An analysis of the competitiveness of firms in fragile and conflict-affected countries in Africa

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Dissertation submitted in partial fulfillment of the requirements for the degree *Magister Commercii* in International Trade at the Potchefstroom Campus of the North-West University

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Graduation: May 2018

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PREFACE

The dissertation is compiled in article format and as such certain aspects need to be noted;

- Both articles contain a uniform structure to ensure that the dissertation as a whole flows logically. Each of the articles will be submitted in due course to accredited journals and as such the structures will then be adapted to the relevant stipulations of said journals.

- These articles contain their own separate research question and –objectives, literature review and empirical study. This is supplemented by distinct abstracts, keywords and Journal of Economic Literature (JEL) classification codes.

- In the dissertation the articles are preceded by an introductory chapter and followed by a summary chapter, with all chapters containing separate reference lists.

- The first article's title reads; *Evaluating firm-level differences in microeconomic competitiveness within African fragile and conflict-affected countries.*

- *Identifying firm-level export barriers in African fragile and conflict-affected countries constraining their export propensity and –intensity* serves as the title of the second article.

ACKNOWLEDGEMENTS

Firstly I would like to thank my Heavenly Father for the opportunity to conduct this research, who gave me the motivation and commitment to complete this undertaking, even when at times this seemed insurmountable in trying circumstances.

Furthermore this would not have been possible without the time, effort and patience of the following people;

- Prof Marianne Matthee, whom has guided my study as supervisor and provided key insights into the research. It was an honour to complete my dissertation under her supervision and her wealth of subject knowledge assisted greatly in the fruition of this research.

- My family, especially my father, Christo, whose motivation and faith in me I will always treasure and my grandfather, Dan, for whose support during my academic career and devotion to our family I will remain eternally grateful.

- This journey would also not have been possible without the support of my loyal friends Kobus, Lourie, Johan and Francois, who provided encouragement and focus.

- I would also like to acknowledge the contribution of the Trade Research Area and Prof Wilma Viviers in particular for their financial contribution to this study.

- Finally I also would like to thank Clarina Vorster for the language editing in the study.

Potchefstroom

October 2017

ABSTRACT

Fragility is evident in various guises for countries spread across the globe. Instability in these countries result from causal factors ranging from conflict to the inability of governments and institutions to perform their mandated functions. This holds especially true within an African context, where the majority of fragile and conflict-affected states (FCS) are located (according to World Bank research).

To assist countries in addressing fragility certain aspects of the literature advocated interventions in the economic environment as an avenue to achieve this. Firms are one of the main actors in the African FCS economies through amongst others employment creation, production and exports. By identifying and addressing both barriers to the competitiveness of these firms and constraints inhibiting the likelihood and volumes of exports these firms could make an improved contribution within fragile African countries. This allows a bottom-up microeconomic approach to assist countries in moving beyond fragility.

Thus the study focuses on the determinants of firms in African fragile and conflict-affected countries which both constrain their competitiveness and influence their ability to export. Countries in Africa were identified as fragile through the World Bank's harmonised list of fragile situations, whilst the firm-level data garnered through World Bank enterprise surveys allowed analysis of 14 of these countries. These two focus areas were addressed in two separate articles in this study.

The first article studies constraints to microeconomic competitiveness. Porter's seminal work pertaining to the Diamond of National advantage outlines various forces affecting competitiveness, ranging from demand conditions to related and supporting industries. Literature highlighted certain diverging views around the role of competitiveness, whilst a review of competitiveness reports from the WEF, World Bank and IMD revealed recurring themes within these reports of infrastructure, finance and the labour market. These aspects affect the environment where firms operate. Within fragile countries and specifically African FCS countries the political environment can also significantly impact firms and development, characterised by its instability in fragility and conflict. This necessitates more self-reliance in the microeconomic environment by firms constrained by the political environment especially. As such the empirical analysis in this article ascertains microeconomic competitiveness differences between politically constrained and non-constrained firms in these countries. This is achieved through the application of independent samples t-tests and Chi-square tests for independence. The analysis found practices of competitors in the informal sector, tax administration and an inadequately educated workforce to be constraints related to politically non-constrained firms. Further constraints for these firms included more security costs than politically constrained firms and greater sales losses resulting from a higher frequency of power outages. Conversely politically constrained firms displayed a greater reliance on internal funds for working capital purposes and a higher dependence on credit sales relative to politically non-constrained firms.

A variety of barriers exist within African FCS countries which impact firms' export propensity and –intensity, which forms the focus of the second article. Within these countries this holds true, as highlighted by their low levels of mostly primary exports. Through literature the benefits of international trade to various economic actors were underscored, including aspects such as increased foreign exchange and employment. This was elaborated upon by outlining theories, motives and triggers of internationalisation where firms become more involved in exports. Three

groupings of firm-level export barriers were then expounded upon, underscoring the wide variety of barriers which exists to exports. Against the above the empirical analysis in this article investigated the firm-level barriers to the likelihood (or propensity) of becoming involved in exports, as well as the volume (or intensity) of these exports, with a specific focus on African fragile and conflict-affected countries. A Heckman two-step selection model was specified to serve as the above analysis. Aspects displaying a significant negative correlation with export propensity include working capital sourced from retained earnings and credit sales, corruption and firm productivity. Contrarily foreign ownership, firm size and –age, access to a website and email, the utilisation of foreign inputs and notably also an inadequately educated labour force displayed a positive relationship with export propensity. Export intensity displayed a significant positive relationship with firm size, productivity and firms which experience corruption as an obstacle, while firm age was the only variable which was found to have a significant and negative relationship with export intensity.

By addressing these firm-level constraints to competitiveness and export propensity and intensity firms are in a better position to both contribute to the economies of fragile states and provide economic alternatives. This could assist these countries in moving away from fragility. Interventions ranging from the development of in-house training to improve firms' obstacles around an uneducated workforce, the inclusion of foreign ownership in these firms to leverage multinational firms' expertise and financial backing, as well as the formation of business lobby groups creating groupings that adhere to ethical standards rather than corruption have been mooted amongst others to help address these constraints.

Key terms: Africa, fragile and conflict-affected countries, firms, microeconomic competitiveness, export barriers, export propensity, export intensity

OPSOMMING

Kwesbaarheid is in verskeie vorme sigbaar in lande reg oor die wêreld. Onstabiliteit in hierdie lande vind sy oorsprong vanuit wyd-verspreide oorsake, vanaf konflik tot en met die onvermoë van regerings en instansies om hul voorgeskrewe rolle te vervul. Dit is veral van toepassing binne die konteks van Afrika, waar die meerderheid van kwesbare en konflik-beïnvloede lande (KKL) gevind kan word (volgens navorsing deur die Wêreld Bank).

Die literatuur hou sekere ingrype in die ekonomiese omgewing voor as ‘n middel om kwesbaarheid aan te spreek. Firmas is een van die sleutel rolspelers in Afrika KKL ekonomieë, veral as gevolg van die rol wat hul vervul deur werkskepping, produksie en uitvoere. Deur beide struikelblokke tot mededingendheid en struikelblokke tot die geneigdheid en omvang van uitvoere te identifiseer en aan te spreek kan firmas ‘n meer doeltreffende bydrae maak binne kwesbare Afrika lande. Die voorafgaande skep dus die moontlikheid van ‘n grondslag, mikroekonomiese benadering om die lande by te staan om uit kwesbaarheid uit te beweeg.

