relationship between the cause and the effect (Arbnor & Bjerke, 2009). It means that the relationship between variable A and

variable B explains the event C. In order to get a more robust and adequate interpretation of the phenomenon studied, it is crucial to consider causal relations that are of both stochastic and deterministic (Arbnor & Bjerke, 2009). The research has been designed by using a deductive approach, as the study analyses the causal effect that offshoring has on financial performance and the issue was objectively viewed to attain explanatory knowledge on the matter. However, the study is also characterised by inductive elements as the collected financial data was derived for the regression tests and subsequently analysed for deeper understanding (Saunders, et al., 2009).

The hypothetico-deductive approach is pursued, with hypotheses that derive from economic and organisational theory (transaction cost economics, the resource based view and the internationalisation theory) as well as empirical data on the internationalisation-performance relationship. Deduction is a top-down way of testing one or several theories and come to logical conclusions in order to explain causal relationships between selected variables (Saunders, et al., 2009). The deduction in this study is made in order to make a new empirical contribution to existing research, providing discerning evidence and insights considering the impact that offshoring activities have on the financial performance of manufacturing firms. The concepts of offshoring and performance are strictly defined to be able to operationalise them, which in turn enables a precise quantitative measurability. An important characteristic of a deductive research is the ability to generalise findings statistically, which is done by having a sample that is large enough (Saunders, et al., 2009).

The hypothetico-deductive way of performing a research is characterised by a number of steps. A hypothesis is to be derived from the theory and operationally expressed to suggest a relation between certain variables. This hypothesis is then tested and the outcome examined and analysed. Based on extensive literature review and previous empirical findings, two hypotheses have been formulated (see chapter 2.6 Hypothesis Formulation). These hypotheses are then tested in accordance with the chosen methodology by collecting quantitative data, which is studied both cross-sectionally and as a time-series. Cross-sectional research examines a certain phenomena under a certain time frame. In this study that time frame will be referred to as the event period of 2006-2008. Time-series research on the other hand, studies change and development, usually over a longer period of time (Saunders, et al., 2009). In this research the effect that offshoring has on financial performance will be observed during the time period of 2003-2013. By combining these two it is possible to make a comprehensive analysis of the

causal effect offshoring has on the financial performance of the sample. The hypotheses were ultimately inductively tested and analysed using a panel regression model as a way of investigating the causal effect offshoring had on financial performance.

3.2 Data

3.2.1 Data Collection and Data Sources

For the collection of relevant quantitative data needed for the study, the services available in the financial lab at LINC, the Lund University Finance Society has been the primary source. Other sources include:

- Eurofound – European Monitor Centre on Change (EMCC), the data collected was: *Company information; size, group and sector, Country, region and location affected by offshoring, Number of employees affected, New location offshored to, Announcement date, start and foreseen end date.*
- Standard & Poor's Capital IQ, from which firm specific data for all companies included in the sample was collected: *Income statement, Balance sheet, Cash flow, Multiples, Historical capitalisation, Capital structure (summary and details), Market capitalisation, Ratios, Supplemental and Segments information.*

Regarding the covered literature in this study the main source has been Summon, the Lund University Library database, for journal articles, e-books and empirical studies previously made within the research area relevant to the research.

3.2.2 Sample Description

This research has used a non-probability homogenous sampling method, as specific criterions for each firm has been set out, in order to obtain the final sample, although the focus was on one distinct subgroup, which is the manufacturing sector (Saunders, et al., 2009). The sample is created in three stages, with an observation of a population of firms' offshoring in a specified geographical area; Europe. These firms then had to meet a number of criteria's and were ultimately be matched with peer companies.

The peer companies represent the control group, thus the total sample consists of two subsamples. These subsamples will henceforth be referred to as the main sample and the control sample, respectively.

The population consists of 219 firms in the manufacturing sector, located in Europe that has performed an offshoring activity within the event period of the beginning of 2006 to the end of 2008. The population and its data was retrieved from www.eurofound.eu and the *European Monitoring Centre on Change* (EMCC), which is a database containing all restructuring events in the EU-states, that have been reported to the media (Eurofound, 2014). Secondary data has been used as the sample of companies were geographically very widespread, which made it inconceivable to collect sufficient primary data within the supplied time frame for this thesis. This secondary data both; time-series based and area based (Saunders et al, 2009).

Using a non-probability homogenous sampling method, the initial sample of companies had to satisfy the following set of criterions:

1. The firms had to belong to the manufacturing sector.
2. The firms must have completed an offshoring activity within Europe.
3. The offshoring activity must have occurred within the event period of 2006 to 2008.
4. The company's financial data for the time period of 2003 to 2013 must be fully available from the following databases: S&P Capital IQ or Thomson Reuter's DataStream.

The event period of 2006 to 2008 was chosen to create an event study that would be representative for the research. The reason for that is to enable a subsequent test for the regression analysis, which takes form as a difference-in-difference (diff-in-diff) test (Abadie, 2005). The purpose of the diff-in-diff test is to examine the effect that the Euro crisis had on the financial performance of offshoring firms, compared to non-offshoring firms. Elaboration of the diff-in-diff tests and why this study's diff-in-diff is somewhat contrasting from the classic idea, will be further explained in chapter 3.3.3.

The report made by EMCC provided info on which corporate group each respective firm belong to. In order to get a more comprehensive and relevant study, as offshoring is a corporate wide strategy, this thesis explore the effect that offshoring activity has on the corporation as a whole,

by conducting the research on the parent companies rather than on a subsidiary level (Lewin & Peeters, 2006). Out of the 219 firms, those that were not represented individually or by their parent company in S&P Capital IQ or Thomson Reuter's DataStream were excluded. Private firms that did not publish their financial accounts were also excluded. Consequently, publically traded companies and private firms with official and complete financial data available were included in the main sample. The sample fall-out amounted to 99 firms, which represents 45.2% of the initial sample. Accordingly, the main sample consists of 120 companies, in the manufacturing sector and that have completed an offshoring transaction. In order to get an overview of which countries the main sample have offshored from, and to what extent, the offshoring quota is further portrayed below in Figure 4.

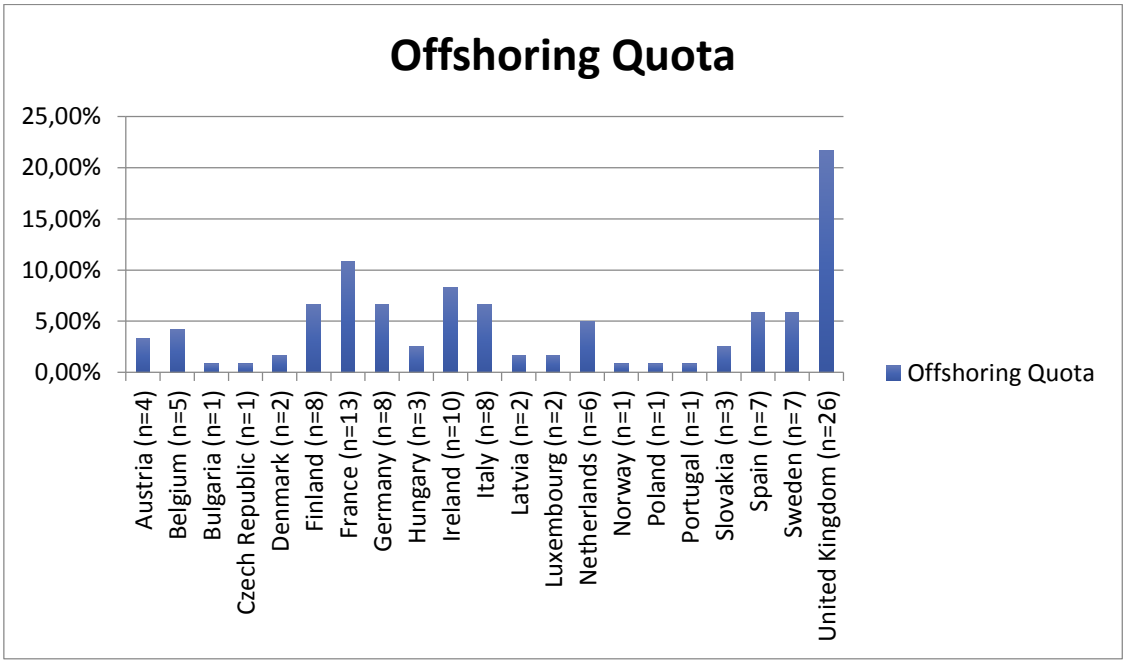

Figure 4 – Offshoring Quota

Source: (Authors' own compilation, 2014)

In order to be able to benchmark, ensure validity to the sample and also put the variables in an appropriate frame of reference a subsample of control firms was used (Saunders et al, 2009; Ganguin & Bilardello, 2005). The control group was sampled in a similar manner in which peer companies satisfying all but criteria number two was matched with a company from the main sample. The matching of the companies in the two groups was based on the firm's market capitalisation as well as the industry subsector. It is a process similar to that used by Wagner, (2011). By matching it based on market capitalisation the study get a comparable control sample with proportionate amount of firms from small cap, up to big cap in the control sample (Wealth

Management Systems Inc. , 2014). In order to get statistical strength and avoid tangency, the control sample exceeds the main sample by four companies, thus amounting to 124 firms. (A full list of the firms included for the sample is also presented in Appendix I and Appendix II).

The data collection process for the control group was conducted in the same manner as for the main sample. By comparing with a control sample, consisting of these carefully chosen peer companies, more reliability and validity to the research is attained, which is described further in subchapter 3.4 (Saunders, et al., 2009).

The quantitative data collected through Standard & Poor's Capital IQ, consist of key statistics and financial raw data of the total sample acquired with a mono method (Saunders, et al., 2009). To enhance the validity, and minimize potential differences in the data due to irregularities in definitions, the data was manually computed using on one single definition for each ratio, before pursuing statistical analysis of the discrete data collected and calculated (Saunders, et al., 2009). The raw data was processed in Excel and subsequently exported to EViews for regression analysis. All numerical data is denominated in Euro's and measured in percent or million Euros, if not stated otherwise[1].

Companies that have gone bankrupt or been acquired, have purposely been included due to the risk of the survivorship bias to minimize the exposure for the data to suffer from skewness. Survivorship bias occurs when a sample majorly consists of successful firms, without taking the natural events of organisational death into consideration (Carpenter & Lynch, 1999). Only financial performance has been taken into consideration, and operational performance measurements without financial affiliation is excluded, as financial performance is the primary focus of this study.

The final sample (n) for this study amounts to 244 firms. These are longitudinally studied from 2003 to 2013 corresponding to 11 periods (t) resulting in 2684 observations. The sample is econometrically examined in the statistical software EViews by performing panel data regressions. Due to varying fall-outs in the sample data, as a result of bankruptcies, company acquisitions or merely lack of data, the final number of individual company observations made

[1] All financial data was automatically converted from respective currency to Euros at the spot rate as of 14.04.2014, via Standard & Poor's Capital IQ.

in EViews amounted up to 2286 for the ROA regressions, 2284 for the net profit margin regressions and ultimately, 2279 for the OER regressions.

3.3 Regression Tests and Statistical Analysis

3.3.1 Regression Model

The creation of a regression model is a complicated process, as all the variables used needs to correspond with the theoretical framework, and at the same time be in line with what is statistically required for the test (Saunders, et al., 2009). The study's empirical findings represent a rather large sample and consist of both cross-sectional data and time-series, where the cross-sectional refers to the width of the data, concerning the final sample of 244 firms included. The time-series refers to the chosen time period of the sample, which is from 2003 to 2013, resulting in 11 periods. This is the reason for the employment of panel data, a sub-category to longitudinal data, in order to combine the cross-sectional and time-series data types performing a multiple regression analysis (Brooks, 2008). The panel data analysis is dependant on the collected data in the sample, covering the total investigated period of analysed years. Panel studies are desirable as they exhibit information of firms over a space in time and as of the measurement they offer for differences between the firms that stay consistent over time (Brooks, 2008); (Schwab, 1999). The equation for panel data can be composed as followed:

$$y_{it} = \alpha + \beta x_{it} + u_{it}$$

(Source: Brooks, 2008)

y is the dependent variable, α is the intercept, β is the coefficient for the independent variable, which is represented by χ, and u represent the disturbance term (Brooks, 2008). Since the study has an irregular number of observations, meaning that not all firms are represented in full during the whole time period, it is considered to be unbalanced (Brooks, 2008). Benefits of using panel data is that it renders informative results, there is less collinearity between the variables and it may also reduce bias problems due to omitted variables. The latter can in some cases solve the heterogeneity issues. There are downsides with using panel data, for instance as EViews lacks certain analysis feature for unbalanced panel data, such as a test for autocorrelation (Brooks, 2008). A further description of the panel data analysis is supplied in subchapter 3.3.4.

3.3.2 Choice of Variables

Dependent variables are the focus measure in regression tests and also what is affected during the test in question in response to variations in other variables. An independent variable on the other hand is the variable that causes alterations to the dependent variable (Saunders, et al., 2009). Dummy variables, also called qualitative variables, are used for narrowing down and determining a group of values by providing each observation with a binary value of either 1 or 0 (Brooks, 2008). This study investigates the relationship between offshoring activities and financial performance of the sample firms. Consequently, the offshoring activity is the main independent variable of interest, while the financial ratios are the dependent variables in the study. The tests also include a number of complementary control variables in order to test the corresponding impact on the dependent variables. These control variables are constant and by including more of them, firm-specific influences can be controlled to a larger extent (Brooks, 2008).

3.3.3 Performance Measures

In international business studies there is a great interest in trying to answer why some firms perform better than others. However, choosing a suitable performance measure is rather complicated due to the different accounting standards and a firm's level of internationalisation, amongst others (Barcellos, et al., 2010). The analysis is based on measuring the financial ratios that are representative for financial performance, and are comparable between the firms in the sample. There is an abundance of ways to determine and explain such ratios, whereas it is advisable to stick to rather simple calculations of them (Ganguin & Bilardello, 2005; Prezas, et al., 2010; Fraser & Ormiston, 2010). Financial profitability ratios have been chosen as dependent variables in order to get comparable results, applicable to the research question. Furthermore, the study includes the operating expense ratio in order to get a better apprehension and measurement of the firms' scalability and ability to generate profit (Li, 2007; Morell, 2007). Profitability and financial efficiency ratios provide exceptional measures for firm performance and can be used to benchmark against peers in a sector. It is of utmost importance to be consistent when calculating the ratios when using them for comparing companies (Ganguin & Bilardello, 2005). Although there is not one superior measure of financial performance, it has been found that accounting measures such as Return on Assets (ROA), Return on Equity (ROE) and Return on Sales (ROS) are the most commonly used in studies investigating the relationship between internationalisation and company performance (Barcellos, et al., 2010). Financial ratios based on accounting data are commonly used measurements for financial performance in

the international business research field. However by examining the ratios separately may not be sufficient to explain a firm's financial position, but instead to get a holistic overview of the financial health of a company research should include different measures and look at them concurrently (Hsu, 2003).

Consequently, the following three financial ratios will represent the measured performance in this research:

- Net Profit Margin
- Return On Assets (ROA)
- Operating Expense Ratio (OER)

Furthermore, Venkatraman & Ramanujam (1986) as cited by (Barcellos, et al., 2010) stated that researchers in this field face several complications due to time limitation, issues relating to data or resource availability which may result in them having to be selective and focus on one or a few aspects of performance. Thus, only few studies have been found to include all aspects of performance. This is as performance is a very broad term and may include financial, operational as well as effectiveness measure (see Table 4).

	Financial performance[a]	*Operational performance*	*Overall effectiveness performance*
Firm	Sales based: 44% Return on assets: 40%	Market share: 47%	Reputation: 30%
Strategic business unit	Sales based: 68% Return on investment: 47%	Market share: 46%	Performance relative to competitors: 50% Perceived overall performance: 33%
Inter-organization unit	Sales based: 62% Profitability: 31%	Productivity: 44% Market share: 33% Product/service quality: 33%	Perceived overall performance: 71%
Total	Sales based: 52% Return on assets: 29% Profitability: 26%	Market share: 44% Productivity: 20%	Perceived overall performance: 47% Performance relative to competitors: 20%

Table 4 – Frequently used performance measures

Source: (Hult, et al., 2008)

Accounting measures are popular, as they are based on audited figures and are easy to use, and understand. However, they may be subject to irregularities due to accounting standards, principles and basic human errors, but to further improve the usefulness of performance indicators in comparisons, one might use ratios (Aliabadi & Balsara, 2013). Also, Li (2007) argued that cost efficiency measures are better measures of performance as they are subject to less noise in comparison to financial indicators. Noise may include unexplained variances due

to tax laws, accounting standards or even financial leverage (Barcellos, et al., 2010). Empirical studies that have used cost efficiency measures have measured it often using a ratio of operating costs to sales. However, Li (2007) proposes that one should include all operating costs including cost of good sold (COGS), R&D costs, depreciation and amortisation costs as well as advertising costs. This is because such measurements enable researchers to include the underlying motivation for internationalisation activities, which is often seen as cost cutting.

In light of this, this paper focuses on three specific financial performance measures whereas one is a cost efficiency ratio in order to investigate the effect of internationalisation on a firm's performance. The financial performance measures are used as they often capture the effect of internationalisation on a firm's profitability and overall financial position and the cost efficiency ratios will contribute by including what is perceived to be the underlying reason for internationalisation activities such as offshoring: cost cutting. Also a limited amount of studies have researched the specific financial performance of international operations, but instead the majority of research looks at the financial performance of firms' international divisions, rather than as a whole (Barcellos, et al., 2010). This research does not look at how offshoring affects a company's separate units or subsidiary but rather how it affected a firm's overall financial position. This is due to that offshoring decisions are often made as a strategic decision for an entire corporation meaning it could also impact the entire organisation. Secondly, on-going internationalisation activities may also influence the domestic business too, so by looking at the entire corporation's financial performance the study is able to account for this (Krist, 2009).

Dependent Variables

Net Profit Margin

This study uses three different dependent variables (y) and consequently makes three different main regressions, in order to get comprehensive study on financial performance. Net profit margin is one of the most examined and closely followed financial ratios, as it shows how well a firm convert their revenue into profit. In other words, describing the percentage of every dollar from revenue that the firm keeps as profit. Net profit margin is commonly used for comparison between firms in the same industry or sector, as it gives an apprehension of a firm's efficiency and ability to control costs, making it highly relevant for this study (Ganguin & Bilardello, 2005; Prezas, et al., 2010; Li, 2007). There are numerous ways of calculating the net profit margin, as the denominator and numerator can be defined in different ways, while still being the same value. Fraser & Ormiston (2010) for example define the net profit margin with net

earnings as the numerator and net sales as the denominator. However, they equate net earnings with net income, and net sales with total revenue, both of which are figures used by Ganguin & Bilardello (2005). These metrics are easily obtained from financial statements and consequently, the net profit margin ratio is computed as follows:

$$Net\ Profit\ Margin = \frac{Net\ Income}{Total\ Revenue}$$

(Source: Ganguin & Bilardello, 2005)

Return on Assets

However, the net profit margin does not supply with an exhaustive profitability measure, thus the return on assets (ROA) is also analysed. ROA is a measure of the overall firm performance in managing its assets that yield a percentage of companies' ability to turn assets into profit (Fraser & Ormiston, 2010). The majority of research on internationalisation and performance, covered in this paper use ROA as the main measurement for profitability (Ruigrok, et al., 2007; Kotabe et al., 2002; Grant et al., 1988; Kumar, 1984 as cited by Li, 2007). The ROA ratio is computed as followed:

$$Return\ on\ Assets = \frac{Net\ Income}{Total\ Assets}$$

(Source: Ganguin & Bilardello, 2005)

The actual levels of these two ratios are important, but what is of even greater importance when assessing these ratios is their trends and comparisons with industry competitors (Ganguin & Bilardello, 2005). As a rule of thumb regarding the interpretation of the ratio levels, is that a level exceeding 20% is considered to be strong, a level under 10% is considered to be weak and consequently a level there in between is considered to be average (Ganguin & Bilardello, 2005).

Operating Expense Ratio

For both net profit margin and ROA, high values are desired. Regarding the measurement of the firm's operating expense ratio (OER) however, a low value is desired. This is due to that a low OER value indicates lower expenses and higher earnings (Morell, 2007). Research suggests that cost efficiency, or operating expense ratio, is a good measurement for firm performance

regarding multinational enterprises (Li, 2007; Prezas, et al., 2010). The OER considers the operating costs of a firm (cost of goods sold plus other operating expenses) divided by the total revenue, yielding an indicator of cost efficiency (Li, 2007) illustrated with this formula:

$$Operating\ Expense\ Ratio = \frac{Cost\ of\ Goods\ Sold + Other\ Operating\ Expenses}{Total\ Revenue}$$

(Source: Li, 2007)

As with the first two ratios, the OER mainly provides comparability within an industry or sector as the definition of high and low needs to be in the same context (Morell, 2007).

Independent Variables

This study uses five independent variables that will affect the dependent variable in each regression equation and has been methodically allocated in the regression models.

- Offshoring
- Crisis
- Difference-in-difference (Diff-in-diff)
- Foreign Sales to Total Sales (FSTS)
- Asset size (a proxy for Firm size)

The regression will also include control variables for the region that the firm originates from. These are held constant for the purpose of see the relative impact of independent variables.
Region:

- Europe, Middle East & Africa (EMEA)
- Americas
- Asia & Pacific

Offshoring

The main independent variable of interest in the study is offshoring. It is formulated as a dummy variable designated an own column in Excel, where each observation in the main sample (offshoring firms) was labelled with a 1 and each observation in the control sample (non-offshoring firms) was labelled with a 0. The other independent variables are chosen after

observing previous research on the subject area and considering the variables they have used. The offshoring variable is also used as a factor in the interaction variable diff-in-diff and as an independent variable in the diff-in-diff tests.

Crisis

The Euro crisis is represented as a dummy variable by labelling the observation years of 2003 to 2008 with 0 and observation years of 2009 to 2013 with 1 – representing the crisis. The crisis variable is only used in the diff-in-diff tests, both as a factor in the interaction variable, diff-in-diff, and as an independent variable. The crisis is used as an exogenous shock in order to limit the endogeneity problem and compare the performance of the offshoring companies versus the ones that have not.

Difference-in-difference (Diff-in-diff)

The diff-in-diff variable is also represented as a dummy variable, created by interacting the offshoring variable with the crisis variable in EViews. Difference-in-difference as a test will be further described in subchapter 3.3.4

Foreign Sales to Total Sales (FSTS)

FSTS is the variable most commonly used in measuring firms' level of internationalisation, and it is used in transnational indices and represents each observation's presence in foreign market (Li, 2007; Hsu, 2003). The variable is presented as a revenue dispersion ratio:

$$FSTS = \frac{Foreign\ Revenue}{Total\ Revenue}$$

(Source: Li, 2007; Hsu, 2003)

As the sample consists of multinational operations to a large extent, this internationalisation ratio is of great interest for the model of the study.

Asset Size

Asset size is the variable that illustrates firm size, represented by the post Total Assets retrieved from each sample's balance sheet and is measured in million Euros[2]. The variable was logged

[2] All financial data was automatically converted from respective currency to Euros at the spot rate as of 14.04.2014, via Standard & Poor's Capital IQ.

in EViews as a measure to minimize the level skewness. Total assets show the joint value of all the assets owned by a firm. This metric provides a good apprehension of the company's size measured in an objective manner, which is especially suitable for manufacturing firms where tangible assets are predominant (Grossman & Hart, 1986).

Region

The control variables for the different geographic regions are divided into three, where the firms are compiled into groups, as of their country of origin. The variables are held constant and labelled as:

- Europe, Middle East & Africa (EMEA)
- Americas
- Asia & Pacific

The groups are categorised as established business definitions, which is the reason for the choice of labels (Oliver, K., 2014).

3.3.4 Choice of Tests

OLS Regression - Panel Data

The regression analysis is performed in the form of a pooled regression with equation estimation by the Ordinary Least Squares (OLS) method. This is the most common way of estimating unknown parameters in a linear regression model. Pooling suggests that the mean values of the variables and relations between the variables are constant over time and for all firms in the sample (Brooks, 2008). There are two approaches the OLS can take when specifying the effects in analysing panel data, either with a fixed effects-model or random effects-model. To test the likelihood of the variables being associated with each other a chi square test is performed (Saunders, et al., 2009). By doing tests of Redundant Fixed Effects - Likelihood ratio and the Hausman test in EViews it is possible to outline what model is appropriate for the study material. Significance tests are ways of testing the probability of the relationships between the research variables are occurring only as of chance or with causality (Saunders, et al., 2009). Consequently, to test the strength of the relationship, the correlation coefficient is investigated and to assess the strength of the cause-and-effect relationship between the variables, the regression coefficient is examined. These tests are used to deduce and analyse if the relationship

between the variables is a trend in the data (Saunders et al, 2009). This is ultimately how the null hypothesis is either rejected and the hypothesis accepted or vice versa.

Outliers, which are extreme values in the data, can be the effect of human error in processing raw data or unusual external forces, putting the observation offset from the general pattern in the overall data (Wooldridge, 2009). These outliers generally have a serious effect on a study's coefficients. As OLS regressions perform best under normality it is of interest to minimize the effect of outliers to decrease possible skewness and obtain a more relevant result (Brooks, 2008). A method for diminishing skewness is to winsorise the data of the research variables by using an add-in for EViews, "Trim". Winsorising means that the outliers, generally the fifth percentile and ninety-fifth percentile of the data, are scaled down to less extreme, more plausible values of the variable's data (Ghosh & Vogt, 2012). This study has used this measure of diluting the outliers of the extreme 5% values. By compromising with winsorising instead of simply trimming the outliers the data is more germane and the numbers of observations stay the same.

Difference-in-difference Test

The purpose of the test is to examine the change stimulated by the exogenous event that the Euro crisis represent, when combined with an offshoring activity. The regressions are performed in a similar manner as the panel data regressions described above. Conversely to the main regressions on the dependent variables, the diff-in-diff regressions have used no specifications of the effects. In this study the diff-in-diff test takes an alternative form of a natural experiment, where the Euro crisis is used as an exogenous factor, which will show how it affect the dependent variables in this diff-in-diff state (Wooldridge, 2009). However, it is not entirely a natural experiment in the sense that both groups in the study are exposed to the shock of the crisis, rather than having one exposed group and one control group. Nonetheless, the groups are separated as of the offshoring activities, generating one treated group. Hence, this test with the interaction variable will be referred to as a diff-in-diff test. This will be a way to limit the endogeneity problem, which is the issue of an independent variable being correlated with the error term in a regression model (Abadie, 2005; Wooldridge, 2009).

Appropriateness Tests on the Regression Model

- Stationarity is tested through the unit root-test, which examines the mean and standard deviation of the variables and if they change over time (Brooks, 2008). This should not to be an issue as the time series is moderate (11 years) and the sample is rather large (244 firms).
- Normality is yet another factor that shows a model's appropriateness. OLS regressions perform at their best under normality. The Jarque-Bera test is done to see the normal distribution of the regression and to obtain a value of skewness and kurtosis. Kurtosis describes the distribution of observations around the mean, measuring the size of the tails in the distribution graph. Skewness shows the level of imbalance in the observations by measuring how asymmetric the observations are around the mean (Brooks, 2008).
- With a comprising sample, it is no surprise that the data suffers from extreme values. In order to eliminate parts of the skewness issues, it was decided to winsorise the data of the dependent variables. By reducing the skewness a better normal distribution can be attained (Wooldridge, 2009).
- To test for heteroskedacity the Breusch-Pagan-Godfrey (BPG) test is performed for each dependent variable. With panel data, there is no function in EViews to test for heteroskedacity. The BPG-test works as a substitute instead, which is performed by squaring the residuals of the variable in question and then create an equation for that new dependent variable (Brooks, 2008). In order to attain heteroskedacity robustness in the test, EViews' White period robust coefficient variance estimator was used, which adjust the results for heteroskedacity. The test used White period, as Fixed effects - Period effects was used in the main regression model.
- Regarding the test of autocorrelation on the residuals for each dependent variable, correlograms are created (Brooks, 2008).
- Multicollinarity arises when the independent variables not are independent of each other and by that measure the same thing. To fulfil the presumption this was tested for by performing a multicollinarity test and building such a matrix (Brooks, 2008).

As the panel data analysis evolved into a regression model with time-fixed effects, the equation of this is written as:

$$y_{it} = \alpha + \beta x_{it} + \lambda_t + v_{it}$$

(Source: Brooks, 2008)

The intercept that varies with time is represented by λ_t and v_{it} is the factor that apprehends all that is not explained by y_{it}, differs over time and is called the remainder disturbance (Brooks, 2008).

3.3.5 Statistical Analysis

In addition to the regression models, statistical measures were performed in SPSS. The objective of these measures was to attain the variables' mean, median and standard deviation for the purpose of creating graphs to show trends.

3.4 Research Credibility

3.4.1 Reliability and Replicability

Reliability can be determined whether or not the measurements will give the same results under other circumstances, if observations of the like can be obtained by other researchers and the level of transparency had when the raw data was processed (Saunders et al, 2009). Studies and research presented in chapter 1.3 all derive from reputable publications. The studies have been strictly scrutinised before being published. This is an assuring factor for the reliability of the sources of the study. Evidently, the quality of the different publications are fluctuant, but generally they hold a high standard, guaranteeing theories, approaches and theories to be well-recognised (Saunders et al, 2009).

Annual reports from the sample firms are gathered from Standard & Poor's Capital IQ and enforced by regulations, which further enhances the reliability of the study. Externally reported data like such is expected to generate identical results in a second round, ensuring replicability. Reports from companies do not have the same reliability as academic journals, however the reports worked with come from renowned actors, such as PriceWaterhouseCooper's, Deloitte and the like, giving it sufficient reliability strength. The statistical tests were performed with SPSS, recognised software for statistical analysis. All regressions were performed in EViews, which is a well-established econometrics software. The use of these programs ensures reliability of the results generated, given that the tests were performed correctly and the data inserted was correct.

The main threats to reliability are bias and error, either by the subject, observer or the participant. With bias or error from anyone of these actors, the reliability will drop dramatically (Saunders et al, 2009). With an exhaustive methodology chapter, going in-depth of all actions and considerations, replicability of this study is deemed to be assured (Saunders et al 2009).

3.4.2. Validity

A research's internal validity considers if the data found actually measures what it is stated to, for example if a relationship between the dependent and independent variable is causal or not (Saunders et al, 2009). With a lack of validity, irrelevant conclusions can be drawn. External validity, also referred to as generalisability, considers if the research results are relevant or useful for other studies, if they can be generalised for other settings (Saunders et al, 2009). By using canonical performance measures and ratios combined with an extensive and wide sample, it is claimed that the study is fairly assured for validity issues. Nonetheless, the significance level of the regression models indicates otherwise, as some of the regressions have an insignificant p-value. The main validity issue of this study remains that the paper does not consider if the control group of non-offshoring firms have previously performed any offshoring activity prior to 2006, when the research's event period begins. This fact weakens the validity.

3.4.3 Critique and Limitations of the Study

A critique in regards to the independent variables is the quantity of variables used. A more comprehensive analysis of the external effects on the dependant variable could have been achieved by employing more variables. For instance Li (2007) suggests combining FSTS with asset dispersion and physical dispersion of international operations could have been used as an independent variable to get a more comprehensive analysis, however we decided to settle with FSTS as the majority of previous research on the subject had measured the level of internationalisation with the FSTS ratio

An alternative measure for firm size, instead of asset size could have been market capitalisation. By using market cap one could get an all-embracing measurement with a subjective manner, containing both intangible asset and liabilities. However, as ROA is used as one of the three dependent variables, it was found to be substantially more suitable to use asset size as an

independent variable, making it more suitable for this research. Yet another limitation is that the study does use weighted data. With weighted data the regression could have been made with a mix of fixed and random effects, which would have been beneficial for the output of the analysis, taking missing values into consideration.

4. Empirical Findings

The following section will discuss the empirical findings. The chapter starts with a basic statistical analysis, which subsequently leads to the descriptive statistics. The results derived from the regression model are then presented, and lastly, the results are explained and analysed in reference to the hypotheses.

4.1 Statistical Analysis

Statistics for Total Sample

		ROA	Net Profit Margin	FSTS	Firm size (Log)
N	Valid	2548	2548	2562	2537
	Missing	15	15	1	26
Mean		-,01	-,01	,51	7,8132
Median		,00	,00	1,00	8,0229
Std. Deviation		,171	,262	,500	2,14692
Minimum		-5	-8	0	,00
Maximum		2	5	1	13,41

Table 5 – Sample statistics

Source: (Authors' own compilation, 2014)

An initial analysis is presented in Table 5, Figure 5 and Figure 6. Table 5 consists of raw data, prior to any manipulation. Looking at Table 5, one can see that the sample data for net profit margin, ROA and FSTS are relatively well distributed whereas the total assets, which represent the firm size is rather wide spread. This is due to that the main sample in this study includes companies of various sizes as the database by the Eurofound monitors firms of all sizes. However, the standard deviation in firm size was initially quite substantial, as it is a skewed variable thus it was logged prior to using it as a control variable in the regression analysis, especially as company size has been seen to be a determinant of a firm's performance, as larger firms may attain certain competitive advantages (Gonchar, 2013).

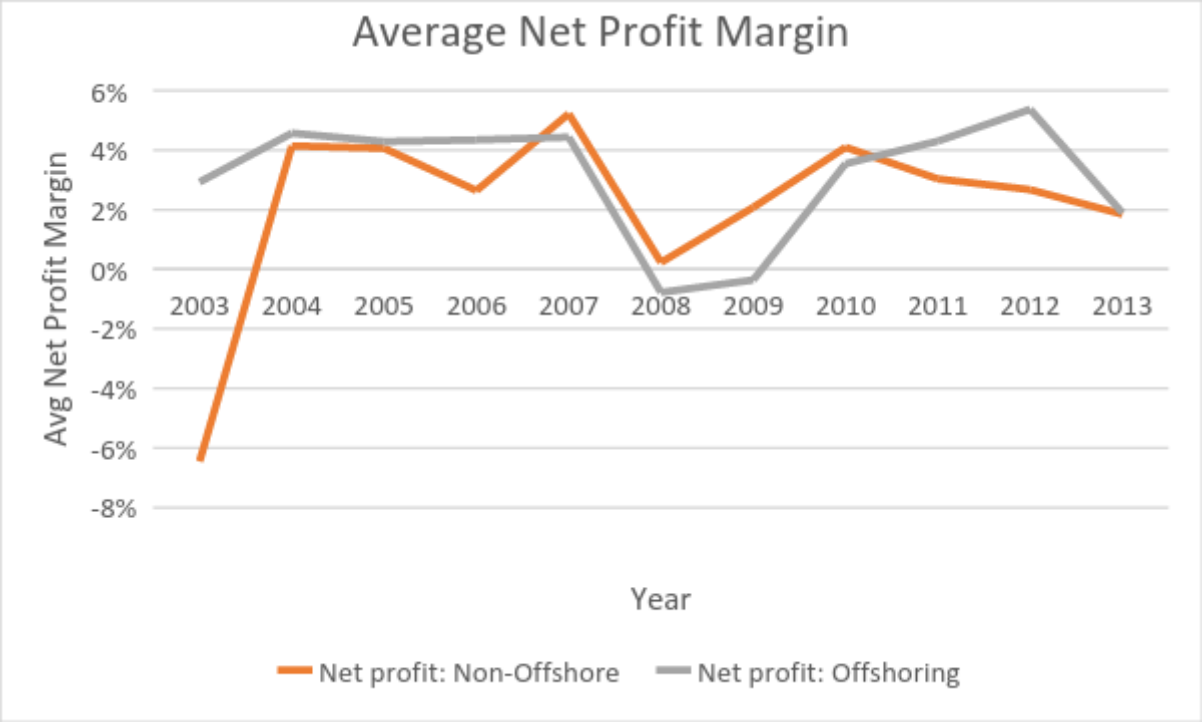

Figure 5 - Average Net profit - Comparison between Offshoring and Non-offshoring firms

Source: (Authors' own compilation, 2014)

Figure 5 illustrates the trend in net profit margin for the two subsamples (offshoring firms and non-offshoring firms) and compares these two to each other and Figure 6 does the same but for ROA. Figure 5 shows that the performance between the two sample groups essentially followed a similar trend. The graphs also show that the Euro crisis was in fact an exogenous shock. A slight variance in the trend between the samples can be seen in the beginning of the period where non-offshoring companies show a sharp increase, and after 2008 during the Euro crisis period in which the net profit for the companies that had offshored grew at a slower rate, perhaps due to an event such as a crisis can have a significant impact on relocation strategies, as stated by (Hutzschenreuter, et al., 2007; Manning et al., 2008 as cited by Kinkel, 2012). However, whilst the average net profit margin for non-offshoring companies increased steadily for only two year after the Euro crisis (as of year 2008) the net profit margin for offshoring companies continued to grow and altogether for four years after the Euro crisis. This might suggest that offshoring has a positive effect on firms' net profit margin. This is similar to the finding by Hsu (2003) who found that internationalisation increases firms' profit margin.

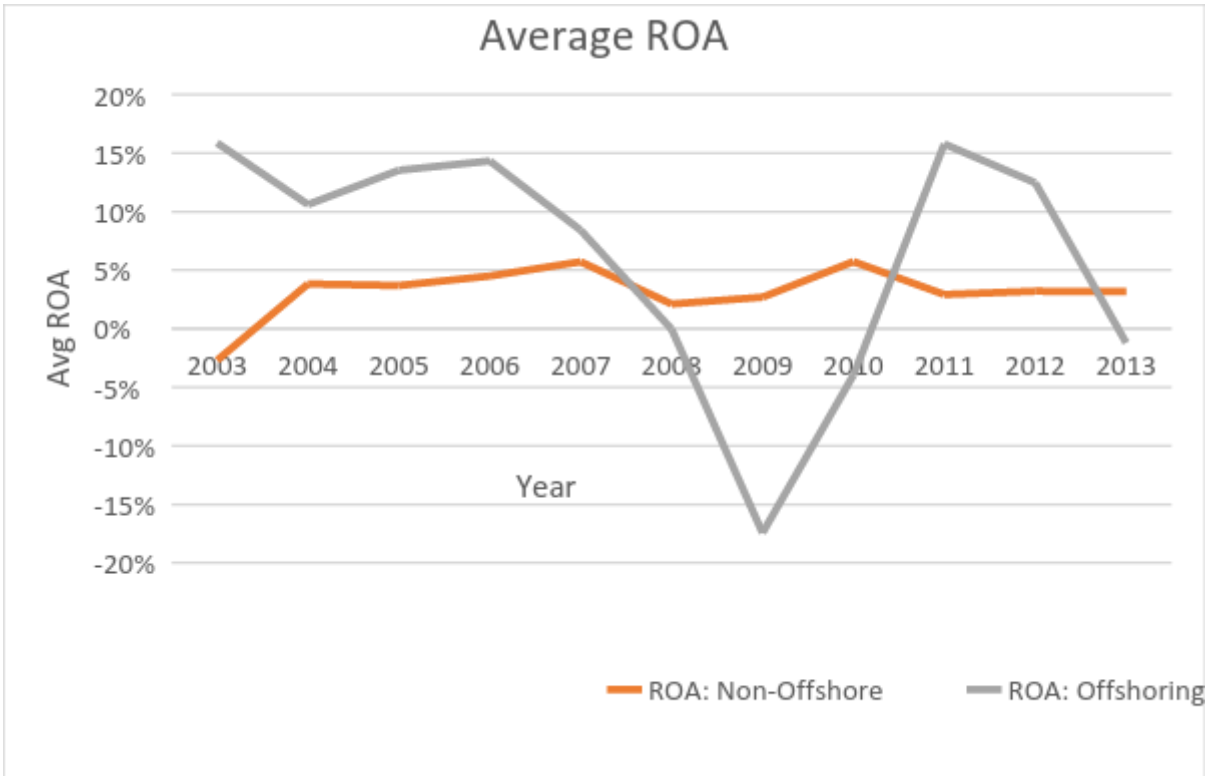

Figure 6 -Average Return on Assets (ROA): Comparison between offshoring and non-offshoring firms.