Daarom fokus die studie op die bepalende kenmerke van firmas in kwesbare en konflik-beïnvloede Afrika lande wat hul mededingendheid hinder en hul vermoë om uit te voer beïnvloed. Lande in Afrika was as kwesbaar geidentifiseer in die Wêreld Bank se geharmoniseerde lys van kwesbare situasies, terwyl firma-vlak data verkryg is van die Wêreld Bank se ondernemings opnames, wat ‘n ontleding van veertien van hierdie lande moontlik gemaak het. Hier voorafgenoemde twee fokus areas word elk apart in artikel-formaat bespreek in die studie.

Die eerste artikel ontleed hindernisse tot mikro-ekonomiese mededingendheid. Porter se baanbrekerswerk in sy Diamant van Nasionale Voordeel onderskei tussen ‘n verskeidenheid kragte wat mededingendheid beïnvloed, wat wissel vanaf vraag-toestand tot verwante- en ondersteunende bedrywe. In die literatuur is sekere uiteenlopende uitgangspunte oor die rol van mededingendheid uitgelig, terwyl ‘n oorsig van mededingendheids-verslae van die WEF, Wêreld Bank en IMD finansies, arbeid en infrastruktuur as herhalende temas uitgewys het. Hierdie temas beïnvloed ook die omgewing waar binne die firmas handel dryf. Die politieke omgewing kan ook ‘n wesenlike invloed op firmas en ontwikkeling in kwesbare en konflik-beïnvloede Afrika lande uitoefen en word veral gekenmerk deur die wisselvalligheid daarvan in kwesbaarheied en konflik. Dus word meer self-onderhoudendheid in die mikro-ekonomiese omgewing genoodsaak, veral in firmas wat hindernisse in die politieke omgewing beleef. As sulks onderskei die empiriese ontleding tussen mikro-ekonomiese verskille tussen firmas wat deur die politieke omgewing ingeperk is en die wat nie deur die omgewing ingeperk is nie. Hierdie is bereik deur die gebruik van sogenaamde *“independent samples t-tests”* en *“Chi-square tests for independence.”* Die ontleding het gevind dat die besigheidspraktyke van mededingers in die informele sektor, belasting administrasie en ‘n onvoldoende opgeleide arbeidsmag polities nie-ingeperkte firmas se mees beduidende struikelblokke was. Verdere stuikelblokke vir hierdie firmas het betrekking tot hoër veiligheidskostes as polities ingeperkte firmas en groter verkoopsverliese as gevolg van meer kragonderbrekings. Aan die ander hand het polities ingeprekte firmas meer gesteun op interne fondse om bedryfskapitaal te befonds en was meer afhanklik van kredietverkope as hul polities nie-ingeperkte eweknieë.

‘n Verskeidenheid van struikelblokke bestaan binne in kwesbare en konflik-beïnvloede Afrika lande wat firmas se uitvoer geneigdheid en –omvang beïnvloed, wat die focus van die tweede artikel vorm. Dit word gestaaf deur die oorhoofs primêre produkte wat in lae volumes uit die lande uitgevoer word. Deur die literatuur word die voordele van internasionale handel (en spesifiek uitvoere) uitgelug, wat verhoogde werkskepping en –buitelandse valuta insluit. Dit was verder uiteen geset deur die teorieë, motiewe en oorsake van internasionalisering waar firmas meer betrokke raak by uitvoere. Daarna is drie groeperings van uitvoerstruikelblokke bespreek, wat die

wye verskeidenheid van hindernisse onderstreep wat vir uitvoere bestaan. Teen hierdie agtergrond het die empirisese navorsing die firma-vlak sturikelblokke ondersoek wat die uitvoer-geneigdheid asook die –volumes beinvloed, spesifiek in Afrika KKL lande. ‘n *“Heckman two-step selection model”* is gebruik in die ontleding. Aspekte wat ‘n negatiewe verwantskap met uitvoer-geneigdheid getoon het sluit bedryfskapitaal in wat uit behoue inkomste en kredietverkope geneem is, asook korrupsie en die produktiwiteit van die firma. Daarteenoor het buitelandse eienaarskap, firma grootte en –ouderdom, toegang tot ‘n webtuiste en e-pos, buitelandse insette en ‘n C ‘n positiewe verwantsakp getoon met uitvoer geneidheid. Uitvoer intensiteit (of volumes) het ‘n positiewe verwantskap getoon met firma grootte en –produktiwiteit, asook firmas wat korrupsie as struikelblok ervaar, terwyl firma ouderdom die enigste veranderlike was wat ‘n beduidend negatiewe verwantskap met uitvoer intensiteit gehad het.

Deur die bogenoemde firma-vlak hindernisse tot beide mededingendheid en uitvoer geneigdheid en –intensiteit aan te spreek kan firmas hulself in ‘n beter posisie bevind om by te dra tot skaalvoordele en ekonomiese alternatiewe. Dit kan hierdie lande bystaan om uit kwesbaarheid te beweeg. Van die ingrype wat ingestel kan word sluit die ontwikkeling van binnenshuise opleidings programme om die onvoldoende opgeleide arbeidsmag aan te spreek, asook die insluiting van buitelandse eienaarskap (wat befondsing en ervaring teweeg kan bring) en die skep van sake-belangegroepe om etiese handel eerder as korrupsie aan te moedig in.

Sleutelwoorde: Afrika, kwesbare en konflik-beïnvloede lande, fimas, mikro-ekonomiese mededingendheid, uitvoer struikelblokke, uitvoer geneigdheid, uitvoer intensiteit

LIST OF ABBREVIATIONS

AGOA – African Growth and Opportunity Act

ANOVA – Analysis Of Variance

BCI – Business Competitiveness Index

CAR – Central African Republic

CIFP – Country Indicators for Foreign Policy

CPIA – Country Policy and Institutional Assessment

DF – Degrees of Freedom

DRC – Democratic Republic of the Congo

EBA – Everything But Arms

ECU – European Currency Union

EFTA – European Free Trade Association

FCS – Fragile and conflict-affected states (or –situations)

GATT – General Agreement on Tariffs and Trade

GCI – Global Competitiveness Index

GDP – Gross Domestic Product

IDA – International Development Association

IMD – Institute of Management Development

ISIC – International Standard Industrial Classification of All Economic Activities

LDC – Least Developed Countries

LICUS – Low-income Countries Under Stress

OECD – Organisation for Economic Co-operation and Development

PPP – Purchasing Power Parity

SD – Standard Deviation

UNIDO – United Nations Industrial Development Organisation

WCY – World Competitiveness Yearbook

WTO – World Trade Organisation

WEF – World Economic Forum

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CHAPTER 1 – INTRODUCTION

1.1 BACKGROUND

The presence of fragile countries is a global occurrence. This is evidenced by 32 countries across the globe being identified as fragile by the World Bank (2015), while the Organisation for Economic Cooperation and Development (OECD) (2012) listed 47 countries as being fragile.