Source: (Authors own compilation, 2014)

Figure 6 illustrates the trend in the average return on assets for the two subsamples over the ten year period. Looking at this it is observable that whilst the non-offshoring companies showed a rather stable trend, the average ROA for the offshoring companies was more unstable, yet consistently higher than for non-offshoring firm, apart from during the crisis period. The average ROA for the offshoring firms begun declining prior to the crisis and hit is lowest point during the crisis in 2009. However, the sharp curve shows a sharp increase in the ROA figure over the two year period following the beginning of the crisis (as of year 2008) in which the ROA increased almost two-folded. These findings indicate that the performance of offshoring companies were more, and negatively affected by the crisis than companies that did not complete any offshoring activities. These findings are unforeseen in light of the theoretical background on internationalisation which suggest that MNE's are viewed to be more stable during crisis due to the diversification that internationalisation brings. On the other hand, the decline in ROA started prior to the Euro crisis, and when looking closer at the sample of companies we find that although the majority of firms in the sample where from the EMEA region, this region was widely spread in terms of countries. The Americas region on the other hand was concentrated among three different countries and yet it represented approximately 32% of the sample (see Figure 7) Thus, the sub-prime financial crisis that begun in the USA in

2007 may have exposed a large proportion of the study sample (the 32% based in the Americas in particular) to changes in the external environment.

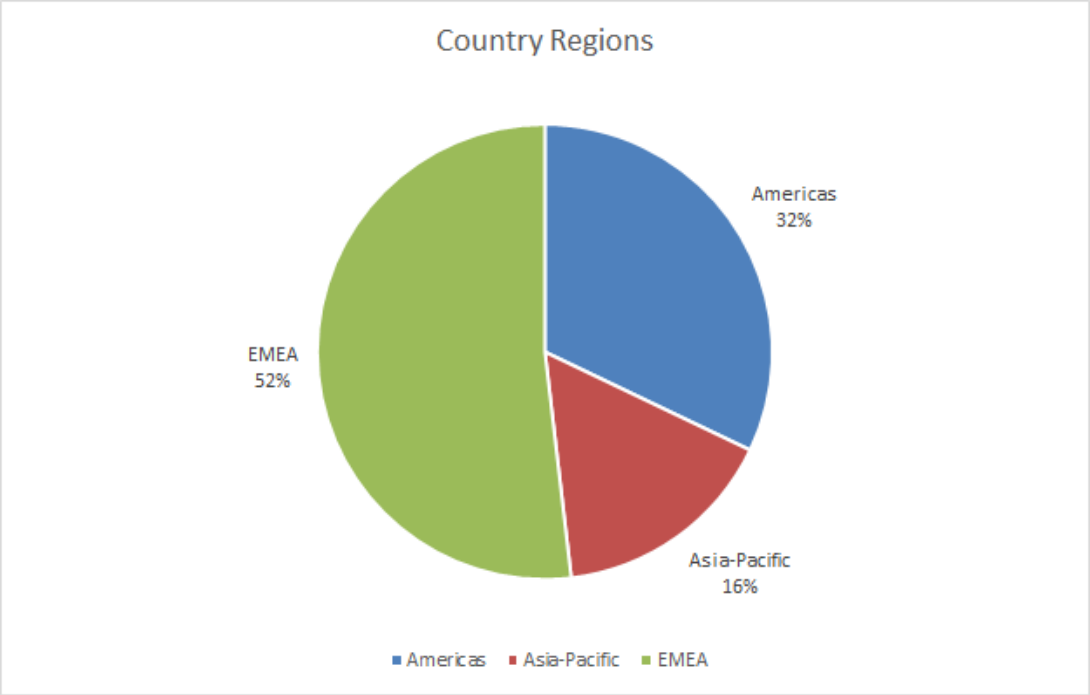

Figure 7 – Country Regions

Source: (Authors' own compilation, 2014)

These figures however, are based on raw data, and may be influenced by huge deviations in the values as indicated by the standard deviation in Table 5, nor do they control for firm specific variables such as firm size and level of internationalisation as measured by foreign sales to total sales. To attain further clarity in the statistical analysis and investigate if the statistics suffer from outlier issues, the median was calculated. Regarding the FSTS, the analysis shows a major difference between the mean and the median, where the latter is close to maximum. This suggests that the sample might contain some outliers. Therefore, further statistical tests are conducted using a regression analysis, in which internationalisation, firm size and the firms region of origin as well as offshoring are all controlled for and outliers are addressed by winsorising.

FSTS Ratio				
	Minimum	Maximum	Mean	Std. Deviation
Offshoring	0	1	,55	,497
Non-offshoring	0	1	,42	,494

Table 6 – FSTS ratio

Source: (Authors' own compilation, 2014)

4.2 Regression Results

4.2.1 Diagnosis of the Model

Although the mean ROA indicates that the performance of offshoring companies is more volatile and was more sensitive to the Euro crisis in comparison to non-offshoring firms, the mean alone is not an ideal estimation of the firm's financial performance as it does not account for other factors. A panel data regression was used as a way of incorporating additional factors that may influence a firm's performance.

To determine which panel option to use for the regression the Hausman test for correlated random effects, and the likelihood ratio test for redundant fixed effects were performed. The Hausman test gave a p-value of unmistakably above 5%, leading to rejection of the random effects model. The likelihood ratio test gave a significant p-value below 5%, leading to a conclusion that equation specification of Fixed Effects - Period Fixed was the appropriate model for the panel data regression. (See Appendix III for Hausman tests & likelihood ratio test). As a check for robustness a coefficient covariance method of each test was tried, rejecting the white cross-section for the Hausman test and using the white period for the likelihood ratio test.

Initially, three separate regressions were conducted for the respective dependent variables in order to examine the effect offshoring have on performance. An additional three regressions were performed in the same manner, but with a specific focus on offshoring during the Euro crisis, taking the form of what is referred to as a diff-in-diff test. In an attempt to transform the firm size value to a more easily interpretable form it was calculated as a logarithm in the regression analysis. As all of the normality tests have a p-value of the Jarque-Bera test at 0 to six decimal places and the curve is bell shaped it can be concluded that the null hypothesis for

normality can be rejected and the result has a slight negative skewness (see Appendix IV) (Brooks, 2008).

The factor R-squared represents the degree of explanation of the goodness-of-fit of the model, also called the coefficient of determination. R-squared ranges from 0 to 1, where 1 represents a perfect fit and 0, no fit (Brooks, 2008). The R-squared illustrates to what extent the independent variables explain the dependent variable, and for these models it is rather low. The adjusted R-squared takes into consideration the effects independent variables have on regular R-squared (Wooldridge, 2009). As shown in regression tables, the adjusted R-squared suggest an even lower fit of the model for all dependent variables, ranging from 5% to 22% suggesting the regression models are slightly unfit. Still, these low adjusted R-squares can be expected seeing as the equations has a small amount of variables, in relation to the comprehensive number of factors that can have an impact on firms' financial performance and profitability (Hsu, 2003). Even though the models have a slightly low goodness-to-fit, the Prob(F-statistic) is less than the significance level tested, being statistically significant at the 1% level, which shows that the null hypothesis of the slope coefficients being zero can be rejected for all regressions.

All regression results cannot with certainty show a significant correlation between offshoring and performance ratios at a customary 5% significance level. By employing a larger significance level at 10% however, further conclusions can be drawn from the results. It is important to be aware of the decrease of certainty that the change of significance level involve, which is why the results are interpreted with caution.

4.2.2 Supplementary Tests

As a measure for ensuring appropriateness for the regression model a number of additional tests on the residuals were performed. These include normality test, unit-root test for stationarity, Breusch-Pagan-Godfrey test for heteroskedacity and ultimately autocorrelation plots were portrayed in correlograms (All tests are supplied in Appendix IV– Appendix VII. The residuals are portrayed in graphs in Appendix VIII.)

4.2.3 Net Profit Margin

Table 7 implies that there is a mild but significant negative effect of offshoring on net profit margin at a 5% significance level, holding FSTS, firm size and country regions fixed. These findings are however dissimilar to the findings of Jabbour (2010), who found that offshoring had a positive and significant effect on firms' profitability. It also varies from what Hsu (2003) found, which is that internationalisation leads to an increased profit margin. These results are in line with Hypothesis$_{1b}$ Lastly, in the diff-in-diff regression which looks at the Euro crisis period, the results are found to be insignificant. Therefore we are unable to conclude on the relationship between offshoring and net profit margin during the crisis.

Net Profit Margin Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.034273	0.013403	-2.557031	0.0106
Offshoring	-0.012912	0.006352	-2.032927	0.0422
FSTS	-0.004551	0.011252	-0.404468	0.6859
Firm Size	0.011589	0.001623	7.139584	0.0000
Americas	-0.004623	0.007102	-0.650885	0.5152
Asia & Pacific	-0.019493	0.009024	-2.160186	0.0309
R-squared		Adjusted R-squared		Prob(F-statistic)
0.149476		0.143851		0.000000

Table 7 - Regression output – with Net Profit Margin being the dependent variable. To derive coefficients, standard errors, t-statistics and p-values, White's period heteroskedacity corrected standard errors have been used in the regression.
Source: (Authors' own compilation, 2014)

Net Profit Margin Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.036846	0.007205	-5.114085	0.0000
Diff-in-Diff	-0.001814	0.005679	-0.319444	0.7494
Offshoring	-0.012398	0.003942	-3.144976	0.0017
Crisis	0.003235	0.003833	0.844100	0.3987
FSTS	-0.002734	0.005810	-0.470540	0.6380
Firm Size	0.011608	0.000786	14.77669	0.0000
Americas	-0.004495	0.003365	-1.336038	0.1817
Asia & Pacific	-0.019149	0.004096	-4.675098	0.0000
R-squared 0.126204	Adjusted R-squared 0.123516		Prob(F-statistic) 0.000000	

Table 8 - Diff-in-diff regression output – with Net Profit Margin being the dependent variable. To derive coefficients, standard errors, t-statistics and p-values, White's diagonal heteroskedacity corrected standard errors have been used in the regression.

Source: (Authors' own compilation, 2014)

4.2.4 Return on Assets

Table 9 shows that there is a mild but significant negative effect of offshoring on ROA, at the 10% significance level, holding FSTS, firm size and country region fixed. These findings are in line with Hypothesis$_{1b}$, that there is a significant and negative relationship between offshoring and firms' performance. This is also in line with the findings by Ritter & Sternfels (2004) and Overby (2003). However, the diff-in-diff regression results are found to be insignificant. Therefore we are unable to conclude on the relationship between offshoring and firms' performance under these conditions.

ROA Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.004639	0.012749	-0.363865	0.7160
Offshoring	-0.011031	0.005842	-1.888233	0.0591
FSTS	-0.001696	0.010351	-0.163879	0.8698
Firm Size	0.006893	0.001496	4.608967	0.0000
Americas	-0.003167	0.006696	-0.472992	0.6363
Asia & Pacific	-0.009803	0.008359	-1.172746	0.2410
R-squared		Adjusted R-squared		Prob(F-statistic)
0.085164		0.079119		0.000000

Table 9 - Regression Output – with ROA being the dependent variable. To derive coefficients, standard errors, t-statistics and p-values, White's period heteroskedacity corrected standard errors have been used in the regression.

Source: (Authors' own compilation, 2014)

ROA Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.007036	0.007064	-0.995992	0.3194
Diff-in-Diff	-0.004936	0.005271	-0.936504	0.3491
Offshoring	-0.009077	0.003777	-2.403073	0.0163
Crisis	0.002999	0.003612	0.830451	0.4064
FSTS	0.000145	0.005451	0.026540	0.9788
Firm Size	0.006899	0.000746	9.244548	0.0000
Americas	-0.003034	0.003196	-0.949366	0.3425
Asia & Pacific	-0.009467	0.003944	-2.400394	0.0165
R-squared	Adjusted R-squared		Prob(F-statistic)	
0.056524	0.053625		0.000000	

Table 10 – Diff-in-diff regression output – with ROA being the dependent variable. To derive coefficients, standard errors, t-statistics and p-values, White's diagonal heteroskedacity corrected standard errors have been used in the regression.

Source: (Authors' own compilation, 2014)

4.2.5 Operating Expense Ratio

We are unable to conclude on the relationship between offshoring and OER as both tests (with and without diff-in diff) using OER as the dependent variable show that there is no significant relationship between offshoring and OER. This makes it impossible to draw any conclusions with certainty regarding if the operating expense ratio will be affected by an offshoring activity.

Operating Expense Ratio				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	1.029509	0.016589	62.06029	0.0000
Offshoring	0.010765	0.008492	1.267687	0.2050
FSTS	0.006157	0.014954	0.411735	0.6806
Firm Size	-0.015504	0.002037	-7.610423	0.0000
Americas	-0.018477	0.010096	-1.830060	0.0674
Asia & Pacific	0.025019	0.010455	2.393118	0.0168
R-squared		Adjusted R-squared		Prob(F-statistic)
0.228570		0.223456		0.000000

Table 11 - Regression Output – with Operating Expense Ratio being the dependent variable. To derive coefficients, standard errors, t-statistics and p-values, White's period heteroskedacity corrected standard errors have been used in the regression.

Source: *(Authors' own compilation, 2014)*

Operating Expense Ratio				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	1.031000	0.006836	150.8232	0.0000
Diff-in-Diff	0.000427	0.005792	0.073675	0.9413
Offshoring	0.010756	0.003967	2.711566	0.0067
Crisis	-0.001803	0.003987	-0.452330	0.6511
FSTS	0.004884	0.005969	0.818209	0.4133
Firm Size	-0.015502	0.000787	-19.70620	0.0000
Americas	-0.018628	0.003520	-5.291552	0.0000
Asia & Pacific	0.024872	0.003980	6.248788	0.0000
R-squared 0.218343	Adjusted R-squared 0.215934		Prob(F-statistic) 0.000000	

Table 12 - Diff-in-diff regression output – with OER being the dependent variable. To derive coefficients, standard errors, t-statistics and p-values, White's diagonal heteroskedacity corrected standard errors have been used in the regression.

Source: (Authors' own compilation, 2014)

4.2.6 Summary of Results

When testing the relationship between net profit margin and offshoring, as well as ROA and offshoring, the findings support Hypothesis$_{1b}$, which states that offshoring has a negative effect on firms' performance. However, out of the other independent variables only the region variable Asia & Pacific was found to be statistically significant during five out of six tests (all but the main ROA regression) and showed a negative effect on performance measures. In all tests the asset size variable was found to be statistically significant, whereas FSTS was found to be insignificant in all regressions.

4.2.7 Correlation Matrix – Test for Multicollinarity

Table 13 and Table 14 show the extent that independent variables are correlated to each other, and indicating if each variable affect another variable in a regression. As none of the values reach the critical level of 0.80, a conclusion can be drawn that none of the variable are correlated and therefore multicollinarity is considered non-existent.

	OFFSHORING	FSTS	FIRM SIZE	AMERICAS	ASIA PACIFIC
OFFSHORING	1.000000				
FSTS	0.195334	1.000000			
FIRM SIZE	0.103060	0.262107	1.000000		
AMERICAS	-0.150339	-0.177042	0.025067	1.000000	
ASIA PACIFIC	-0.207105	-0.253754	-0.121716	-0.310628	1.000000

Table 13 Correlation Matrix – main regression
Source: (Authors' own compilation, 2014)

	DIFF-IN-DIFF	OFFSHORING	CRISIS	FSTS	FIRM SIZE	AMERICAS	ASIA PACIFIC
DIFF-IN-DIFF	1.000000						
OFFSHORING	0.542926	1.000000					
CRISIS	0.575810	-0.017851	1.000000				
FSTS	0.219821	0.195334	0.145402	1.000000			
FIRM SIZE	0.086042	0.103060	0.052691	0.262107	1.000000		
AMERICAS	-0.084631	-0.150339	0.017433	-0.177042	0.025067	1.000000	
ASIA PACIFIC	-0.118227	-0.207105	-0.011054	-0.253754	-0.121716	-0.310628	1.000000

Table 14 Correlation Matrix – diff-in-diff regression

Source: (Authors' own compilation, 2014)

5. Analysis and Discussion

This chapter will discuss the empirical findings presented in the preceding chapter. It will examine how the findings explain the relationship between offshoring and firms' performance. Other results found through the regression that are outside of the initial research question will also be discussed.

According to traditional internationalisation theories as presented in the literature review, a firm's financial performance is expected to be notably affected by an internationalisation activity such as offshoring. For instance, Coulter, (2008), Hsu & Pereira (2008) Oshri et al. (2009) all found various ways in which a firm may benefit from such an activity such as through economies of scale and diversification. On the contrary, Ritter & Sternfels (2004) and Overby (2003) argued that offshoring may have a negative effect on performance due to the potentially hidden costs of relocating and managing an offshoring activity may result in. Lastly, the three-stage model argues that the degree of internationalisation determines a firm's performance, in different ways. Consequently, there is no consensus on how offshoring affects firms' performance.

The findings of this study are more in line with the assumptions by Ritter & Sternfels (2004) and Overby (2003). Because the findings for ROA are significant at the 10% level and net profit margin at 5% level, both primary regressions are consistent in that they indicate a mild but negative correlation between offshoring and firms' performance. However, the initial results that looked solely on the mean net profit margin did not show a huge variation between the two sample groups apart from during the recovery period after the recession in which offshoring companies appeared to grow for twice as long to a point where it stopped. Also the period prior to the selected timeframe, differed slightly as non-offshoring companies where seen to have a negative net profit margin (-6%) whereas offshoring firms had a positive one (3%). In light of the three-stage model the results from the mean graphs indicate a mild horizontal S-curve, but with a prominent downturn during the crisis period.

5.1 Performance Measures

In terms of ROA, the findings indicate that offshoring firms have a higher ROA than non-offshoring firms, and the fact that this effect is seen prior to the event period in 2006-2008 corresponds with the findings of Wagner (2011) where they found that non-offshoring firms, compared to offshoring firms are conventionally larger even prior to offshoring. However, the sharp decline in the mean ROA that begun during the period that has been the specified offshoring window for the sample, gives another impression, and in this case that offshoring may in fact negatively affect performance, which is the assumption of Ritter & Sternfels (2004) and Overby (2003). A prominent decline during the Euro crisis can also be seen, showing that the crisis was indeed a shock factor, and also strengthening the choice of research model.

Nevertheless, offshoring firms still appear to be somewhat superior to their peers after the large dip during the Euro crisis, which questions if the RBV assumption holds in this case. This is the assumption that internationalisation activities such as offshoring may provide a firm with a competitive advantage and thus putting them in a better position compared to its non-offshoring peers. Whilst the sharp dip during the recession may be explained by the RBV assumption that a firm's comparative advantage may be affected by the country and external environment surrounding a firm (Coulter, 2008; Crozet & Trionfetti, 2013). In this case offshoring was completed in Europe, and that particular region was understandably quite affected by the Euro crisis. A possible reason for the noticeably strong recovery in ROA by offshoring firms, compared to non-offshoring, may be related to that some of the firms resorted to back-shoring which typically happens within four years after offshoring, as proposed by Kinkel & Maloca (2009). An alternative explanation may be derived from the three-stage model, in which a period of increased performance follows a downturn.

On the other hand, the regression results for ROA contradict with the findings of Jabbour (2010) in which they found a positive relationship between offshoring and performance of French manufacturing firms, using a sample of over 4400 French companies. The sample difference may explain the diverging results, not only due to the size but also because they only looked at French companies meaning that their sample may not be as biased by the external environment as this study's sample includes firms of multinational origin.

5.1.2 Net Profit Margin

In terms of the net profit margin the results are rather ambiguous, however when looking at how the performance of the firms drops slightly after the selected offshoring period begins, and subsequently there is a rather steady increase in the net profit for a period that lasts longer than the preceding (first stage), up until 2012 where the firms may have reached stage three as we see the performance decline again. Perhaps the 5% highpoint which is reached in 2012 might be the optimum point before costs begin to outweigh the benefits. However, it is hard to make any certain conclusions based on these findings as the sample did not account for whether the firms had previously offshored or not.

5.1.3 Operating Expense Ratio (OER)

The results that vary the most out of the dependent variables are that of the cost efficiency measure - OER. The measures on offshoring showed to have a positive correlation to OER measure and thus a negative effect on efficiency. However, for both regression conditions the results where insignificant, thus it is not possible to conclude on the actual relationship between offshoring and OER. Previous research by Prezas, et al. (2010) examined the effect offshoring has on operational- and cost efficiency and were able to come to a conclusion. The findings of Prezas et al (2010) indicate that an offshoring activity leads to lower expenses and consequently higher earnings, which would represent a lower OER value. This contradicts the results of this study's insignificant OER regression models, implying that $Hypothesis_{1a}$ might still be of relevance. This may suggest that even though offshoring might have a negative affect on a firm's overall financial performance (ROA), the initial aim for pursuing offshoring as a cost cutting strategy may still be valid.

Even though none of the OER regressions show any significance in the outcome, some possible reasoning will be made regarding the variable. The RBV considers different types of resources such as financial assets, tangible and intangible assets, human resources, country and the business environment, all of which can have an impact on cost efficiency, provided the resource in question is unique (Coulter, 2008). The transaction cost theory suggests that cost efficiency of a transaction, in this study's case the offshoring action, can be reached only when transaction attributes and institutional structure are aligned. Previous research has to a large extent considered the TCE when reviewing offshoring strategies effects on costs and efficiency (Roza, et al., 2011). TCE could imply that there might have been the issue for offshoring not improving

the cost efficiency of the firms in the study sample and therefore resulting in a bad trade-off between costs and benefits. This may be explained by firms overlooking the additional transaction costs that the offshoring activity might lead to. This would have been a reasonable inference to draw from had the results of the OER analysis been significant. As shown in Figure 2, there are several hidden costs that arise with offshoring. Such additional costs can derive from deficient contracts or asset specificity, exceeding cost advantages from the change of manufacturing location. The theory proceeds to suggest that by having a captive ownership structure, control over the offshored unit and thus a larger part of the costs incurred, as for example opportunism risks would decrease (Teece, 1986). However, in this case we are unable to propose this as this study has not addressed the ownership structure of the sample.

5.2 Independent and Control Variables

The degree of internationalisation is often perceived to have a positive effect on firms' performance due to that it provides firms with diversification, greater opportunities for access of foreign sales and also from a risk management perspective, in which internationalisation might help a firm reduce the effect of an economic downturn. The internationalisation variable (FSTS) was seen to be insignificant in all regression models and primarily negatively correlated.

Nonetheless, firm size was also found to be a suitable variable to control for as it has been found that it may positively influence a firms performance, especially so during the Euro crisis. Gonchar (2013) stated that larger firms gain an advantage during economic downturns for various reasons, one of them being the potential for economies of scale. This study's findings support this assumption as a mild but positive influence was found between firm size and the dependent variable in all regressions.

The country variable had rather inconsistent results, for instance the correlation varied depending on the region as well as for the two different conditions (with or without the crisis). It has been found that incorporating regions in research on the IP relationship may substantially impact the results. In terms of net profit margin the relationship between country region and performance was significant for the Asia & Pacific region, but not for the Americas in both the primary and the diff-in-diff regression. It was shown to be a negative correlation between performance and the region variables, therefore an assumption can be made that Americas and Asia & Pacific are more negatively impacted than EMEA region. In terms of the ROA, the Asia

& Pacific region showed a negative and significant relationship in the primary regression, whereas it was found to be statistically insignificant in the diff-in-diff test. Both the regressions for ROA show that the Americas region was not statistically significant. On the contrary, with OER as a dependent variable yielded results that were statistically significant under both test conditions, for both country regions. However, Americas showed a negative correlation to OER, whereas Asia & Pacific was positively correlated. This indicates that Americas show a more positive relationship to OER when compared to EMEA. Consequently, Asia & Pacific show a more negative relationship when to OER compared to EMEA.

Nevertheless, as we look at offshoring in Europe these results attest the findings of de Jong & van Houten (2014) as the European firms that chose to offshore within the same region, thus also culturally similar regions are found be have a positive correlation with performance. Perhaps due to that, such firms posses the regional similarities for politics, economics and culture, which means they do not need to incur additional costs on learning and transitioning.

5.3 Summary

If all the regression analyses had been significant, the results would be in line with the transaction cost theory described in the literature review. This is as the OER indicates that offshoring leads to weakened performance which is also supported by the findings in ROA and net profit margin that are both negatively correlated with offshoring. As TCE argues that offshoring would only be rewarding when the production cost is less when relocating than it would be if one had retained the production in-house, we may conclude that the results indicate that the transaction costs for offshoring may have exceeded the actual advantage of relocating the production. This then raises the question of why firms would seek to offshore if an initial cost-benefit analysis had indicated that offshoring is not beneficial for the firm. An explanation may be the notion of bounded rationality and the fact that contracts are too complex, suggesting that there is a possibility for additional costs to be incurred in additional to that initially contracted. Alternatively, it has been shown that the existence of CEO hubris has a significant impact on firms' strategic decisions and often leading to more risks being taken by the firm (Petit & Bollaert, 2012; Abdelzaher, 2012). Perhaps the offshoring firms may have been characterised by this, thus leading them to pursue such a strategy. This would explain the results as decisions influenced by CEO hubris are found to result in negative outcomes (Petit & Bollaert, 2012).

It is important to highlight the lacking significance in all three diff-in-diff regressions. This leads to a differentiated credibleness in the results and yield little power to draw definite conclusions from these tests. Therefore, $Hypothesis_2$ is rejected. Nevertheless, with a significant p-value for the F-statistics of all regressions, the risk for false negative errors is minimized, indications on jointly significant independent variables and the study is ensured to have a predictive capability with statistical significance.

The mean trends provide results that are in support of the three-stage model (see Figure 3). This is as both the net profit margin and ROA means show a negative slope shortly after the offshoring period, which may represent the first stage in which the firm incurs high costs as it lack knowledge of the foreign market. The curve is very steep during the recession period which may be explained by increased pressure on the firm's performance from the external environment. Subsequently, we see what the projections of the three-stage model holds true in that the slope changes to a positive slope. This may then be representative of the second stage where the offshoring firms now have sufficient knowledge and have come to benefit from greater efficiency, and lower costs, which may have lead to the increase in performance. Lastly, we see that the increasing performance stops and it starts sloping negatively again, which might indicate the optimum level of internationalisation. However as seen in Figure 8, the average FSTS is between 30% and 60%, which according to Ruigrok et al, (2007) is a common level is for the second stage. This further highlights a limitation of this study in that it does not account for if the firms have a history of offshoring.

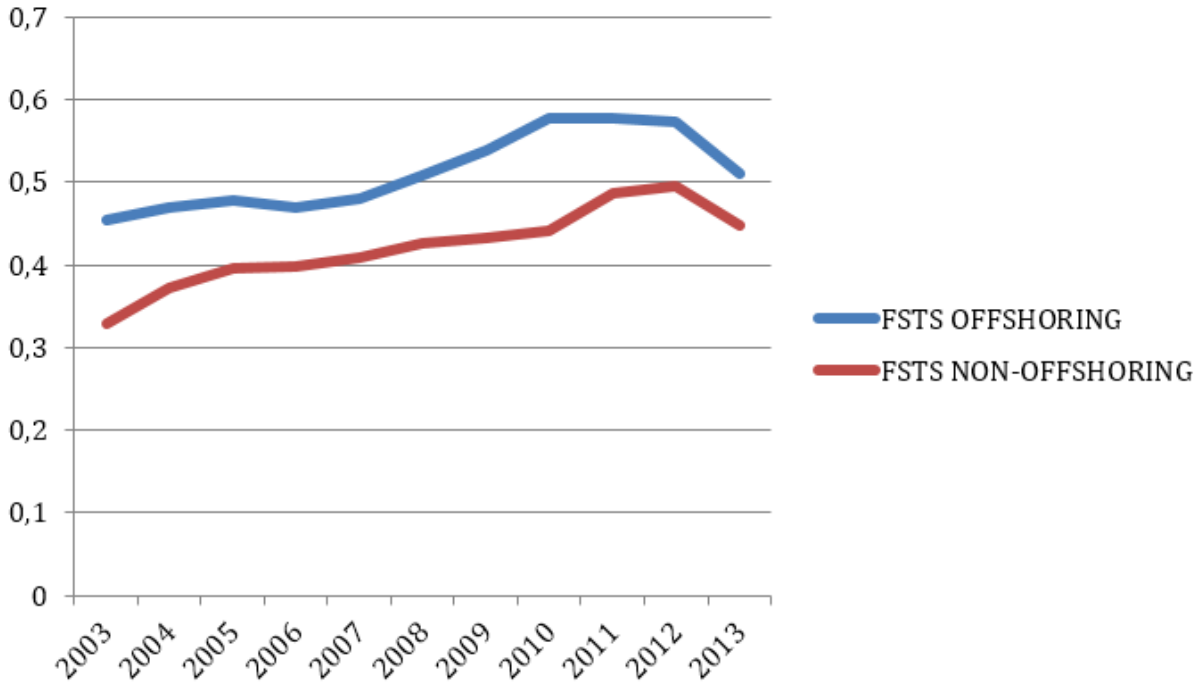

Figure 8 – FSTS Comparison

Source: (Authors' own compilation, 2014)

The results of the study point to that Hypothesis$_{1b}$ is supported, even if the regression results are somewhat ambiguous and with low R-squared values. The assumptions that can be drawn from the results correspond to theoretical frameworks and empirical findings, stating that offshoring has a negative effect on financial performance and profitability.

The existence of low R-squared values is common in studies that examine the internationalisation and performance relationship. For instance the study of Bolaji & Chris (2014) in which the internationalisation and performance relationship was examined based on a case study of Nigerian banks has a similar R-squared of 16%. Tallman & Li (1996) study on the impact of international and product diversity on MNE's had an R-squared ranging between 15-20%, Hsu (2003) who also investigated the internationalisation and performance relationship got a low R-squared of ranging between 9% and 30% even after having conducted several different models. In a similar study by Hsu, et al. (2013) which focused on SME's and despite using several control variables still attained a comparable R-squared ranging between 18% and 25%.

Nonetheless, a low R-squared may be expected in cases where an equation only contains a limited number of variables, in comparison to the large amount of factors that may influence a company's financial performance (Hsu, 2003). For instance, management theory might argue

that the management of a firm contributes to the performance, whereas RBV states that a firm's resources which could range from external environment to a firm's human capital. Porter (2008) would argue that several factors in a firm's industry environment might impact its performance. Consequently, Rumelts (1991) as cited by Tallman and Li (1996) argued that the low R-squared in these types of studies focusing on firm performance may be due to that performance is largely affected by several factors, including business-level, industry-level and firm-level factors actually being the one with the least effect on firm performance.

6. Conclusion

This thesis studied the relationship between offshoring activities and the financial performance of manufacturing firms, by focusing on offshoring activities in the European region. The financial ratios examined were ROA, net profit margin and operating expense ratio. A large proportion of previous research in this field has focused on financial performance metrics, which has influenced this study. However, the detection of how this has limited previous research (Hsu, 2003), this study has sought to include a cost efficiency measure to get a holistic overview and to make a contribution to the empirical findings in this field.

The research is based on panel data regressions, with the financial ratios mentioned above as dependant variables, as well as a number of independent variables. Previous research that has examined the internationalisation-performance relationship has mainly focused on specific national markets. On the contrary, this study has focused on financial performance of a sample covering the European region and manufacturing firms present in the region. The findings show that offshoring has a mild but negative influence on firms' financial performance as measured by ROA and net profit margin.

Looking further into this we found that the results may attest the three-stage model in that the trend appears to be moderately S-curved, both for ROA and net profit margin. This emphasises the importance for decision makers to note that although offshoring might not appear to be instantly profitable, the positive effect from the activity may be seen later on. Thus decisions to back-shore should be carefully considered before being implemented, in the same way as the initial decision to offshore was. Firms may also need to consider the possibility that offshoring may lead to downturn in their performance to begin with. Arguably our findings and the three-stage model may explain why there are such diverging results in the field of internationalisation and performance as the sample firms examined in the different studies may be in different stages of the cycle thus making it hard to compare.

The study also supports the eclectic paradigm as it found that resources such as country of origin and exogenous factors other than transaction costs are also likely to affect the financial performance of a firm. This further emphasises the need for firms to look beyond the cost reduction aspect in their decision to offshore. It also highlights the need for future research to consider several independent factors that may influence a firm's performance. Nevertheless,

this may be a challenge as firm-level influences are only trivial when considering the magnitude of factors that influence a firm's performance.

All in all, the findings highlight several issues that arise when examining the relationship between offshoring and performance, much of which has been identified by previous research. However, the findings of this study imply that offshoring decisions should not only be based on a cost benefit analysis as there are several factor of importance that influence the final outcome, both in the short and long-term.

Future Research

As the relationship between offshoring and firms' performance remains unsolved there are a number of propositions the authors would like to present for future research. In consideration of the findings and the presence of limitations of the study, the suggestions are as followed:

- As the study was limited to a certain time frame, and therefore unable to view how offshoring would have affected performance under normal conditions; it may be of interest to conduct a similar study when the economy is not under turmoil.
- It would be advisable to perform a research over a longer, historical time period (>10 years) with a larger sample, which would address the issue of not knowing whether the non-offshoring firms had performed any offshoring activity prior to 2006.
- An increase in the quantity of independent variables in the regressions may be advisable, as interpreted by the R-squared there are several other factors that may influence the firm's performance.
- Extending the research to cover sectors other than manufacturing, would be of interest, and also examining the type of offshoring activity i.e. services, human resources or intangible functions such as innovation.
- Future research could further examine the three-stage model by studying a sample of companies for a longer time period. As it may allow the consideration of all the firms' offshoring decisions, in order to examine the three different stages in relation to offshoring, rather than internationalisation as a whole.

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Appendix

Appendix I

Main Sample Firms	(Subsidiaries collected from EMCC)
AB Volvo OM VOLV B	
Akzo Nobel NV ENXTAM AKZA	
Allergan Inc NYSE AGN	
Alstom SA ENXTPA ALO	
Amcor Limited ASX AMC	Amcor Flexibles
Amer Sports Corp HLSE AMEAS	Salomon
Anheuser Busch InBev SA NV ENXTBR ABI	InBev
AS Silvano Fashion Group TLSE SFG1T	Lauma Lingerie
Aspocomp Group Oyj HLSE ACG1V	
Assa Abloy AB OM ASSA B	
Associated British Foods plc LSE ABF	G Costa
AT&S Austria Technologie & Systemtechnik AG DB AUS	
ATB Austria Antriebstechnik AG WBAG ATB	
Autoliv Inc NYSE ALV	Autoflator
Avon Products Inc NYSE ALV	
Banta Corporation	Banta Global Turnkey
BASF SE DB BAS	Basell
Beiersdorf AG DB BEI	
Birds Eye Foods plC	
Borealis AG	
British American Tobacco plc LSE BATS	
Bunge Limited NYSE BG	Kaliakra
Burberry Group plc LSE BRBY	
Cadbury Limited	Cadbury Schweppes
Calida Holding AG SWX CALN	Aubade
Canon Inc TSE 7751	
Carl Zeiss Meditec AG XTRA AFX	Carl Zeiss Vision
Chemtura Corporation NYSE CHMT	
CommScope Holsing Company Inc NasdaqGS COMM	Precision Antennas
Compagnie de Saint Gobain ENXTPA SGO	Stanton Ironworks
Compagnie Generale DES Etablissements Michelin SCA ENXTPA ML	Kléber Toul
Compagnie Industriali Riunite Societé per Azioni BIT CIR	Sogefi
Connect Group ENXTBR CONN	Connect Systems
Continental AG DB CON	
Cooper Standard Holdings Inc NYSE CPS	Cooper Standard Automotive

Corbion N V ENXTAM CRBN	Purac
Cortefiel S.A.	Talipán Ruhaipari Rt.
Creative Technology Ltd SCX C76	Creative Labs
Dogi International Fabrics S.A.	
Dorel Industries Inc TSX DII B	
Draka Holding N V	Draka Comteq
Efore Oyj HLSE EFO1V	
Electrolux AB OM ELUX B	
Eli Lilly and Company NYSE LLY	
Elica SpA BIT ELC	
EPCOS AG	
Faurecia S.A. ENXTPA EO	
Flextronics International Ltd NasdaqGS FLEX	
Foxconn Technology Co Ltd TSEC 2354	
General Electric Company NYSE GE	GE Healthcare
GlaxoSmithKline plc LSE GSK	
Grupo Tavex Sa CATS TVX	
H.J. Heinz Company	HP Foods
Henkel AG Co KGaA DB HEN3	
Huntleigh Technology Ltd	Huntleigh Healthcare
Hyosung Corp KOSE A004800	Hyosung Luxembourg
Imperial Tobacco Group plc LSE IMT	
Incap Oyj HLSE ICP1V	Incap Electronics
Indesit Company S.p.A BIT IND	
Indo Internacional S.A.	
INEOS Group Holdings S.A.	
Intek Group S.p.A BIT IKG	Tréfimétaux
International Greetings plc AIM IGR	IG Latvia
Invesys plc	
Inventec Corp TSEC 2356	Inventec Scotland Servers
Johnson Controls Inc NYSE JCI	
Johnson & Johnson NYSE JNJ	Cordis Corporation
Koninklijke Philips N.V. ENXTAM PHIA	Philips Lighting
Latécoère S.A. ENXTA LAT	
Le Bélier Societe Anonyme ENXTPA BELI	Fonderies et Ateliers du Bélier (FAB)
LEGO A.S.	
Lite On Mobile Oyj	
Littelfuse NasdaqGS LFUS	
Magna International Inc TSX MG	Magna Connelly
Marzotto S.p.A	
McCormick Company Incorporated NYSE MKC	
Metalfrio Solutions S A BOVESPA FRIO3	

Morgan Advanced Materials plc LSE MGAM	Morgan Crucible
Motorola Solutions Inc NYSE MSI	
NEC Corporation TSE 6701	NEC Semiconductors
Nestlé S.A. SWX NESN	
Nokia Corporation HLSE NOK1V	
NOTE AB OM NOTE	
NXP Semiconductors NV NasdaqGS NXPI	
ON Semiconductor Corp NasdaqGS ONNN	
Oriflame Cosmetics SA OM ORI SDB	
PartnerTech AB OM PART	
Paul Hartmann AG DB PHH2	Hartmann-Rico
Pfleiderer AG	
Pinnacle Foods Inc NYSE PF	
Reckitt Benckiser Group plc LSE RB	
Remy International Inc NasdaqGS REMY	
Rolls Royce Holdings plc LSE RR	
Rottneros AB publ OM RROS	
Samsonite International S A SEHK 1910	
Sandvik AB OM SAND	Dormer Tools
Sanitec Oyj OM SNTC	
Sanmina Corporation NasdaqGS SANM	Sanmina-SCI
Sanofi ENXTPA SAN	Sanofi-Aventis
SANYO Electric Co Ltd	Sanyo Hungary
Scanfil Oyj HLSE SCL1V	
Schindler Holding AG SWX SCHN	
Schneider Electric S A ENXTPA SU	
Seagate Technology Public Limited Company NasdaqGS STX	
Smalto Holding SA ENXTPA MLSML	
Smiths Group plc LSE SMIN	
Snap on Inc NYSE SNA	Bahco
Solvay SA ENXTBR SOLB	Fournier
SSL International plc	Durex
STMicroelectronics NV ENXTPA STM	
Stoneridge Inc NYSE SRI	Stoneridge Pollak
Technicolor SA ENXTPA TCH	
The Procter Gamble Company NYSE PG	Braun
Trelleborg AB OM TREL B	
TRW Automotive Holdings Corp NYSE TRW	TRW Austria
Tyco International Ltd NYSE TYC	Tyco Safety Products
Unilever plc LSE ULVR	Unilever Nederland
Volkswagen AG XTRA VOW3	
Waterford Wedgwood Plc	Waterford Crystal
Xerox Corporation NYSE XRX	