A fragile country is defined by Hoeffler (2012:6) as a country which "*has weak capacity to carry out basic functions of governing a population and its territory, and lacks the ability to develop mutually constructive and reinforcing relations with society*." In its capacity as part of the World Bank, the International Development Association (IDA) (2013:2) defines fragile and conflict-affected states (FCS) as *"(i) countries which have a harmonized average Country Policy and Institutional Assessment (CPIA) rating of 3.2 or less (or no CPIA); or (ii) have or have had a UN and / or regional peace-keeping or peace-building mission during the past three years.*"[1] The CPIA rating (also called the IDA Resource Allocation Index) comprises four clusters, namely economic management, structural policies, policies for social inclusion and equity and finally public sector management and institutions. This allows an encompassing analysis of fragility in a country (IDA, 2013).

It is important to consider the causes of this fragility, as done by the OECD (2012), where it identified that changing demographics (for example population growth rates), technological innovation and climate change can cause fragility in a country. Cilliers and Sisk (2013) indicate that the four main causes and drivers of fragility are poor or weak governance, high levels of conflict and violence, high levels of inequality and economic exclusion, as well as poverty. This is underlined by Naudé and McGillivray (2011), who identified conflict, low development status, vulnerability and nations existing as non-developmental states as causes of fragility in countries. The effect of this fragility is evidenced in the OECD's (2012) report entitled "*Fragile states 2013: Resource flows and trends in a shifting world"*. Most fragile states have lost economic ground from 2000 to 2010 compared to other developing countries in terms of GDP per capita, while only small progress has occurred in these countries' human development, especially lagging regarding education. The percentage of the world's poor living in fragile countries also increased from 20% in 2005 to 40% in 2010 (OECD, 2012). From the above, it is clear that fragility has a significant impact on the global economy.

As mentioned previously, fragile countries are prevalent all over the world. Aid to these fragile countries amounted to US$ 50 billion in 2010 according to the OECD (2012). This indicates the dependence on aid in FCS countries and underlines the importance of finding solutions enabling rebuilding fragile economies.

[1] This definition will form the basis of the research done and any reference to fragile states or post conflict reconstruction countries relates to this definition.

When considering the World Bank's (2015) list of fragile countries and regions, it can be seen that the majority of fragile countries are located in Africa. According to the definition stated above, 36 countries and regions are defined as fragile, with 18 of those countries located in Africa (World Bank, 2015). This is further evidenced by Engelbert and Tull (2008), when they found that, in 2005, 82% of UN peacekeeping forces were located in Africa, while in 2006 53% of countries in the most failed category of the Fund for Peace Failed States Index were in Africa. Because of the prevalence of fragile countries in Africa, it is important to understand fragility with regard to the continent.

Clarke (2012) provides an indication of the scope of conflict (pertaining to fragile and conflict affected states) specifically in Africa, while Cilliers and Sisk (2013) give an overview of the impact of fragility in the continent. With regard to the scope of conflict, Clarke (2012) stated that, from 1949 until 2012, more than 90 conflicts occurred between 150 belligerent factions. Of these, 17 occurred in the 1970s, 18 in the 1980s, 14 in the 1990s and finally 9 between 2000 and 2011 (Clarke, 2012).

In turn, when considering the impact of fragility in Africa, Cilliers and Sisk (2013) divided the countries on the continent into 26 "*more fragile*" nations while the rest were classified as "*more resilient*" nations as part of a study on the long-term fragility of African states. Two of the characteristics analysed over 20-year intervals were GDP per capita (in 2005 US$) as well as the percentage of the population in poverty. They found that, in 2010, the "*more fragile*" African countries had a GDP per capita of just more than US$ 1000 and a poverty percentage of 70% of population, while the "*more resilient*" African countries showed a GDP per capita of just under US$ 4000 and poverty levels of 54%. The projections for 2030 were a GDP per capita of just under US$ 2000 for more fragile countries and just under US$ 6000 for more resilient countries, while poverty levels were 53% and 33% respectively. Additionally, other characteristics that distinguish "*more resilient*" from "*more fragile"* nations are less inequality, conflict and internal war, as well as better governance in the former when compared to the latter (Cilliers & Sisk, 2013). Throughout the study, Cilliers and Sisk (2012) also projected the change in fragile status for the 26 *"more fragile"* African countries.

The future for these *"more fragile"* African countries is changing, according to Cilliers and Sisk (2013). They have found that 12 countries (Burundi, Cameroon, Chad, Côte d'Ivoire, Ethiopia, Guinea, Malawi, Mali, Mauritania, Niger, Uganda and Zimbabwe) might move beyond fragility towards greater resilience by or before 2030, while four countries (Eritrea, Liberia, Rwanda and Sierra Leone) might exit fragility on a path to greater resilience by or before 2050. On the other hand, the remaining ten countries (Comoros, Central African Republic, DRC, Republic of Congo, Guinea-Bissau, Madagascar, Somalia, Sudan/South Sudan and Togo) are at risk of remaining in fragility beyond 2050 (Cilliers & Sisk, 2013). From both Clarke (2012) and Cilliers and Sisk (2013) it can be seen that the socio-economic make-up of Africa has been and still is influenced by conflict and fragility for a significant period of time and on a relatively constant basis.

Enabling these FCS countries to become more resilient is possible, as can be seen above. Mzumara (2012) found that strategies employed in reconstruction (or in other words improving resilience) include various peace building measures, local participation, restoration of the rule of law and general economic stability. The IDA (2013) also emphasises strengthening institutions and governance (thereby providing security, justice and jobs), while also making

use of support from international actors as strategies to break out of fragility. All of the above are strategies which pertain to broader macroeconomic conditions in FCS countries.

From all the above, the prevalence of fragility is evident and therefore it needs to be addressed. This study proposes to address fragility through improving microeconomic competitiveness, while also considering the firm-level barriers to export in FCS countries.

1.2 LITERATURE REVIEW

The literature review firstly considers the role of competitiveness with regard to fragile states and thereafter exports and export barriers are discussed in relation to FCS countries.

1.2.1 Competitiveness

The definition of competitiveness as per the World Economic Forum (WEF) (2015:4) is *"the set of institutions, policies, and factors that determine the level of productivity of an economy."* Another WEF (2013:55) definition that is of note especially with regard to increasing resilience in fragile countries is that of sustainable competitiveness, which is defined as *"the set of institutions, policies and factors that make a nation remain productive over the longer term while ensuring social and environmental sustainability."*

One of the most comprehensive analysis of competitiveness in countries' business environments is the WEF's (2015) Global Competitiveness Index for 2015-2016. The index provides a suggestion of the extent of fragility when reviewed for African FCS countries, with low ratings for these countries in general. Twelve pillars are used to form the index. These pillars are institutions, infrastructure, the macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labour market efficiency, financial market development, technological readiness, market size, business sophistication indication as well as innovation (WEF, 2015).

Additionally, with regard to the business environment specifically, the World Bank's (2016a) Doing Business Report considers 10 factors in its analysis, namely starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency. Table 1.1 gives an overview of the 18 fragile African countries' GCI scores and their global ranking, as well as the World Bank (2016a) Ease of Doing Business rankings for 2016 for these countries.