Appendix II

Control Sample Firms
Aalberts Industries NV ENXTAM AALB
AB Linas Agro Group NSEL LNA1L
AB SKF OM SKF B
ABB Ltd SWX ABBN
Advanced Micro Devices Inc NYSE AMD
Aisin Seiki Co Ltd TSE 7259
Alps Electric Co Ltd TSE 6770
American Axle Manufacturing Holdings Inc NYSE AXL
Ansell Ltd ASX ANN
Areva S.A. ENXTPA AREVA
Arkema S.A. ENXTPA AKE
ARRIS Group Inc NasdaqGS ARRS
AstraZeneca PLC LSE AZN
Avnet Inc NYSE AVT
Bayer AG DB BAYN
Bombay Rayon Fashion Limited BSE 532678
BorgWarner Inc NYSE BWA
Bridgestone Corp TSE 5108
BYD Company Ltd SEHK 1211
Campbell Soup Company NYSE CPB
Career Technology MFG Co Ltd TSEC 6153
Chocoladefabriken Lindt Spruengli AG SWX LISP
Colgate Palmolive Co NYSE CL
Coltejer S.A. BVC COLTEJER
Compagnie Plastic Omnium SA ENXTPA POM
Compal Electronics Inc TSEC 2324
ConAgra Foods Inc NYSE CAG
CONMED Corporation NasdaqGS CNMD
DAECHANG Co Ltd KOSE A012800
Daimler AG XTRA DAI
Danone ENXTPA BN
De La Rue plc LSE DLAR
Denso Corp TSE 6902
Deufol SE DB DE1
Diageo plc LSE DGE
EchoStar Corp NasdaqGS SATS
Eczacibasi Yapi Gerecleri Sanayi ve Ticaret A S IBSE ECYAP
Embry Holdings Ltd SEHK 1388

Emerson Electric Co NYSE EMR
Energizer Holdings Inc NYSE ENR
Ericsson OM ERIC B
Evonik Industries AG DB EVK
Fiserv Inc NasdaqGS FISV
Fiskars Oyj Abp HLSE FIS1V
General Dynamics Corp NYSE GD
Greiffenberger AG DB GRF
Haier Electronics Group Co Ltd SEHK 1169
Hayleys MGT Knitting Mills Plc COSE MGT N 0000
HB Fuller Co NYSE FUL
Helen of Troy Limited NasdaqGS HELE
Hisense Kelon Electrical Holdings Company Limited SZSE 000921
Hormel Foods Corporation NYSE HRL
Hornby plc LSE HRN
Huber Suhner AG SWX HUBN
Hugo Boss AG DB BOSS
ilShinbiobase Co Ltd KOSDAQ A068330
IMI plc LSE IMI
Infineon Technologies AG XTRA IFX
Info Tek Corporation GTSM 8183
Interface Inc NasdaqGS TILE
International Business Machines Corporation NYSE IBM
Juniper Networks Inc NYSE JNPR
Kao Corporation TSE 4452
Kellogg Company NYSE K
KEMET Corp NYSE KEM
Kerry Group plc ISE KRZ
Kitron ASA OB KIT
Kone Oyj HLSE KNEBV
Koninklijke DSM N V ENXTAM DSM
Kumho Petrochemical Co Ltd KOSE A011780
KYE Systems Corp TSEC 2365
L'Oreal SA ENXTPA OR
La-Z-Boy Incorporated NYSE LZB
Lafarge S.A. ENXTPA LG
Lear Corp NYSE LEA
Li Ning Company Limited SEHK 2331
Libbey Inc AMEX LBY
Lincoln Electric Holdings Inc NasdaqGS LECO
LMI Aerospace Inc NasdaqGS LMIA
Magnetek Inc NasdaqGM MAG
Merck Co Inc NYSE MRK

Metso Corporation HLSE MEO1V
Mitsuba Corporation TSE 7280
Mitsui Chemicals Inc TSE 4183
Naked Brand Group Inc OTCPK NAKD
NetApp Inc NasdaqGS NTAP
Orica Limited ASX ORI
Pegatron Corporation TSEC 4938
Philip Morris International Inc NYSE PM
Plexus Corp NasdaqGS PLXS
PNE PCB Bhd KLSE PNEPCB
Quantum Energy Ltd ASX QTM
RCS MediaGroup SpA BIT RCS
Revlon Inc NYSE REV
Reynolds American Inc NYSE RAI
RF Micro Devices Inc NasdaqGS RFMD
Ricoh Company Ltd TSE 7752
Roche Holding AG SWX ROG
Salzer Electronics Limited BSE 517059
Sartorius Aktiengesellschaft DB SRT
Scania AB publ OM SCV B
Shiloh Industries Inc NasdaqGS SHLO
Siemens Aktiengesellschaft DB SIE
SMTC Corporation NasdaqGM SMTX
Sony Corporation TSE 6758
SPX Corporation NYSE SPW
STAAR Surgical Company NasdaqGM STAA
Standard Motor Products Inc NYSE SMP
Star Comgistic Capital Co Ltd TSEC 4930
Sulzer Ltd SWX SUN
Svenska Cellulosa Aktiebolaget SCA publ OM SCA B
Tembec Inc TSX TMB
The ADT Corporation NYSE ADT
The Estée Lauder Companies Inc NYSE EL
The J.M. Smucker Company NYSE SJM
The Weir Group PLC LSE WEIR
Tongaat Hulett Limited JSE TON
Treehouse Foods Inc NYSE THS
Unipetrol AS SEP UNIPE
United Arrows Ltd TSE 7606
Valeant Pharmaceuticals International Inc TSX VRX
Vintage Cards Creations Limited
Visteon Corporation NYSE VC
Wah Hong Industrial Corp GTSM 8240

Appendix III

Redundant Fixed Effects – Likelihood Ratio

ROA

Redundant Fixed Effects Tests
Equation: EQ01ROA
Test period fixed effects

Effects Test	Statistic	d.f.	Prob.
Period F	7.201055	(10,2270)	0.0000
Period Chi-square	71.391640	10	0.0000

Period fixed effects test equation:
Dependent Variable: ROA_TRM
Method: Panel Least Squares
Date: 05/24/14 Time: 10:39
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2286
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.005716	0.012649	-0.451868	0.6514
Offshoring	-0.011341	0.005814	-1.950820	0.0512
FSTS	0.000102	0.009894	0.010283	0.9918
Firm Size	0.006910	0.001490	4.638776	0.0000
Americas	-0.002981	0.006636	-0.449114	0.6534
Asia & Pacific	-0.009473	0.008335	-1.136508	0.2559

R-squared	0.056143	Mean dependent var	0.040934
Adjusted R-squared	0.054073	S.D. dependent var	0.064728
S.E. of regression	0.062954	Akaike info criterion	-2.690218
Sum squared resid	9.035977	Schwarz criterion	-2.675167
Log likelihood	3080.920	Hannan-Quinn criter.	-2.684729
F-statistic	27.12383	Durbin-Watson stat	0.857636
Prob(F-statistic)	0.000000		

Net Profit Margin

Redundant Fixed Effects Tests
Equation: EQ01NET_PROF
Test period fixed effects

Effects Test	Statistic	d.f.	Prob.
Period F	6.285846	(10,2268)	0.0000
Period Chi-square	62.440567	10	0.0000

Period fixed effects test equation:
Dependent Variable: NET_PROFIT_MARGIN_TRM
Method: Panel Least Squares
Date: 05/24/14 Time: 11:07
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2284
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.035812	0.013322	-2.688155	0.0072
Offshoring	-0.013304	0.006310	-2.108365	0.0351
FSTS	-0.002124	0.010742	-0.197698	0.8433
Firm Size	0.011620	0.001619	7.178451	0.0000
Americas	-0.004352	0.007053	-0.617023	0.5373
Asia & Pacific	-0.019024	0.008984	-2.117582	0.0343

R-squared	0.125904	Mean dependent var	0.043956
Adjusted R-squared	0.123985	S.D. dependent var	0.071875
S.E. of regression	0.067272	Akaike info criterion	-2.557529
Sum squared resid	10.30907	Schwarz criterion	-2.542467
Log likelihood	2926.698	Hannan-Quinn criter.	-2.552035
F-statistic	65.62408	Durbin-Watson stat	0.868214
Prob(F-statistic)	0.000000		

Operating Expense Ratio

Redundant Fixed Effects Tests
Equation: EQ01OER
Test period fixed effects

Effects Test	Statistic	d.f.	Prob.
Period F	3.030737	(10,2263)	0.0008
Period Chi-square	30.319078	10	0.0008

Period fixed effects test equation:
Dependent Variable: OER_TRM
Method: Panel Least Squares
Date: 05/24/14 Time: 11:15
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2279
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.030486	0.016384	62.89414	0.0000
Offshoring	0.011009	0.008449	1.302973	0.1927
FSTS	0.004441	0.014361	0.309261	0.7572
Firm Size	-0.015510	0.002033	-7.628612	0.0000
Americas	-0.018723	0.010035	-1.865779	0.0622
Asia & Pacific	0.024784	0.010407	2.381396	0.0173

R-squared	0.218238	Mean dependent var	0.913201
Adjusted R-squared	0.216519	S.D. dependent var	0.077500
S.E. of regression	0.068599	Akaike info criterion	-2.518457
Sum squared resid	10.69624	Schwarz criterion	-2.503368
Log likelihood	2875.782	Hannan-Quinn criter.	-2.512953
F-statistic	126.9071	Durbin-Watson stat	0.345392
Prob(F-statistic)	0.000000		

Correlated Random Effects – Hausman Test

ROA

Correlated Random Effects - Hausman Test
Equation: EQ01ROA
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	23.785121	2	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
FSTS	0.012891	0.002879	0.000030	0.0692
Firm Size	-0.011985	0.004140	0.000013	0.0000

Cross-section random effects test equation:
Dependent Variable: ROA_TRM
Method: Panel Least Squares
Date: 05/24/14 Time: 10:41
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2286
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.128676	0.033394	3.853301	0.0001
Offshoring	NA	NA	NA	NA
FSTS	0.012891	0.010891	1.183680	0.2367
Firm Size	-0.011985	0.003966	-3.022162	0.0025
Americas	NA	NA	NA	NA
Asia & Pacific	NA	NA	NA	NA

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.494548	Mean dependent var	0.040934
Adjusted R-squared	0.434122	S.D. dependent var	0.064728
S.E. of regression	0.048691	Akaike info criterion	-3.105642
Sum squared resid	4.838918	Schwarz criterion	-2.491046
Log likelihood	3794.749	Hannan-Quinn criter.	-2.881499
F-statistic	8.184318	Durbin-Watson stat	1.526001
Prob(F-statistic)	0.000000		

Diff-in-diff: ROA

Correlated Random Effects - Hausman Test
Equation: EQ02ROA_DIFF
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	4	1.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
Diff-in-diff	-0.011027	-0.007919	-0.000004	NA
Crisis	0.007593	0.003353	0.000026	0.4061
FSTS	0.011961	0.004009	-0.000002	NA
Firm Size	-0.013408	0.004079	0.000032	0.0019

Cross-section random effects test equation:
Dependent Variable: ROA_TRM
Method: Panel Least Squares
Date: 05/25/14 Time: 11:16
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2286
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.139366	0.047745	2.918952	0.0036
Diff-in-diff	-0.011027	0.005723	-1.927017	0.0541
Offshoring	NA	NA	NA	NA
Crisis	0.007593	0.008679	0.874870	0.3817
FSTS	0.011961	0.008350	1.432441	0.1522
Firm Size	-0.013408	0.005873	-2.283131	0.0225
Americas	NA	NA	NA	NA
Asia & Pacific	NA	NA	NA	NA

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.496468	Mean dependent var	0.040934
Adjusted R-squared	0.435718	S.D. dependent var	0.064728
S.E. of regression	0.048623	Akaike info criterion	-3.107697
Sum squared resid	4.820544	Schwarz criterion	-2.488084
Log likelihood	3799.098	Hannan-Quinn criter.	-2.881724
F-statistic	8.172328	Durbin-Watson stat	1.535391
Prob(F-statistic)	0.000000		

Correlated Random Effects - Hausman Test
Equation: EQ02ROA_DIFF
Test period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	0.000000	6	1.0000

Period random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
Diff-in-diff	-0.004728	-0.004774	0.000000	0.9077
Offshoring	-0.008883	-0.008930	0.000000	0.9255
FSTS	-0.001478	-0.001104	0.000001	0.6966
Firm Size	0.006885	0.006889	0.000000	0.9729
Americas	-0.003183	-0.003150	0.000000	0.9317
Asia & Pacific	-0.009763	-0.009693	0.000000	0.8672

Period random effects test equation:
Dependent Variable: ROA_TRM
Method: Panel Least Squares
Date: 05/25/14 Time: 11:17
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2286
White period standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.004707	0.012785	-0.368146	0.7128
Diff-in-diff	-0.004728	0.006469	-0.730855	0.4649
Offshoring	-0.008883	0.006960	-1.276278	0.2020
Crisis	NA	NA	NA	NA
FSTS	-0.001478	0.010407	-0.142044	0.8871
Firm Size	0.006885	0.001495	4.603796	0.0000
Americas	-0.003183	0.006702	-0.474989	0.6348
Asia & Pacific	-0.009763	0.008365	-1.167032	0.2433

Effects Specification

Period fixed (dummy variables)

R-squared	0.085494	Mean dependent var	0.040934
Adjusted R-squared	0.079045	S.D. dependent var	0.064728
S.E. of regression	0.062117	Akaike info criterion	-2.712185
Sum squared resid	8.754986	Schwarz criterion	-2.669540
Log likelihood	3117.028	Hannan-Quinn criter.	-2.696632
F-statistic	13.25750	Durbin-Watson stat	0.828247
Prob(F-statistic)	0.000000		

Net Profit Margin

Dependent Variable: NET_PROFIT_MARGIN_TRM
Method: Panel EGLS (Cross-section random effects)
Date: 05/24/14 Time: 11:08
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2284
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.013406	0.013940	-0.961689	0.3363
Offshoring	-0.012667	0.009057	-1.398501	0.1621
FSTS	0.006421	0.008907	0.720886	0.4711
Firm Size	0.008196	0.001328	6.173098	0.0000
Americas	-0.004443	0.009656	-0.460188	0.6454
Asia & Pacific	-0.021213	0.011192	-1.895339	0.0582

Effects Specification

	S.D.	Rho
Cross-section random	0.043822	0.4246
Idiosyncratic random	0.051010	0.5754

Weighted Statistics

R-squared	0.023287	Mean dependent var	0.015146
Adjusted R-squared	0.021143	S.D. dependent var	0.052076
S.E. of regression	0.051570	Sum squared resid	6.058275
F-statistic	10.86234	Durbin-Watson stat	1.416734
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.116556	Mean dependent var	0.043956
Sum squared resid	10.41931	Durbin-Watson stat	0.861972

Diff-in-diff: Net Profit Margin

Correlated Random Effects - Hausman Test
Equation: EQ02NET_PROF_DIFF
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	4	1.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
Diff-in-diff	-0.008438	-0.005231	-0.000006	NA
Crisis	0.006218	0.002688	0.000020	0.4299
FSTS	0.019094	0.006719	0.000006	0.0000
Firm Size	-0.008769	0.008164	0.000039	0.0069

Cross-section random effects test equation:
Dependent Variable: NET_PROFIT_MARGIN_TRM
Method: Panel Least Squares
Date: 05/25/14 Time: 11:35
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2284
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.101902	0.052673	1.934613	0.0532
Diff-in-diff	-0.008438	0.005335	-1.581732	0.1139
Offshoring	NA	NA	NA	NA
Crisis	0.006218	0.008272	0.751621	0.4524
FSTS	0.019094	0.007505	2.544323	0.0110
Firm Size	-0.008769	0.006444	-1.360812	0.1737
Americas	NA	NA	NA	NA
Asia & Pacific	NA	NA	NA	NA

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.551129	Mean dependent var	0.043956
Adjusted R-squared	0.496921	S.D. dependent var	0.071875
S.E. of regression	0.050979	Akaike info criterion	-3.012951
Sum squared resid	5.293969	Schwarz criterion	-2.392890
Log likelihood	3687.790	Hannan-Quinn criter.	-2.786804
F-statistic	10.16689	Durbin-Watson stat	1.636184
Prob(F-statistic)	0.000000		

Operating Expense Ratio

Dependent Variable: OER_TRM
Method: Panel EGLS (Cross-section random effects)
Date: 05/24/14 Time: 11:16
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2279
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.989985	0.020214	48.97594	0.0000
Offshoring	0.010319	0.013382	0.771064	0.4407
FSTS	-0.008087	0.006203	-1.303808	0.1924
Firm Size	-0.009518	0.001850	-5.146329	0.0000
Americas	-0.018517	0.009013	-2.054489	0.0400
Asia & Pacific	0.026710	0.023532	1.135064	0.2565

Effects Specification

	S.D.	Rho
Cross-section random	0.060529	0.7676
Idiosyncratic random	0.033304	0.2324

Weighted Statistics

R-squared	0.033340	Mean dependent var	0.159294
Adjusted R-squared	0.031213	S.D. dependent var	0.042772
S.E. of regression	0.033493	Sum squared resid	2.549798
F-statistic	15.67888	Durbin-Watson stat	1.072203
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.194039	Mean dependent var	0.913201
Sum squared resid	11.02734	Durbin-Watson stat	0.339435

Diff-in-diff: Operating Expense Ratio

Correlated Random Effects - Hausman Test
Equation: EQ02OER_DIFF
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	4	1.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
Diff-in-diff	0.004565	0.003644	-0.000002	NA
Crisis	-0.002662	-0.001341	0.000009	0.6564
FSTS	-0.012453	-0.008970	0.000031	0.5308
Firm Size	-0.003434	-0.009471	0.000008	0.0360

Cross-section random effects test equation:
Dependent Variable: OER_TRM
Method: Panel Least Squares
Date: 05/25/14 Time: 11:49
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2279
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.947357	0.030019	31.55902	0.0000
Diff-in-diff	0.004565	0.003463	1.318342	0.1875
Offshoring	NA	NA	NA	NA
Crisis	-0.002662	0.006084	-0.437600	0.6617
FSTS	-0.012453	0.008091	-1.539238	0.1239
Firm Size	-0.003434	0.003593	-0.955682	0.3393
Americas	NA	NA	NA	NA
Asia & Pacific	NA	NA	NA	NA

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.835320	Mean dependent var	0.913201
Adjusted R-squared	0.815383	S.D. dependent var	0.077500
S.E. of regression	0.033299	Akaike info criterion	-3.864507
Sum squared resid	2.253188	Schwarz criterion	-3.243323
Log likelihood	4650.606	Hannan-Quinn criter.	-3.637926
F-statistic	41.89872	Durbin-Watson stat	1.217205
Prob(F-statistic)	0.000000		

Dependent Variable: OER_TRM
Method: Panel EGLS (Period random effects)
Date: 05/25/14 Time: 11:49
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2279
Swamy and Arora estimator of component variances
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.030949	0.016596	62.12091	0.0000
Diff-in-diff	0.000408	0.005781	0.070636	0.9437
Offshoring	0.010751	0.008869	1.212158	0.2256
Crisis	-0.001808	0.004279	-0.422593	0.6726
FSTS	0.004981	0.014878	0.334795	0.7378
Firm Size	-0.015503	0.002033	-7.626763	0.0000
Americas	-0.018617	0.010083	-1.846393	0.0650
Asia & Pacific	0.024883	0.010445	2.382334	0.0173

Effects Specification

	S.D.	Rho
Period random	0.001351	0.0004
Idiosyncratic random	0.068309	0.9996

Weighted Statistics

R-squared	0.218368	Mean dependent var	0.878242
Adjusted R-squared	0.215958	S.D. dependent var	0.077454
S.E. of regression	0.068590	Sum squared resid	10.68397
F-statistic	90.63685	Durbin-Watson stat	0.344331
Prob(F-statistic)	0.000000		

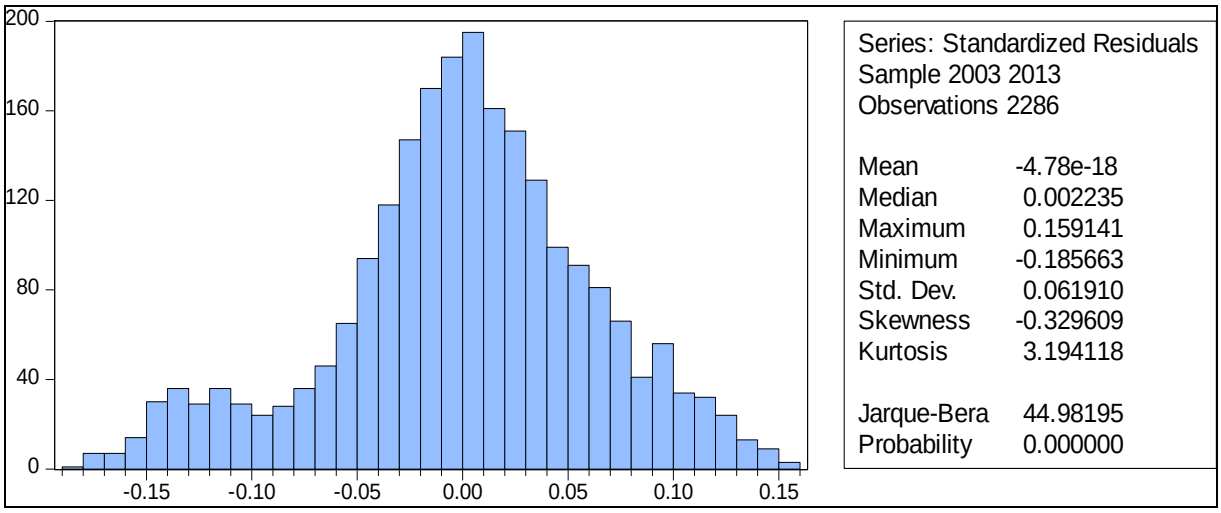
Unweighted Statistics

R-squared	0.218343	Mean dependent var	0.913201
Sum squared resid	10.69481	Durbin-Watson stat	0.345816

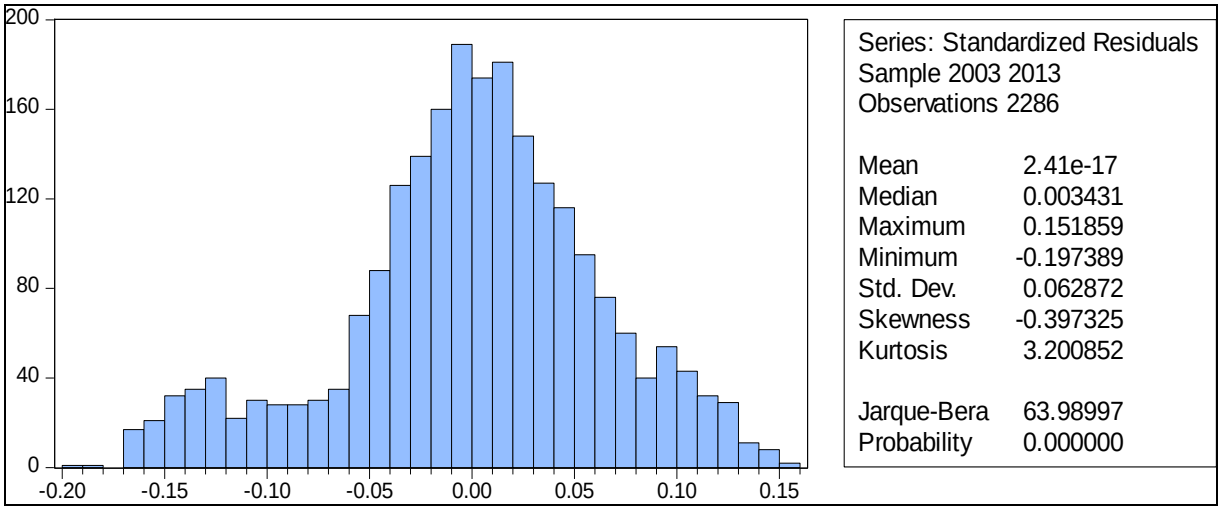
Appendix IV

Normality test

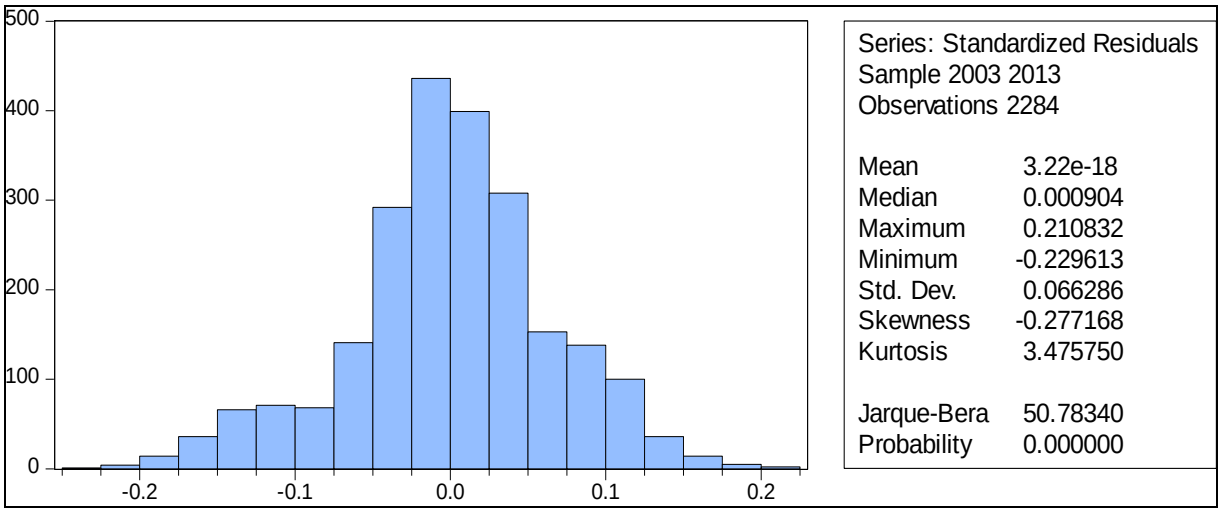
ROA



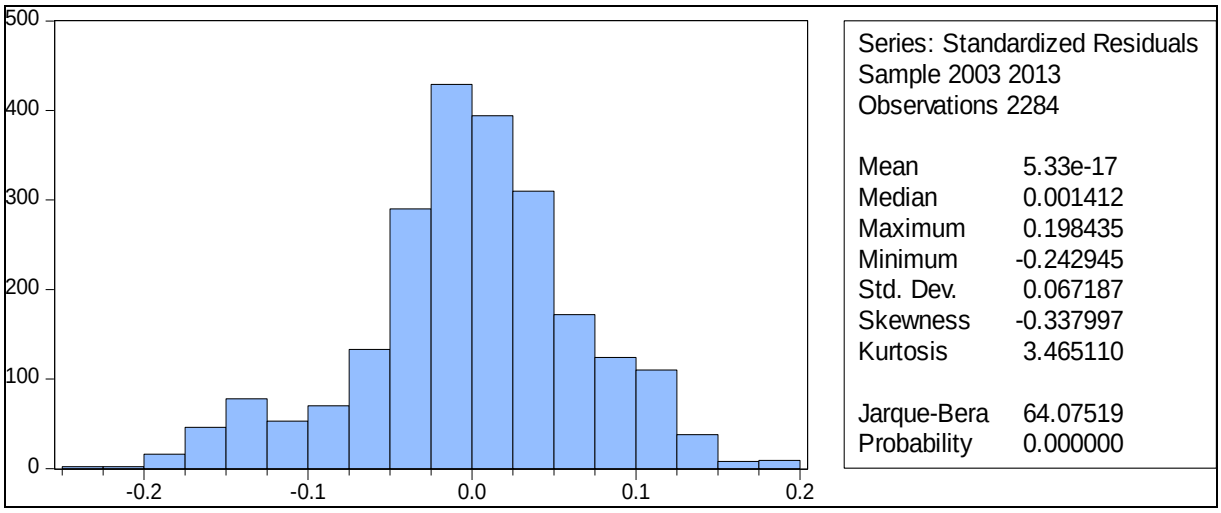
Diff-in-diff: ROA



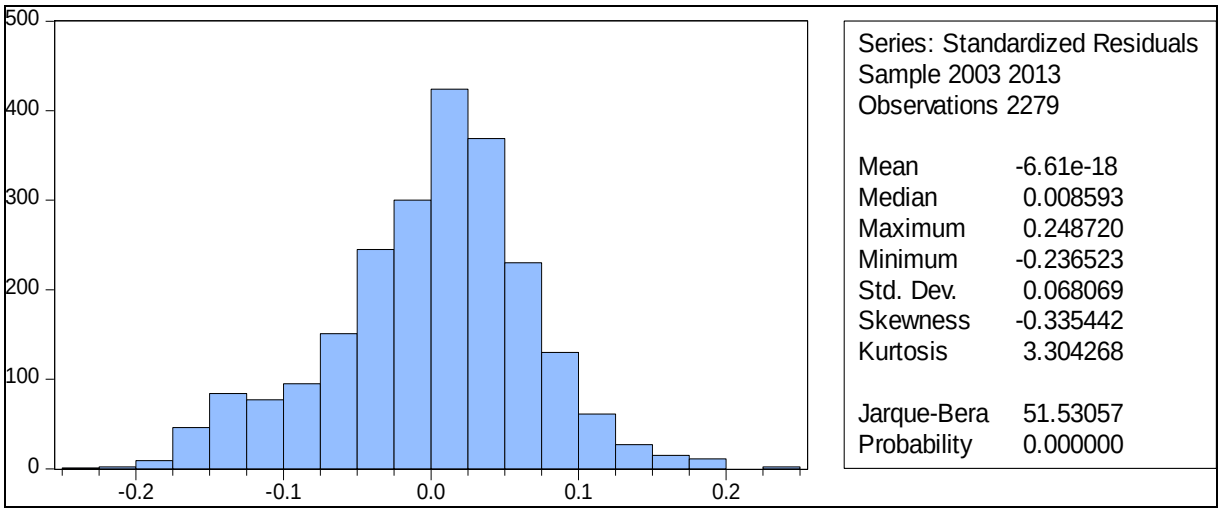
Net Profit Margin



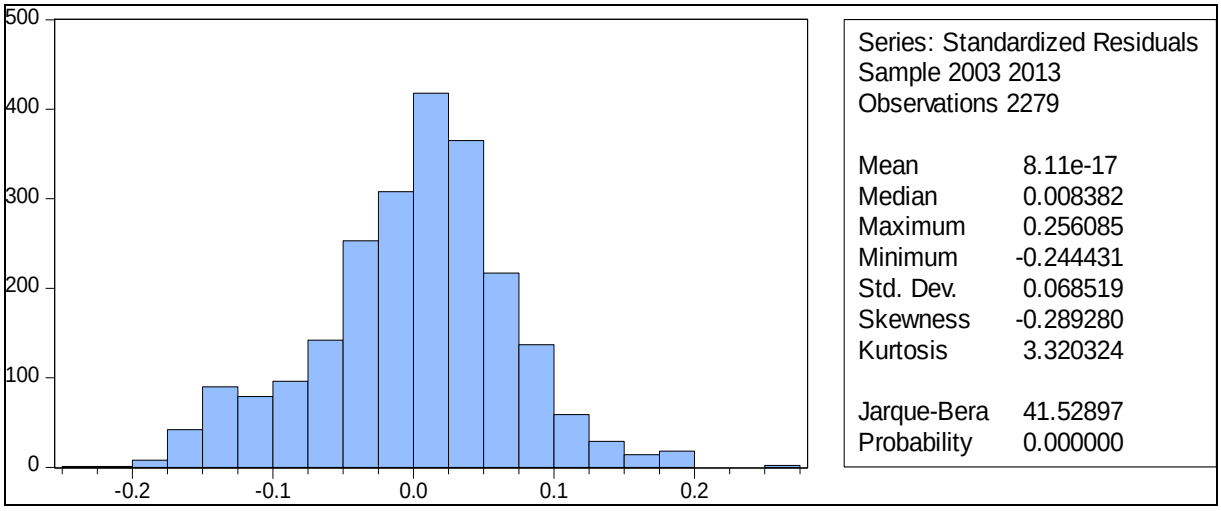
Diff-in-diff: Net Profit Margin



Operating Expense Ratio



Diff-in-diff: Operating Expense Ratio



Appendix V

Unit Root Test

ROA

Panel unit root test: Summary
Series: RESID24ROA
Date: 05/24/14 Time: 10:57
Sample: 2003 2013
Exogenous variables: Individual effects
User-specified lags: 0
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-29.0778	0.0000	227	1993
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-10.8393	0.0000	222	1978
ADF - Fisher Chi-square	796.849	0.0000	227	1993
PP - Fisher Chi-square	940.180	0.0000	227	1993

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Diff-in-diff: ROA

Panel unit root test: Summary
Series: RESID24DIFF_ROA
Date: 05/25/14 Time: 11:29
Sample: 2003 2013
Exogenous variables: Individual effects
User-specified lags: 0
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-49.5711	0.0000	227	1993
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-12.5516	0.0000	222	1978
ADF - Fisher Chi-square	814.152	0.0000	227	1993
PP - Fisher Chi-square	966.781	0.0000	227	1993

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Net Profit Margin

Panel unit root test: Summary
Series: RESID24NETPROF
Date: 05/24/14 Time: 11:10
Sample: 2003 2013
Exogenous variables: Individual effects
User-specified lags: 0
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-35.6490	0.0000	227	1990
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-12.9403	0.0000	222	1975
ADF - Fisher Chi-square	869.247	0.0000	227	1990
PP - Fisher Chi-square	1056.63	0.0000	227	1990

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Diff-in-diff: Net Profit Margin

Panel unit root test: Summary
Series: RESID24NETPROF_DIFF
Date: 05/25/14 Time: 11:36
Sample: 2003 2013
Exogenous variables: Individual effects
User-specified lags: 0
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-50.5531	0.0000	227	1990
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-14.8402	0.0000	222	1975
ADF - Fisher Chi-square	848.437	0.0000	227	1990
PP - Fisher Chi-square	1025.64	0.0000	227	1990

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Operating Expense Ratio

Panel unit root test: Summary
Series: RESID24OER
Date: 05/24/14 Time: 11:18
Sample: 2003 2013
Exogenous variables: Individual effects
User-specified lags: 0
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-25.4594	0.0000	227	1985
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-8.22918	0.0000	222	1970
ADF - Fisher Chi-square	689.268	0.0000	227	1985
PP - Fisher Chi-square	846.886	0.0000	227	1985

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Diff-in-diff: Operating Expense Ratio

Panel unit root test: Summary
Series: RESID24OER_DIFF
Date: 05/25/14 Time: 11:50
Sample: 2003 2013
Exogenous variables: Individual effects
User-specified lags: 0
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-26.6971	0.0000	227	1985
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-7.28961	0.0000	222	1970
ADF - Fisher Chi-square	654.861	0.0000	227	1985
PP - Fisher Chi-square	776.391	0.0000	227	1985

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Appendix VI

Breusch-Pagan-Godfrey test

ROA

Dependent Variable: RESID24ROA2
Method: Panel Least Squares
Date: 05/24/14 Time: 11:00
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2286
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.007779	0.000961	8.090974	0.0000
Offshoring	0.000439	0.000409	1.072507	0.2836
FSTS	0.001798	0.000775	2.320492	0.0204
Firm Size	-0.000681	0.000102	-6.660434	0.0000
Americas	0.000779	0.000479	1.626193	0.1040
Asia & Pacific	-0.000116	0.000569	-0.203177	0.8390

Effects Specification

Period fixed (dummy variables)

R-squared	0.080444	Mean dependent var	0.003831
Adjusted R-squared	0.074367	S.D. dependent var	0.005676
S.E. of regression	0.005461	Akaike info criterion	-7.575358
Sum squared resid	0.067700	Schwarz criterion	-7.535221
Log likelihood	8674.634	Hannan-Quinn criter.	-7.560720
F-statistic	13.23880	Durbin-Watson stat	1.139136
Prob(F-statistic)	0.000000		

Diff-in-diff: ROA

Dependent Variable: RESID24DIFF_ROA2
Method: Panel Least Squares
Date: 05/25/14 Time: 11:55
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2286
White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.008426	0.000602	13.98819	0.0000
Diff-in-diff	0.000492	0.000475	1.036308	0.3002
Offshoring	0.000276	0.000341	0.807653	0.4194
Crisis	-0.000942	0.000336	-2.799230	0.0052
FSTS	0.001916	0.000495	3.870680	0.0001
Firm Size	-0.000707	6.65E-05	-10.63348	0.0000
Americas	0.000831	0.000292	2.843132	0.0045
Asia & Pacific	-0.000152	0.000339	-0.448200	0.6541

R-squared	0.066124	Mean dependent var	0.003951
Adjusted R-squared	0.063254	S.D. dependent var	0.005863
S.E. of regression	0.005674	Akaike info criterion	-7.502189
Sum squared resid	0.073350	Schwarz criterion	-7.482121
Log likelihood	8583.002	Hannan-Quinn criter.	-7.494870
F-statistic	23.04223	Durbin-Watson stat	1.184664
Prob(F-statistic)	0.000000		

Net Profit Margin

Dependent Variable: RESID24NETPROF2
Method: Panel Least Squares
Date: 05/24/14 Time: 11:12
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2284
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.005770	0.001273	4.533546	0.0000
Offshoring	0.000505	0.000564	0.895049	0.3709
FSTS	0.002144	0.001092	1.963175	0.0497
Firm Size	-0.000386	0.000137	-2.819596	0.0049
Americas	0.000828	0.000658	1.258469	0.2084
Asia & Pacific	-0.000127	0.000727	-0.175221	0.8609

Effects Specification

Period fixed (dummy variables)

R-squared	0.033004	Mean dependent var	0.004392
Adjusted R-squared	0.026609	S.D. dependent var	0.006912
S.E. of regression	0.006819	Akaike info criterion	-7.131127
Sum squared resid	0.105470	Schwarz criterion	-7.090961
Log likelihood	8159.747	Hannan-Quinn criter.	-7.116477
F-statistic	5.160577	Durbin-Watson stat	1.043462
Prob(F-statistic)	0.000000		

Diff-in-diff: Net Profit Margin

Dependent Variable: RESID24NETPROF_DIFF2
Method: Panel Least Squares
Date: 05/25/14 Time: 11:57
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2284
White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006389	0.000761	8.392398	0.0000
Diff-in-diff	0.001231	0.000599	2.052919	0.0402
Offshoring	-1.27E-05	0.000410	-0.030882	0.9754
Crisis	-0.001020	0.000411	-2.479355	0.0132
FSTS	0.002035	0.000643	3.166770	0.0016
Firm Size	-0.000405	9.22E-05	-4.392491	0.0000
Americas	0.001176	0.000361	3.258395	0.0011
Asia & Pacific	-0.000579	0.000388	-1.491982	0.1358

R-squared	0.025362	Mean dependent var	0.004401
Adjusted R-squared	0.022364	S.D. dependent var	0.007168
S.E. of regression	0.007087	Akaike info criterion	-7.057639
Sum squared resid	0.114310	Schwarz criterion	-7.037556
Log likelihood	8067.823	Hannan-Quinn criter.	-7.050314
F-statistic	8.460708	Durbin-Watson stat	1.025432
Prob(F-statistic)	0.000000		

Operating Expense Ratio

Dependent Variable: RESID24OER2
Method: Panel Least Squares
Date: 05/24/14 Time: 11:19
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2279
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001344	0.001573	0.854570	0.3929
Offshoring	4.99E-05	0.000780	0.063957	0.9490
FSTS	0.001864	0.001477	1.261969	0.2071
Firm Size	0.000243	0.000197	1.236243	0.2165
Americas	0.000977	0.000951	1.027459	0.3043
Asia & Pacific	-5.86E-05	0.000866	-0.067728	0.9460

Effects Specification

Period fixed (dummy variables)