Table 1.1 - 2015 List of fragile African countries (FCS) with their GCI scores and rankings

Country	Global Competitiveness Index		Ease of doing business
	Score (out of 7)	Global ranking (out of 140 countries)	Global ranking (out of 189 countries)
Burundi	3.11	136	152
CAR	Not rated	-	185
Chad	2.96	139	183
Comoros	Not rated	-	154
Côte d' Ivoire	3.93	91	142
DRC	Not rated	-	184
Eritrea	Not rated	-	189
Guinea-Bissau	Not rated	-	178
Liberia	3.37	129	179
Libya	Not rated	-	187
Madagascar	3.32	130	164
Mali	3.44	127	143
Sierra-Leone	3.06	137	147
Somalia	Not rated	-	Not rated
South Sudan	Not rated	-	187
Sudan	Not rated	-	159
Togo	Not rated	-	150
Zimbabwe	3.45	125	155

Source: World Economic Forum: 2015, World Bank: 2016a

All of the African FCS countries which are included in the World Economic Forum's (2015) Global Competitiveness Index for 2015-2016 received sub-standard ratings. Additionally, another indicator published by the same report refers to the different stages of development in which countries find themselves. Each of the African FCS countries included in the report (except Libya) was found to be on the lowest level of development, namely the factor driven stage (World Economic Forum, 2015). The World Bank's (2016a) Doing Business Report also shows the difficulty of doing business in these African FCS countries, with no country ranked higher than 142nd out of the 189 countries. The macro- and microeconomic factors in the WEF'S (2015) GCI and World Bank's (2016a) Doing Business Report indicate a broad array of competitiveness factors which can be used in addressing fragility.

Porter *et al*. (2007) have reiterated that broader conditions (specifically with reference to politics, institutions, society and the macro economy) are necessary but not sufficient prerequisites for creating wealth. They argue that wealth (and by inference rebuilding of the economy) is created by firms that are productive (Porter *et al.*, 2007). The extent to which research into the microeconomic aspects of increasing resilience in fragile states was done is limited (Porter, 2003).

Leo *et al*. (2012:4) indicate the importance of the micro economy in the rebuilding of fragile states; "...*could make the private sector a particularly viable and valuable target for economic*

development interventions in fragile states. Therefore, promoting private sector growth in fragile states could be one tangible first step toward better governance and more diverse, robust economies." These private sector firms' abilities to compete depends on two factors, the sophistication of their company operations and strategy and the quality of the microeconomic business environment (Porter *et al.*, 2007). Thus, there is a need for an analysis of microeconomic competitiveness and nowhere is this more pertinent than in the case of FCS economies.

Porter (1990) investigated the competitive advantage of nations on a microeconomic level. He compiled a "*Diamond of National Advantage*" to indicate why certain companies based in certain countries are able to gain and retain a competitive advantage. The four attributes of the diamond are firstly factor conditions (factors of production), secondly demand conditions (nature of home market demand), thirdly related and supporting industries and finally firm strategy, structure and rivalry (conditions which govern company creation, organisation and management) (Porter, 1990). The diamond allows a theoretical framework from which to analyse the microeconomic competitiveness of firms in FCS countries. These attributes of the diamond of national advantage form the basis of Matthee *et al*.'s (2015) analysis of firm-level competitiveness in Zimbabwe. Some of their findings include that non-politically constrained firms struggled with daily operations, while politically constrained firms were larger, employed more people, had fewer difficulties with obtaining finance and made use of retained earnings. As Zimbabwe is a fragile country, the study could be expanded to investigate microeconomic competitiveness factors for all FCS countries.

Porter *et al.* (2007) state that exports serve as one of the enablers ensuring microeconomic competitiveness. Export trade eases the process of technology transfer between nations. Moreover, the trade incentivises local firms to expand their production capacity in terms of goods and services that can compete in the global market. It increases the inter-industry linkage that enables the domestic economy to integrate and thus reduces the risk of external shocks (Mohamed *et al*., 2012). The next section of the literature review considers the role of exports and firm-level barriers to exports in fragile and conflict-affected states (FCS).

1.2.2 Exports

The literature overview on exports is divided into two subsections: the first section discusses exports and export barriers and the second section discusses firm-level export barriers and FCS countries.

1.2.2.1 Exports and export barriers

As can be seen from above, exports play an important role in microeconomic competitiveness. Therefore, it is important to investigate advantages of exports for firms and countries, especially against the background of fragile states in Africa.

Some of the export advantages for firms according to ITRISA (2010) include new markets, extending the life cycle of the product that is exported and increased revenue. Further

advantages are higher production efficiency and better product quality as necessitated by international standards (ITRISA, 2010). Exports are also advantageous on a country level, as evidenced below.

Benefits of exporting to the country as a whole include an increase in its economic growth potential as well as the diversification of markets (Brenton & Newfarmer, 2007). Additionally, exports create economies of scale and returns to scale, an inflow of foreign exchange and subsequent positive impact on a country's trade balance, increased employment, as well as higher levels of foreign direct investment, according to the International Trade Institute of South Africa (ITRISA) (2010).

Certain barriers however exist to these exports. Export barriers are defined by Suárez-Ortega (2003:403) as "*all those factors – external or internal – that serve to dissuade a firm from exporting or which hinder its actual export activity*." Export barriers which exist according to Arteaga-Ortiz and Fernández-Ortiz (2010) include knowledge barriers, resource barriers, procedure barriers and exogenous barriers. These barriers can exist on both a macroeconomic level as well as on a firm (microeconomic) level (Arteaga-Ortiz & Fernández-Ortiz, 2010).

1.2.2.2 Firm-level export barriers and FCS

While exports hold several advantages specifically for fragile countries (especially in the form of economic growth), Hoeffler (2012) indicates that most fragile countries' exports are mainly based on agriculture and proposed a shift towards exports of industrial (manufactured) goods, while acknowledging that barriers to export in these FCS countries also exist. Hoeffler (2012) further states that certain barriers are found on a macroeconomic level with regard to FCS countries, which include the resource curse, the impact of international trade regulations and regulations which undermine industrialisation. No record was found of empirical research into firm-level barriers to exports in FCS countries.

This leads to two important factors which describe the export process of a firm and the barriers that it faces, which can be used in the analysis of firms in African FCS countries. This was discussed by Arndt *et al*. (2009) for Germany as well as Matthee and Krugell (2012) for South Africa. These factors are export propensity as well as export intensity. Export propensity (extensive margin) pertains to the likelihood of a firm exporting goods, while export intensity (intensive margin) refers to the amount of goods exported (Arndt *et al.*, 2009).

The importance of export intensity and propensity lies therein that factors that negatively influence the intensity and propensity serve as barriers to exports. Arndt *et al.* (2009) divide the firm-level export barriers into four categories. Firstly, productivity and firm size, secondly, financial constraints, thirdly, labour market constraints and finally, control variables (such as the age of the firm). They found that the main determinants of exports were size and productivity, while financial constraints in the form of cash flow constraints as well as labour market constraints served as significantly barriers to exports (Arndt *et al.*, 2009). Overcoming these barriers might assist countries in escaping their fragile status.