R-squared	0.022637	Mean dependent var	0.004631
Adjusted R-squared	0.016158	S.D. dependent var	0.007032
S.E. of regression	0.006975	Akaike info criterion	-7.086022
Sum squared resid	0.110091	Schwarz criterion	-7.045784
Log likelihood	8090.523	Hannan-Quinn criter.	-7.071345
F-statistic	3.494219	Durbin-Watson stat	0.453605
Prob(F-statistic)	0.000006		

Diff-in-diff: Operating Expense Ratio

Dependent Variable: RESID24OER_DIFF2
Method: Panel Least Squares
Date: 05/25/14 Time: 11:54
Sample: 2003 2013
Periods included: 11
Cross-sections included: 243
Total panel (unbalanced) observations: 2279
White diagonal standard errors & covariance (d.f. corrected)

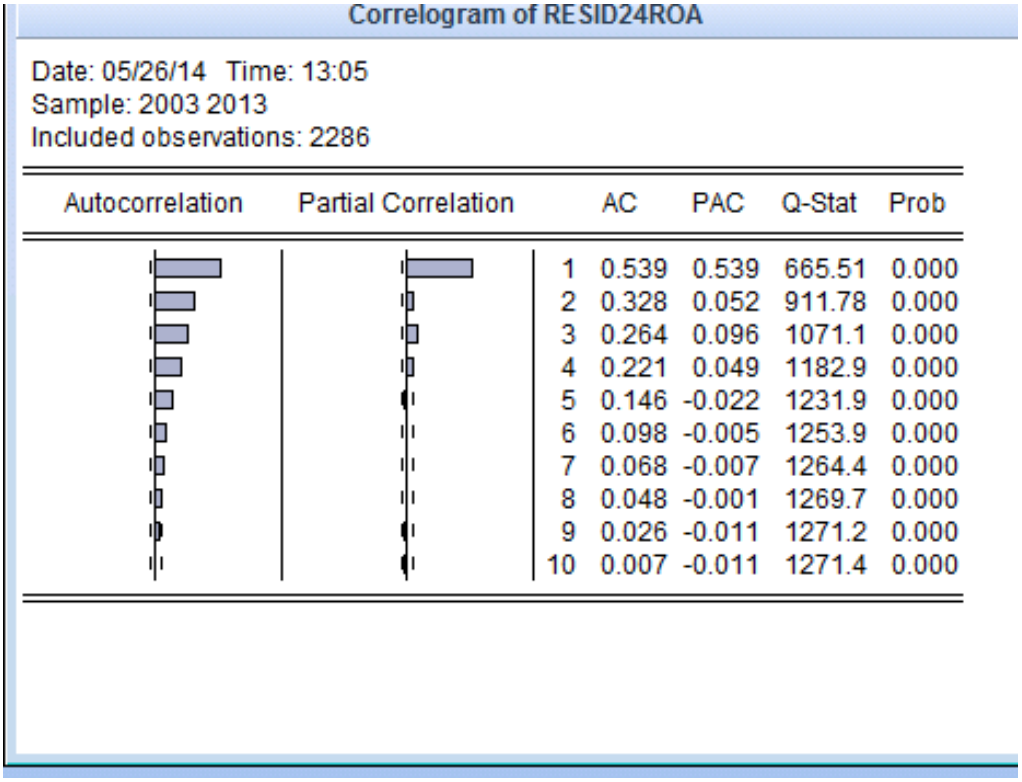
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001961	0.000751	2.611565	0.0091
Diff-in-diff	0.001426	0.000603	2.365622	0.0181
Offshoring	-0.000590	0.000396	-1.492255	0.1358
Crisis	-0.000905	0.000402	-2.254934	0.0242
FSTS	0.001651	0.000668	2.472453	0.0135
Firm Size	0.000244	9.41E-05	2.590220	0.0097
Americas	0.000934	0.000358	2.606490	0.0092
Asia & Pacific	-0.000143	0.000380	-0.377039	0.7062

R-squared	0.017772	Mean dependent var	0.004693
Adjusted R-squared	0.014744	S.D. dependent var	0.007150
S.E. of regression	0.007097	Akaike info criterion	-7.054795
Sum squared resid	0.114383	Schwarz criterion	-7.034675
Log likelihood	8046.938	Hannan-Quinn criter.	-7.047456
F-statistic	5.870034	Durbin-Watson stat	0.501173
Prob(F-statistic)	0.000001		

Appendix VII

Correlograms

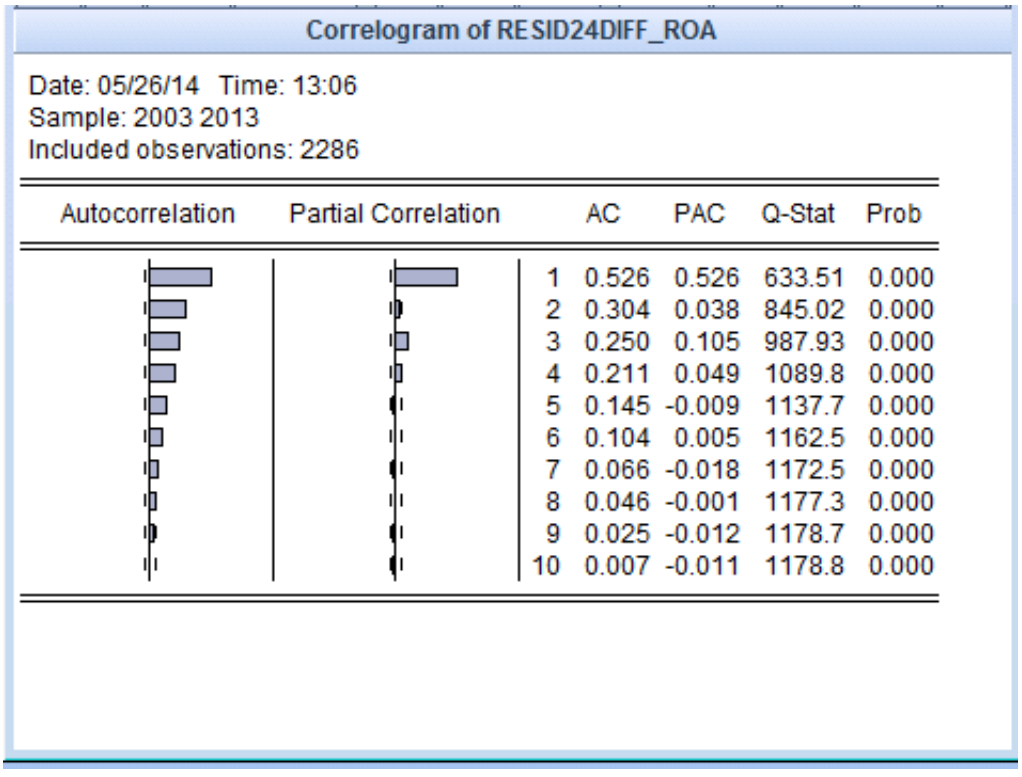
ROA


Correlogram of RESID24ROA

Date: 05/26/14 Time: 13:05
Sample: 2003 2013
Included observations: 2286

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.539	0.539	665.51	0.000
		2	0.328	0.052	911.78	0.000
		3	0.264	0.096	1071.1	0.000
		4	0.221	0.049	1182.9	0.000
		5	0.146	-0.022	1231.9	0.000
		6	0.098	-0.005	1253.9	0.000
		7	0.068	-0.007	1264.4	0.000
		8	0.048	-0.001	1269.7	0.000
		9	0.026	-0.011	1271.2	0.000
		10	0.007	-0.011	1271.4	0.000

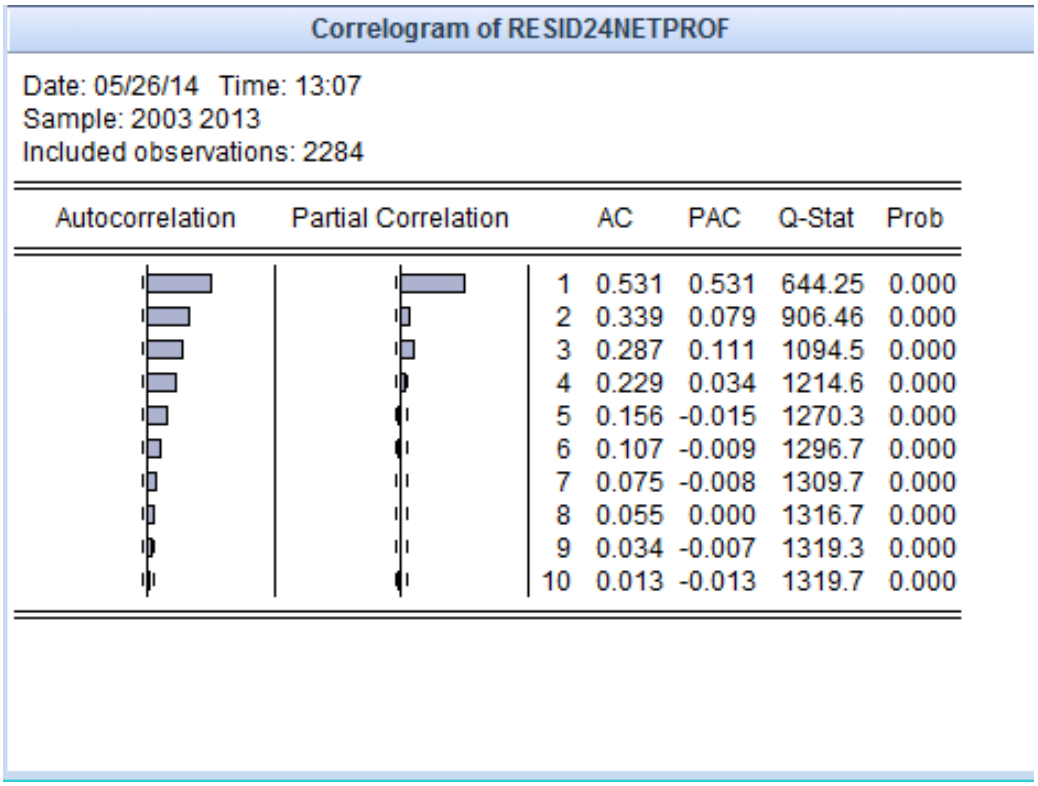
Diff-in-diff: ROA


Correlogram of RESID24DIFF_ROA

Date: 05/26/14 Time: 13:06
Sample: 2003 2013
Included observations: 2286

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.526	0.526	633.51	0.000
		2	0.304	0.038	845.02	0.000
		3	0.250	0.105	987.93	0.000
		4	0.211	0.049	1089.8	0.000
		5	0.145	-0.009	1137.7	0.000
		6	0.104	0.005	1162.5	0.000
		7	0.066	-0.018	1172.5	0.000
		8	0.046	-0.001	1177.3	0.000
		9	0.025	-0.012	1178.7	0.000
		10	0.007	-0.011	1178.8	0.000

Net Profit Margin

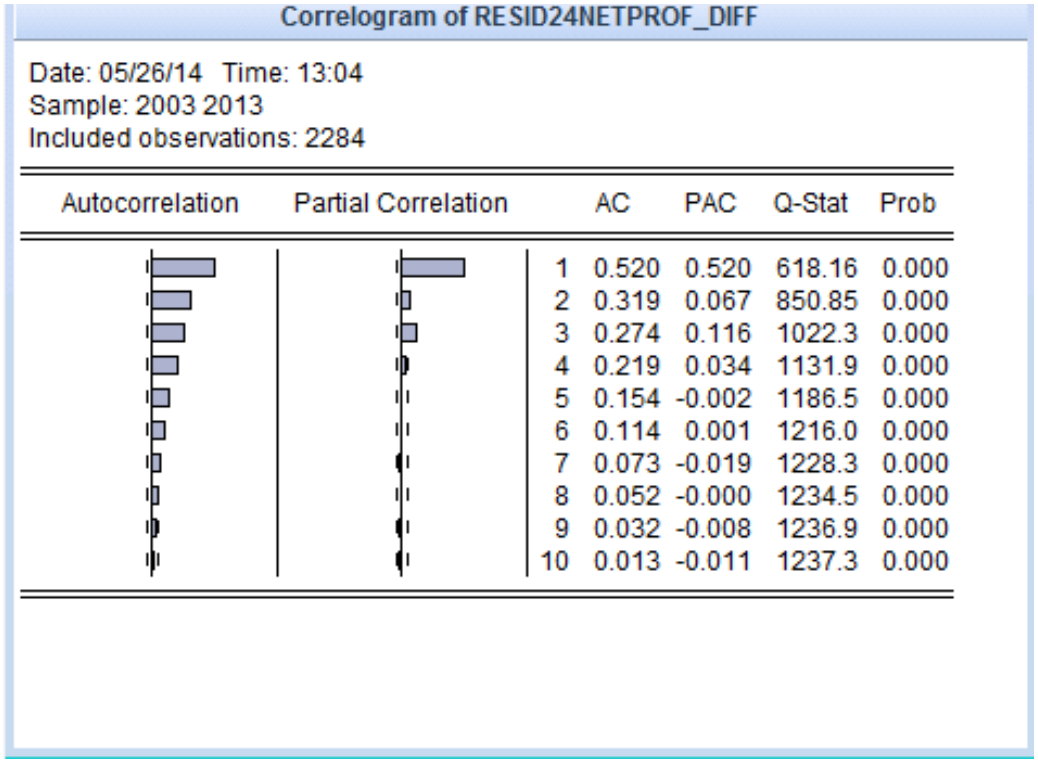


Correlogram of RESID24NETPROF

Date: 05/26/14 Time: 13:07
Sample: 2003 2013
Included observations: 2284

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.531	0.531	644.25	0.000
		2	0.339	0.079	906.46	0.000
		3	0.287	0.111	1094.5	0.000
		4	0.229	0.034	1214.6	0.000
		5	0.156	-0.015	1270.3	0.000
		6	0.107	-0.009	1296.7	0.000
		7	0.075	-0.008	1309.7	0.000
		8	0.055	0.000	1316.7	0.000
		9	0.034	-0.007	1319.3	0.000
		10	0.013	-0.013	1319.7	0.000

Diff-in-diff: Net Profit Margin

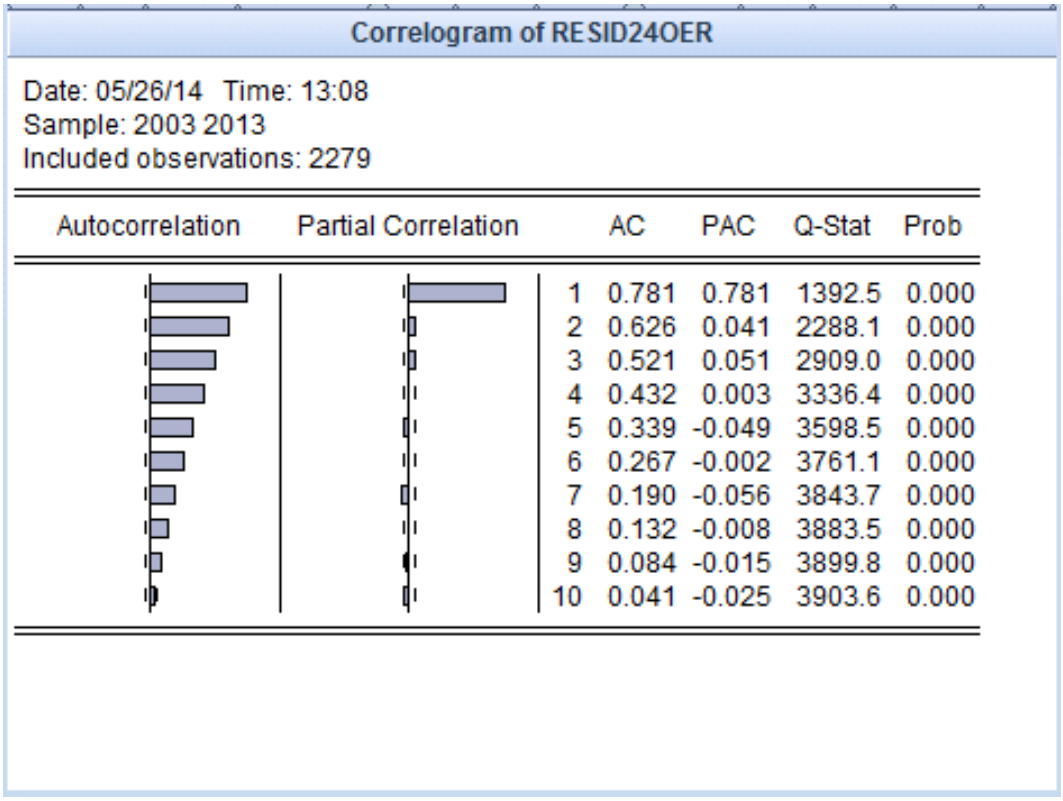


Correlogram of RESID24NETPROF_DIFF

Date: 05/26/14 Time: 13:04
Sample: 2003 2013
Included observations: 2284

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.520	0.520	618.16	0.000
		2	0.319	0.067	850.85	0.000
		3	0.274	0.116	1022.3	0.000
		4	0.219	0.034	1131.9	0.000
		5	0.154	-0.002	1186.5	0.000
		6	0.114	0.001	1216.0	0.000
		7	0.073	-0.019	1228.3	0.000
		8	0.052	-0.000	1234.5	0.000
		9	0.032	-0.008	1236.9	0.000
		10	0.013	-0.011	1237.3	0.000

OER

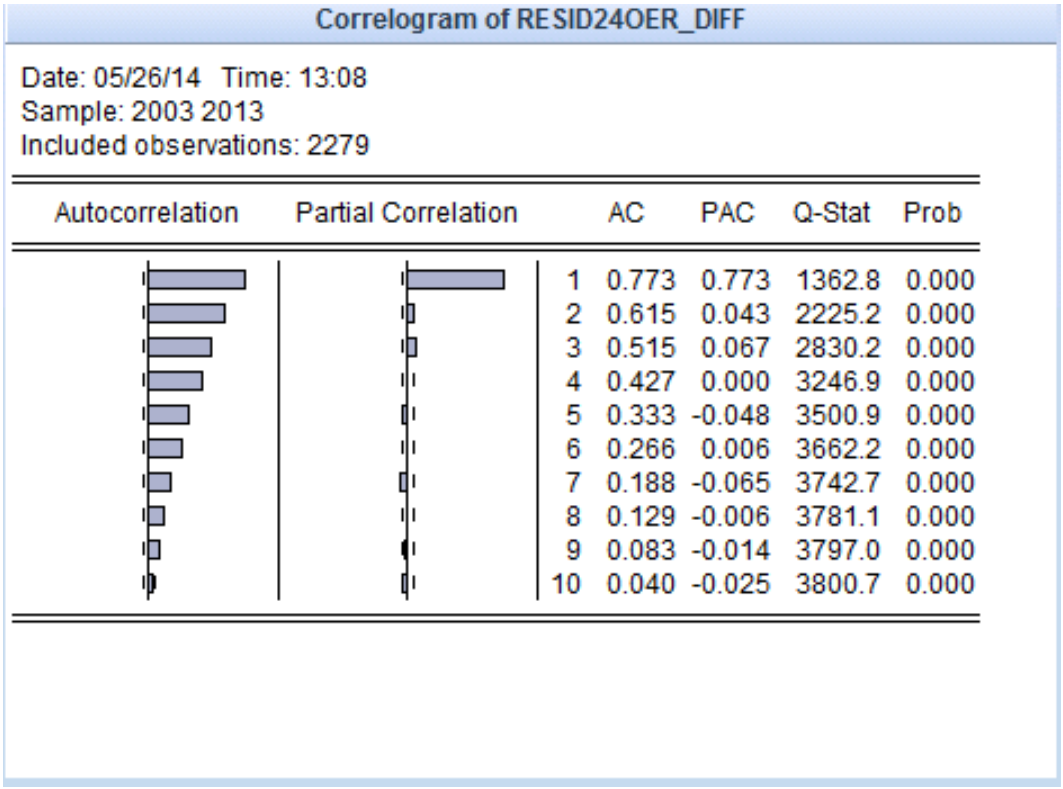


Correlogram of RESID24OER

Date: 05/26/14 Time: 13:08
Sample: 2003 2013
Included observations: 2279

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.781	0.781	1392.5	0.000
		2	0.626	0.041	2288.1	0.000
		3	0.521	0.051	2909.0	0.000
		4	0.432	0.003	3336.4	0.000
		5	0.339	-0.049	3598.5	0.000
		6	0.267	-0.002	3761.1	0.000
		7	0.190	-0.056	3843.7	0.000
		8	0.132	-0.008	3883.5	0.000
		9	0.084	-0.015	3899.8	0.000
		10	0.041	-0.025	3903.6	0.000