Certain countries have escaped their fragile status, as indicated by Table 1.2, while these countries' exports to the rest of the world have also increased. In certain instances, countries' export values were not available for the years in question, but were substituted with the closest available year (indicated in brackets).

Table 1.2 - List of countries which changed their fragile status (CPIA) and related export values to the rest of the world

Country	2005		2014		Average annual export growth rate (2005-2014)*
	CPIA	Total exports value (US$ thousands)	CPIA	Total exports value (US$ thousands)	
Cambodia	3.09	$3 018 613	3.45	$9 248 134 (2013)	15.02%
Lao PDR	2.98	$610 205	3.58	$4 654 013	25.33%
Mauritania	3.16	$556 397	3.38	$2 139 811	16.14%
Nigeria	3.14	$59 215 233 (2006)	3.53	$102 878 500	7.15%
Tonga	2.93	$9 292 (2008)	3.50	$18 879	12.54%
Uzbekistan	3.00	$3 944 442	3.38	$7 103 035	10.30%
Vanuatu	3.14	$36 698 (2006)	3.44	$63 532 (2011)	11.60%

Source: Author's own calculations from the World Bank: 2016b, International Trade Centre: 2016.
**Growth is measured from 2005 to 2014, however certain countries do not have data for all periods.*

Table 1.2 shows a list of countries that were previously (2005, when CPIA ratings were first done) ranked as FCS countries because of their overall CPIA scores, but had moved beyond the FCS status by 2014. Additionally, it shows the increased export levels of those countries to the rest of the world which, except for Nigeria (possibly because of the weakening Naira / US dollar exchange rate), had an average annual export growth rate of above 10%. The increases cannot only be ascribed to their rise from fragile status, but it can be inferred that the rise from fragile status can play a role in growing export values to a certain extent and vice versa. This table furthermore indicates that it is possible for countries to outgrow their fragile status. Therefore, it is important to investigate the causal aspects of fragility. This again links to the focus of this research, namely addressing fragility through improving microeconomic competitiveness, while also considering the role of firm-level export barriers in FCS countries.

1.3 PROBLEM STATEMENT

The problem which can be identified from the above is that the majority of fragile countries are located in Africa and these countries have to find a way to outgrow their fragile status. In the literature, the role of microeconomic factors in ensuring that FCS countries become more resilient was highlighted, while the prevalence of firm-level export barriers also came to the fore. As such, the focus of this research was to identify the determinants of firms in African fragile and conflict-affected countries which constrain their competitiveness and influence their ability to export.

Therefore, the following research questions can be formulated based on the above-mentioned description of the research problem:

- What factors constrain the competitiveness of firms in African fragile and conflict-affected countries?
- Which firm-level export barriers constrain African fragile and conflict-affected countries firms' export propensity and intensity?

In order to answer the above research questions, the following research objectives are set.

1.4 RESEARCH OBJECTIVES

The research objectives are divided into a general objective and specific objectives. An article approach is followed in this dissertation, which consists of two articles to address the two main research questions. As such, the research objectives reflect the different approaches to be undertaken in these articles.

1.4.1 General objective

The general objective of the research in the first article is to identify the determinants of firms in African fragile and conflict-affected countries that constrain their competitiveness. In turn, the general objective formulated for the second article seeks to identify the export barriers to firms in African fragile and conflict-affected countries which affect their export propensity and intensity.

1.4.2 Specific objectives

Considering this general objective, certain specific objectives are set for the two articles in this dissertation. The specific objectives for the first article are to:

- give an overview of the literature on microeconomic competitiveness and importance of the micro-economy for fragile countries;
- provide an overview of fragile and conflict-affected countries and specifically the state of fragility in Africa; and
- empirically determine which microeconomic competitiveness factors explain the differences between politically constrained firms versus those who are not in fragile and conflict-affected countries.

In the second article, the specific objectives are to:

- provide an overview of the literature on the benefits of an open economy and international trade;
- provide an overview of the literature on export barriers on a country- and firm-level; and
- empirically determine which firm-level export barriers affect the export propensity and intensity of African fragile and conflict-affected countries.

To achieve these objectives, applicable research methods should be followed which are discussed in more detail below.

1.5 RESEARCH METHOD

This research consisted of two phases, namely a literature review and an empirical study.

1.5.1 Phase 1: Literature review

In phase 1, a review regarding micro-economic competitiveness, post-conflict reconstruction, as well as export propensity and intensity was done. The sources that were consulted included:

- Hoeffler (2012) – focusses on the importance of exports for fragile states
- Leo, Ramachandran and Thuotte (2012) – indicates importance of the micro-economy in rebuilding fragile states.
- Porter (1990) – addresses microeconomic competitiveness and the diamond of competitiveness
- Matthee and Krugell (2012) as well as Arndt *et al*. (2009) - contain a description of research method with regard to export propensity and intensity
- Matthee *et al*. (2015) – description of research method with regard to microeconomic competitiveness
- North-West University Library OneSearch for journals regarding the themes
- The North-West University Library for textbooks and research material concerning underlying theory

The literature review allowed for a more comprehensive definition and understanding of the variables which were used in the empirical study.

1.5.2 Phase 2: Empirical study

The second phase included a description of the research method that was followed for the empirical study, as well as the collection of data and the econometric analysis (including the selection of variables).

1.5.2.1 Research design

The aim of the research design was to give structure to the empirical approach used in order to attain the various objectives. The research method can be classified as quantitative in nature. This allowed for econometric analyses of competitiveness as well as export propensity and intensity. Quantifiable results gained from these analyses in turn lead to more accurate and verifiable policy recommendations for African FCS firms.

The specific design that was used was a cross-sectional analysis. Cross-sectional analyses allow the scope of the research to include a variety of sectors, countries or in this case, firms. The firms of different African FCS countries were analysed, allowing for recommendations to address underlying issues across the sphere of fragile and conflict-affected firms in African states.

1.5.2.2 Data

The firm-level data was garnered from the World Bank enterprise surveys of FCS African countries from various years. This data was collected through standardised surveys of the individual countries. As per the International Development Association (2013) definition given in the background, the list of African fragile and conflict affected countries (FCS) for 2015 is listed in Table 1.3 below. Furthermore, the table includes the year when the enterprise survey was done, as well as the survey's applicability and comparability.

Table 1.3 - 2015 List of fragile African countries (FCS)

Country	Year(s) of Questionnaire	Applicable and Comparable
Burundi	2006**, 2014**	**Yes - 2014**
CAR	**2011**	**Yes**
Chad	**2009**	**Yes**
Comoros	None	No
Côte d' Ivoire	**2009**	**Yes**
DRC	2006**, 2010, 2013**	**Yes – 2010 & 2013**
Eritrea	**2009**	**Yes**
Guinea-Bissau	2006	No
Liberia	**2009**	**Yes**
Libya	None	No
Madagascar	**2009, 2013**	**Yes – 2009 & 2013**
Mali	**2010**	**Yes**
Sierra-Leone	**2009**	**Yes**
Somalia	None	No
South Sudan	**2014**	**Yes**
Sudan	**2014**	**Yes**
Togo	**2009**	**Yes**
Zimbabwe	**2011**	**Yes**

Source: World Bank:2015

From the above table, it can be seen that 18 African countries were defined by the World Bank (2015) as FCS countries in 2015. The 14 countries indicated in bold are those for which both applicable and comparable questionnaires exist and these countries form the basis of the econometric analysis for both Article 1 and 2.