Diff-in-diff: OER



Correlogram of RESID24OER_DIFF

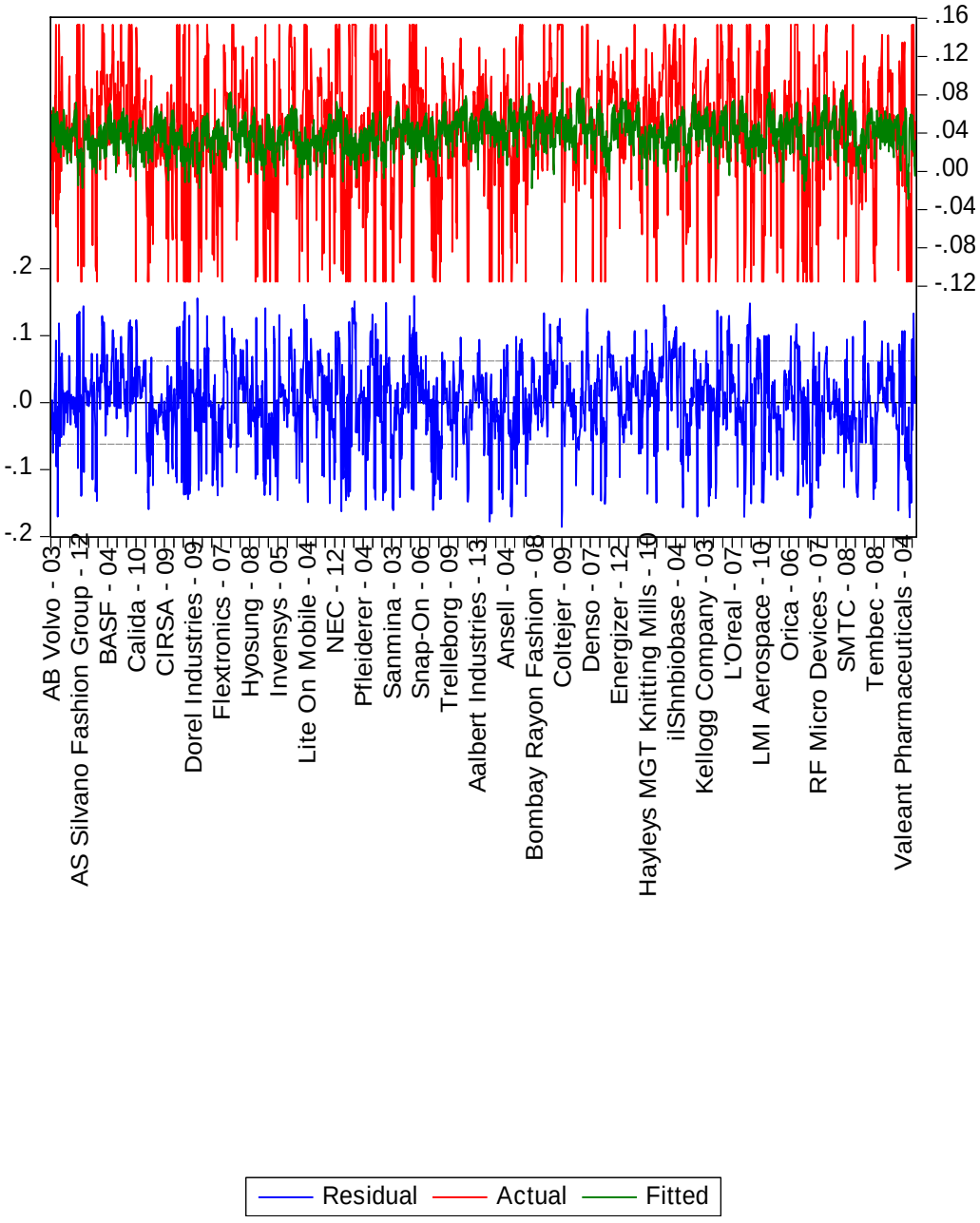
Date: 05/26/14 Time: 13:08
Sample: 2003 2013
Included observations: 2279

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.773	0.773	1362.8	0.000
		2	0.615	0.043	2225.2	0.000
		3	0.515	0.067	2830.2	0.000
		4	0.427	0.000	3246.9	0.000
		5	0.333	-0.048	3500.9	0.000
		6	0.266	0.006	3662.2	0.000
		7	0.188	-0.065	3742.7	0.000
		8	0.129	-0.006	3781.1	0.000
		9	0.083	-0.014	3797.0	0.000
		10	0.040	-0.025	3800.7	0.000

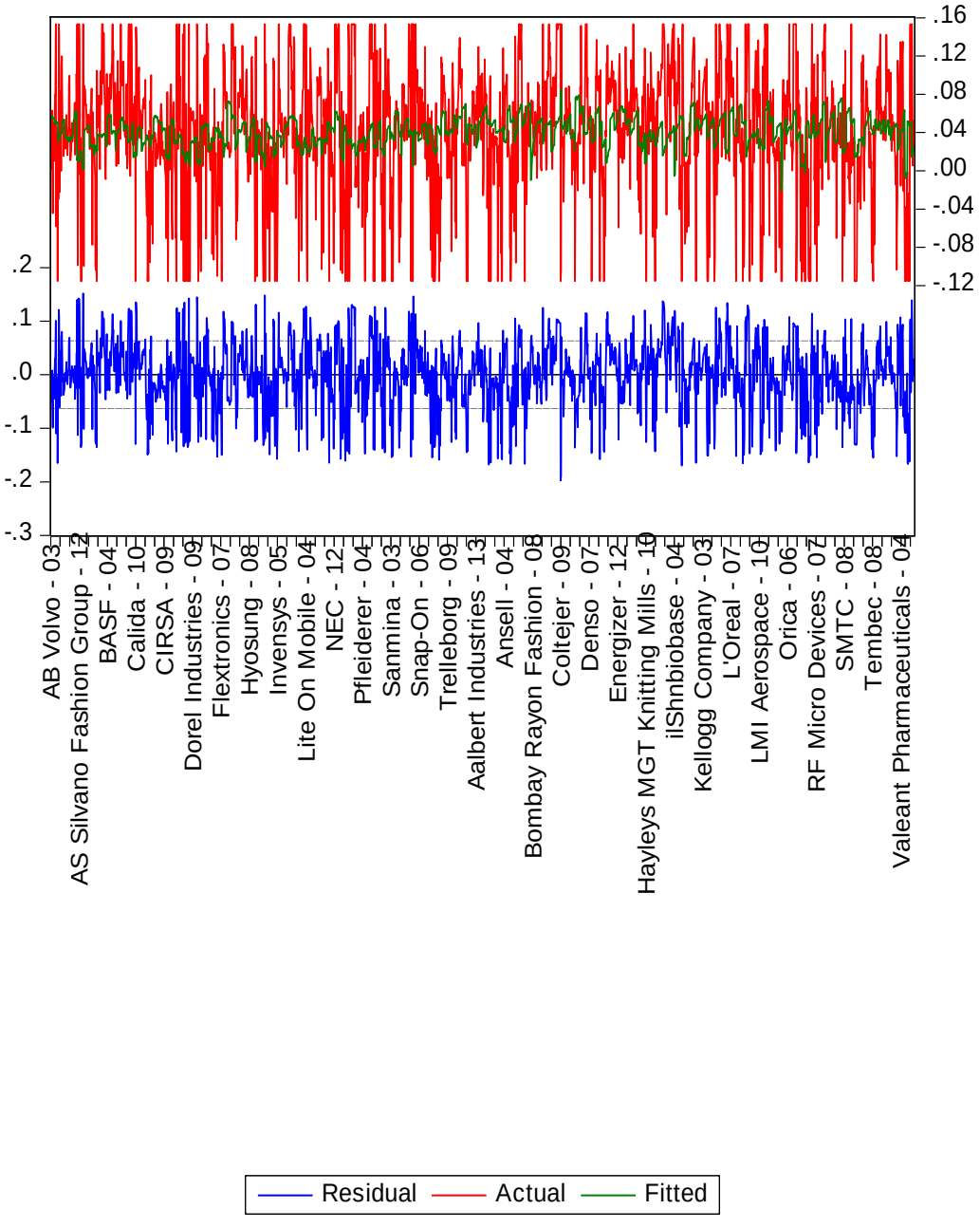
Appendix VIII

Residual Graphs

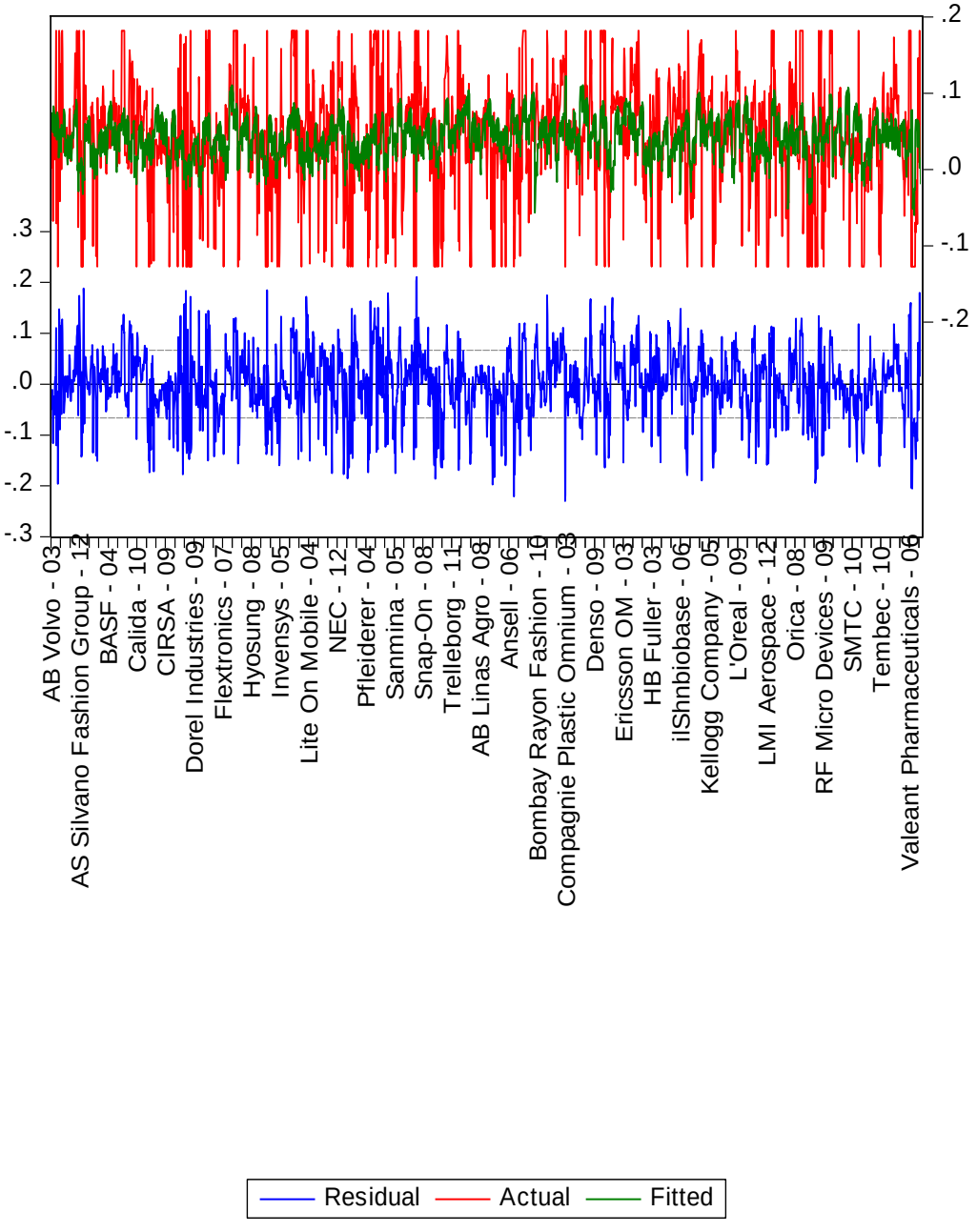
ROA



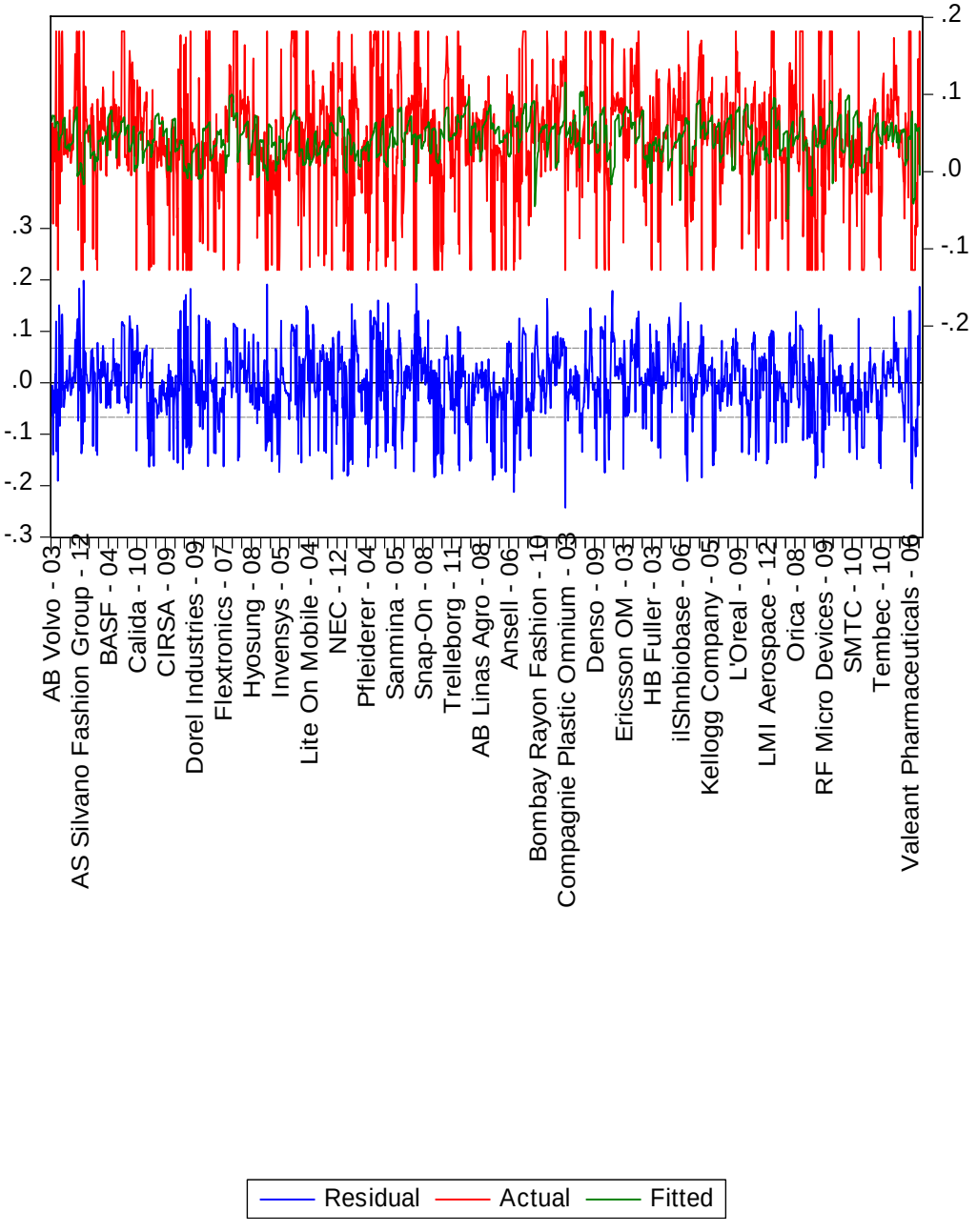
Diff-in-diff: ROA



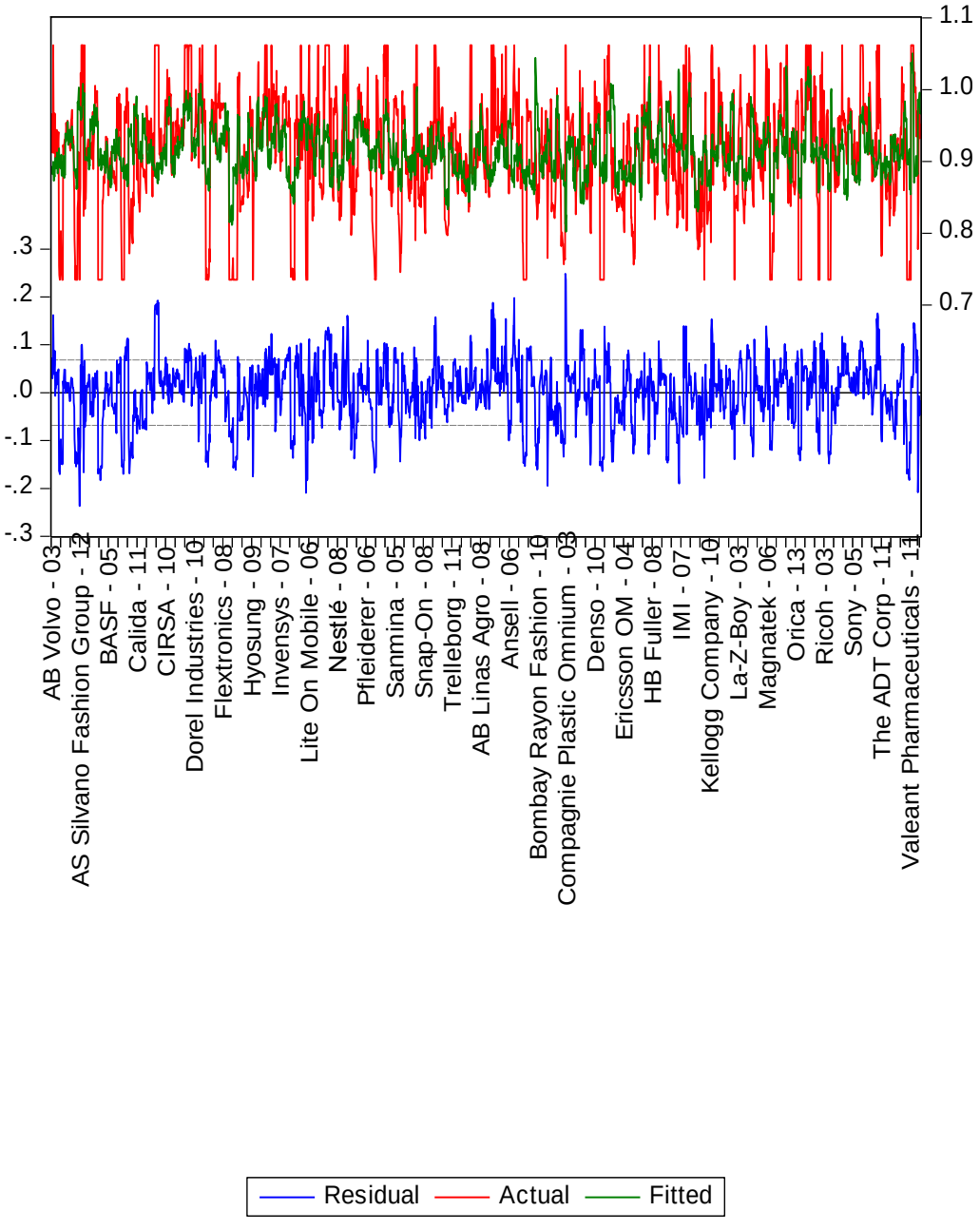
Net Profit Margin



Diff-in-diff: Net Profit Margin



Operating Expense Ratio



Diff-in-diff: Operating Expense Ratio