1.5.2.3 Econometric analysis

The dissertation is article based and as such, different econometric techniques and estimators are applied in the two different articles. In both articles, descriptive statistics are used to overview the data used in the econometric analyses.

Article 1 addresses the problem by making use of independent samples t-tests and Chi-square tests of independence as analyses. The dependent variable that was used was political instability, which is a dummy variable (0 – politically constrained, 1 – not politically constrained). One aspect of the method employed for comparison (independent samples t-test) is similar to the two-category ANOVA (analysis of variance) used by Matthee *et al*. (2015) to compare firms which were politically constrained and those that were not. The independent variables used by Matthee *et al*. (2015) include factor conditions (including electricity related, connectivity and web related, business related and finance related variables), secondly demand conditions, thirdly related and supporting industries and finally firm strategy, structure and rivalry.

For article 2, the researcher made use of the method as specified in Arndt *et al*. (2009) and also in Matthee and Krugell (2012). A Heckmann two-step selection analysis (with Probit regression and outcome model) was used to determine export propensity (extensive margin) and export intensity (intensive margin). The dependent variable for the purposes of this research was exporters, which is a dummy variable (0 – non-exporters, 1 – exporters). Arndt *et al.* (2009) divide the independent variables (which all are possible firm-level export barriers) into four categories, namely productivity and firm size, financial constraints, labour market constraints and control variables (such as the age of the firm).

1.6 DELIMITATION OF THE STUDY

As mentioned, the research followed an article approach and as such, the chapters in this dissertation are presented as follows. Chapter 1 comprises the problem statement and introduction. Chapters 2 and 3 consist of the first and second articles respectively, which are subdivided with sections for the introduction, literature review, an overview of fragile and conflict affected states as well as the empirical analysis and a shortened conclusion. Finally, chapter 4 serves as the conclusion and in addition, contains the limitations and recommendations resulting from the study.

1.7 LIST OF REFERENCES

Arndt, C., Buch, C. & Mattes, A. 2009. Barriers to internationalization: Firm level evidence from Germany. *IAW discussion papers*, 52:1-26.

Arteaga-Ortiz, J. & Fernández-Ortiz, R. 2010. Why don't we use the same export barrier measurement scale? An empirical analysis in small and medium-sized enterprises. *Journal of small business management*, 48(3):395–420.

Brenton, P. & Newfarmer, R. 2007. Watching more than the Discovery Channel: export cycles and diversification in development. *World Bank working paper series*, 4302:1-26.

2 Cilliers, J. & Sisk, T. D. 2013. Prospects for Africa's 26 fragile countries. *African futures paper*, 8:1-12.
Clarke, D. 2012. Africa's future: Darkness to destiny. London: Profile Books.

Engelbert, P. & Tull, D. M. 2008. Post conflict reconstruction in Africa. *International security*, 32(4):106-139.

Hoeffler, A. 2012. Exporting from fragile states: challenges and opportunities. Paris: OECD.

International Development Association. 2013. IDA's support to fragile and conflict-affected states. Washington DC: World Bank Group.

International Trade Centre. 2016. Trade statistics for international business development. http://www.trademap.org/Country_SelProductCountry.aspx Date of access: 8 January 2016.

International Trade Institute of South Africa. 2010. International Trade relations. (*In* Study material for the certificate in International Trade. TRADSA. p. 8-22).

Leo, B. Ramachandran, V. & Thuotte, R. 2012. Supporting business growth in African fragile states. Washington DC: Centre for Global Development.

Matthee, M. & Krugell, W. F. 2012. Barriers to internationalisation: firm level evidence from South Africa. *Oeconomica*, 57(1):3-20.

Matthee, M., Krugell, W. F. & Mzumara, M. 2015. Micro-economic competitiveness and post-conflict reconstruction: firm-level evidence from Zimbabwe. *International business and economics research journal*, 14(3):525-536.

Mohamed, M. R., Liew, C. & Mzee, S. S. 2012. Export Trade and Economic Growth in Tanzania: A Disaggregated Approach. *Journal of economics and sustainable development*, 3(12):74-81.

Mzumara, M. 2012. Developing an export promotion strategy for the post-conflict reconstruction of Zimbabwe. Potchefstroom: NWU. (Thesis – PhD).

Organisation for Economic Cooperation and Development. 2012. Fragile states 2013: resource flows and trends in a shifting world. Paris: OECD.

Pangarkar, N. & Wu, J. 2012. Industry globalization and the performance of emerging market firms: evidence from China. *International business review*, 21(2):196–209.

Porter, M. E. 1990. The competitive advantage of nations. *Harvard business review*, 68(2):73-93.

Porter, M. E. 2003. The economic performance of regions. *Regional studies*, 37(6&7):549-578.

Porter, M. E., Ketels, C. & Delgado, M. 2007. Global competitiveness report: 2007-2008. Geneva.

Suárez-Ortega, S. 2003. Export barriers: insights from small and medium-sized firms. *International small business journal*, 21(4):403-419.

World Bank. 2015. Harmonised list of fragile situations 2015. http://siteresources.worldbank.org/EXTLICUS/Resources/511777-1269623894864/FY15FragileSituationList.pdf Date of access: 10 January 2016.

World Bank. 2016a. Doing business 2016: measuring regulatory quality and efficiency. Washington DC.

World Bank. 2016b. IDA resource allocation index. http://data.worldbank.org/indicator/IQ.CPA.IRAI.XQ Date of access: 8 January 2016.

World Economic Forum. 2013. Global competitiveness report: 2013-2014. Geneva.

World Economic Forum. 2015. Global competitiveness report: 2015-2016. Geneva.

CHAPTER 2 – ARTICLE 1

EVALUATING FIRM-LEVEL DIFFERENCES IN MICROECONOMIC COMPETITIVENESS WITHIN AFRICAN FRAGILE AND CONFLICT-AFFECTED COUNTRIES

Abstract

Porter's seminal work pertaining to the Diamond of National advantage outlines various forces affecting competitiveness, ranging from demand conditions to related and supporting industries. Literature highlighted certain diverging views around the role of competitiveness, whilst a review of competitiveness reports from the WEF, World Bank and IMD revealed recurring themes within these reports of infrastructure, finance and the labour market. These aspects affect the environment where firms operate. Within fragile countries and specifically African FCS countries the political environment can also significantly impact firms and development, characterised by its instability in fragility and conflict. This necessitates more self-reliance in the microeconomic environment by firms constrained by the political environment especially. As such the empirical analysis in this article ascertains microeconomic competitiveness differences between politically constrained and non-constrained firms in these countries. This is achieved through the application of independent samples t-tests and Chi-square tests for independence. The analysis found practices of competitors in the informal sector, tax administration and an inadequately educated workforce to be constraints related to politically non-constrained firms. Further constraints for these firms included more security costs than politically constrained firms and greater sales losses resulting from a higher frequency of power outages. Conversely politically constrained firms displayed a greater reliance on internal funds for working capital purposes and a higher dependence on credit sales relative to politically non-constrained firms.

Keywords: **Africa, fragile and conflict-affected countries, firms, microeconomic competitiveness**

JEL classification codes:

D22, D74, M21

2.1 INTRODUCTION

The competitiveness of countries, regions and firms plays an important role in economic growth and development, according to Porter *et al.* (2007). Much of this focus on competitiveness has been rooted in the study of broader country-level conditions (including the macro-economy, as well as the political, institutional and social environments), as highlighted by Matthee *et al.* (2015) and underscored previously by Önsel *et al.* (2008). However, Porter (1990) began to advocate the importance of the micro-economy (firms) in ensuring productivity and therefore competitiveness.

Studies such as the one by Leo *et al.* (2012) emphasises the importance of supporting private business growth in African fragile and conflict-affected countries. Although research has been done on a microeconomic (firm-level) basis across various African spheres, such as in the United Nations Industrial Development Organisation's (UNIDO) (2011) comprehensive *African Investor Report 2011,* no study has yet undertaken the in-depth analysis of constraints to firms' competitiveness in African fragile and conflict affected states (FCS).

The majority of fragile countries are located in Africa, as can be seen from the World Bank's (2015) list of FCS countries. This emphasises the importance of finding approaches that allow these countries to improve their resilience. Furthermore, the prevalence of FCS countries in Africa served as the motivation for this research. One of the recommendations made by Kaplan (2009) for increasing resilience in fragile states is ensuring a better distribution of economic resources across the demographical spectrum. By removing microeconomic constraints on competitiveness, firms can assist in a bottom-up approach to allow this more equitable distribution of economic resources. The focus of this article therefore is to identify the constraints to firm-level competitiveness in African FCS countries.

The delimitation of the article now follows. A review on literature with regard to competitiveness is firstly done in Section 2.2, while Section 2.3 focusses on microeconomic competitiveness and fragile states. Furthermore, in Section 2.4, an overview of African FCS countries' economies is done which serves as introduction to the empirical analysis. This is followed in Sections 2.5 and 2.6 by a discussion of the research method, which in this case is an empirical analysis making use of descriptive statistics and performing parametric and non-parametric statistical techniques through STATA on data from various African FCS countries' World Bank Enterprise Surveys completed from 2009 to 2014.

Thereafter, in Section 2.7, an overview of key descriptive statistics is done. In Section 2.8, the parametric and non-parametric analysis is applied to African FCS countries to determine which microeconomic competitiveness factors explain the differences between politically constrained firms versus those who are not in fragile and conflict-affected countries. Finally, a conclusion is reached in Section 2.9 and recommendations with regard to possible further research stemming from this article are made.

2.2 LITERATURE REVIEW – COMPETITIVENESS

As can be seen from the above, competitiveness plays an important role in ensuring economic growth and development across the various economic spheres. The WEF's (2013:4) definition of competitiveness states that it is the *"set of institutions, policies, and factors that determine the level of productivity of a country."* This definition has its origin in Porter's (1990) study on competitiveness. Another perspective arises in the International Institute of Management Development (IMD)'s (2013:53) definition of world competitiveness; which is *"... a field of economic theory, which analyses the facts and policies that shape the ability of a nation to create and maintain an environment that sustains more value creation for its enterprises and more prosperity for its people"*.

In this section, Michael Porter's (1990) Diamond of National Advantage is firstly overviewed as a tool to improve competitiveness. This is followed by the debate surrounding competitiveness, especially on a national level. Finally, an overview of various reports investigating competitiveness is given, as well as the factors forming the various indices.

2.2.1 Porter's Diamond of National Advantage

Porter's (1990) seminal work on the Diamond of National Advantage, as illustrated by Figure 2.1, seeks to identify the sources of countries' competitiveness. The diamond consists of four components, namely the quality of factor conditions, the context for firm strategy and rivalry, the quality of local demand conditions and the presence of related and supporting industries, which are now discussed separately.

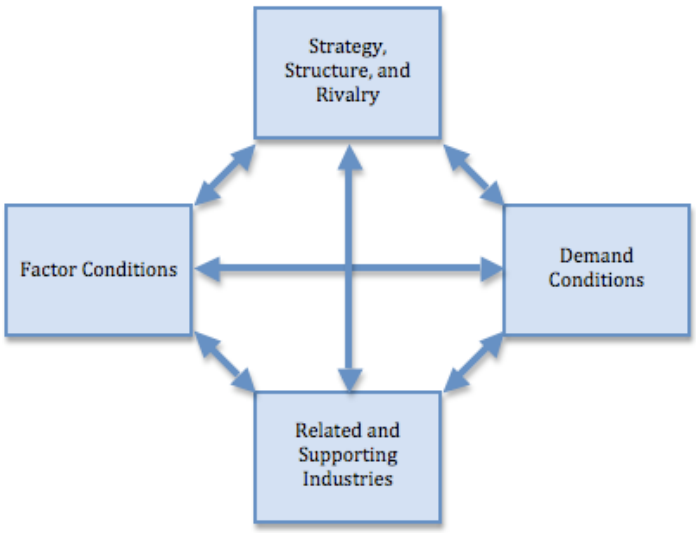

Figure 2.1 – Diamond of National Advantage

Source: Porter (1990)

2.2.1.1 The quality of factor conditions

This component of the diamond refers to "*the nation's position in factors of production, such as skilled labour or infrastructure, necessary to compete in a given industry*" (Porter, 1990:78). Human, natural and capital resources, as well as physical, administrative, information, scientific and technological infrastructure are elements which affect the quality of factor conditions (inputs) (Porter *et al.*, 2007).

Davies and Ellis (2000) allude to the function of this component in its ability to give a more disaggregated definition of the various factors. Davies and Ellis (2000) further explain that either an abundance of a factor and in contrast its absence or high cost of factors may have a stimulating effect on the industry and help the industry to compete. It is however important that these factors are harnessed strategically by the firms competing for them.

2.2.1.2 The context for firm strategy and rivalry

Porter (1990:78) defines the context for firm strategy and rivalry as "*the conditions in the nation governing how companies are created, organized and managed, as well as the nature of domestic rivalry*." Elements which comprise the environment of firm strategy and rivalry are firstly the extent to which the domestic regulations and the environment promote sustained upgrading and investment. Secondly, the prevalence of a system which incentivises merit throughout all institutions and finally, high levels of domestic competition also form part of this context (Porter, 2004).

The main functions of firm strategy and rivalry are firstly its indication that the structures and strategies of firms are dependent on the national environment. Secondly, it also signals the systematic differences which are prevalent in the business sectors of various countries which affect the firms' approach to competition as well as their competitive advantage (Smit, 2010). Without a customer demand existing for these firms' product or service offering, firms would be unable to compete.

2.2.1.3 The quality of local demand conditions

Thirdly, the quality of local demand conditions comprises "*the nature of home market demand for the industry's product or service*" (Porter, 1990:78). Local consumers who are both sophisticated and demanding contribute to the quality of local demand conditions in three ways. These are that the needs of domestic consumers anticipate those elsewhere, the ability to serve atypical domestic demands in specialised segments and the fact that consumers have high expectations (Porter *et al.*, 2007).

Both the sophistication of consumers and the size of their demand affect the quality of local demand conditions. This assists firms in distinguishing, interpreting and responding to the needs of consumers (Smit, 2010). Smit (2010) further states that the role of this component is to ensure innovation and the upgrading of firms' competitiveness to meet the above-mentioned

demand. Firms do not function on their own in servicing this customer demand, but also access related and supporting industries.

2.2.1.4 The presence of related and supporting industries

The final component of the diamond, according to Porter (1990:78) is "*the presence or absence in the nation of supplier industries and other related industries that are internationally competitive*". This component consists of two elements, namely the presence of clusters of firms instead of isolated industries and the access to capable domestic suppliers as well as firms in related industries (Porter, 2004).

Porter (2000) espouses that there are three broad effects of clusters on competition within the diamond framework. Firstly, it leads to an increased capacity for innovation and secondly productivity in firms. Finally, new business formation which expands the cluster also flows from it (Porter, 2000). Ketels (2006) indicates that this component of the diamond functions on a static level, leading to higher performance, as well as on a dynamic level by enabling higher productivity growth through rival firms' pressure, lower costs and access to new ideas.

2.2.1.5 Interaction between components and external forces

As seen in the aforementioned sections, each component of the diamond addresses certain contributors to competitiveness. However, Figure 2.1 serves as an illustration of the interaction between the components, indicating that the elements of the diamond do not function as standalone entities.

Porter (1990), in his discussion of the diamond as a system, stated that the points (or elements) of the diamond are self-reinforcing. Two sub-elements, namely domestic rivalry and geographic concentration, have significant power to transform the elements of the diamond into a system. The interactions between the elements work in all directions and are mutually supporting, while the system promotes the formation and expansion of clusters.

Above and beyond the four components of the diamond, Porter also advocates chance (i.e. exogenous shocks) and government interventions as factors which serve to complement competitiveness (Smit, 2010). Porter (2004) further states that government has a role in all four of the components of the diamond. An example thereof is the regulation of the four elements. The role of government, according to Porter (2004:33), is to "*set the right rules and incentives and make the public investments needed for a productive economy*." Berman (1990) underlines this role of government and states that the role is indirect in nature, rather than direct intervention in the market.

Exogenous shocks, or chance, as referred to by Porter in Herciu (2013), allow the model to account for external, unpredictable events. Oz (2002) attests to the role of chance when assessing Porter's framework for Turkey, finding that events of chance in the Turkish industries under review were prevalent and mostly of a favourable nature.

The diamond is however not without detractors and the debate surrounding Porter's (1990) Diamond of National Advantage is discussed in the next section.

2.2.2 Critique / debate

It is necessary to ascertain what the importance of competitiveness is. Porter (1990) emphasises the link between productivity and competitiveness, which forms the basis of his research on the subject. The competitiveness of a nation (and its standard of living) according to Porter (1990) is therefore dependent on firms' ability to be productive and increase their productivity over time. Furthermore, these productive and competitive firms focus on innovation, improving sophistication and exist in an environment which fosters competition. The creation of valuable goods and services also flows from these competitive firms, which in turn can attribute to a country's development (Porter, 1990).

Countries go through stages of competitive development, as stated by Porter *et al.* (2007). The first stage is a factor driven economy, which focusses on low cost labour and unprocessed natural resources to create a competitive advantage. Secondly, investment driven countries gain their advantage from the efficient production of more advanced products and services. Finally, innovation driven economies produce products and services on the frontier of global technology through advanced methods. However, the legitimacy of national competitiveness and its stages of development have been challenged.

Since the publication of Porter's (1990) *The Competitive Advantage of Nations,* a debate has arisen about the validity of competitiveness within a national context. The main school of thought opposed to the concept of national competitiveness was headed by Krugman (1994). Krugman (1994) structured the debate as one of management theory versus economic theory. Researchers are divided on this topic.

Some of the arguments in favour of national competitiveness are summarised by Ketels (2006). According to Ketels (2006), Porter's approach gives insight into certain blind spots which can be found in traditional economic theory and the models derived from it. Firstly, Porter acknowledged that market forces can create an environment which assists firms in becoming more prosperous, but states that this process is not linear, can be time consuming and could be dependent on various equilibrium outcomes which are affected by preliminary circumstances and the specific sequence of actions. Through the aforementioned, Porter does not aim to reverse market forces through intervention, but rather to speed up this process and try to attain the best possible outcomes. Secondly, Porter observed that various economic models which were used in policy advice did not fully consider the intricacies within an existing economy, especially with reference to its legacies and corresponding institutional details (Ketels, 2006). From a management perspective, Foss (1996) indicates the importance of Porter's (1990) effort in bringing economics to firm-level strategy research and acknowledges the contribution it makes to the resource-based view of the firm (see also Smit, 2010)).

Certain arguments against national competitiveness are stated by Smit (2010). One of the arguments against Porter's (1990) diamond is the fact that countries do not compete on an international level as opposed to the competition which exists between firms within a country (Smit, 2010). Furthermore, Smit (2010) states that trade is a positive sum game, rather than

a negative sum game. In other words, this implies that trade between countries is to the advantage of all nations involved, rather than to one country's advantage and the detriment of all others involved. The competitiveness of services is another factor which, according to Krugman (1994), needs to be analysed in more depth by Porter. Criticism emanated from both economic and management schools of thought.

Management criticism can be found in Rugman's (1991) paper entitled "*Diamond in the rough"*. Rugman (1991) remarks that Porter (1990) ignores the role that multinationals and a country's largest trading partner perform in influencing the competitiveness of a country. This is especially relevant to small, open economies (where multinationals form a significant element of the economy) if policy recommendations were to be made and implemented (Rugman, 1990). Ketels (2006) refutes this statement, stating that the function of multinationals is not denied anywhere within the competitiveness framework. On an economic level, Davies and Ellis (2000) allude to the fact that Porter (1990) has no *ex ante* hypotheses which is tested on a set of data, while it is also not a substitute for traditional and new trade theories. Lall (2001), as well as Davies and Ellis (2000), identify that one of the main challenges to competitiveness is the definition thereof, which is too broad. Furthermore, Lall (2001), in the analysis of the WEF's Global Competitiveness Index (GCI) which is based on Porter's (1990) diamond, states that relationships between variables in the index are confused or not justified in theory. This confusion is illustrated in the use of so-called "non-standard" variables and a lack of rigour evidenced in empirically applying these variables.

Table 2.1 contains a taxonomy on the differing views surrounding competitiveness as composed by Mulatu (2016:56), many of which correspond with the arguments listed above. Mulatu (2016) divides these views into three schools of thought, each with a main view and underlying argument and proposes counter arguments to each.

Table 2.1 – Taxonomy of various views on national competitiveness

Schools of thought	Main view on competitiveness	Underlying key argument	Possible counter-argument
Neoclassical economics	A meaningless concept: a fallacy based on simple analogy between corporations and countries	No ground for countries to compete for market share. Given 'comparative advantages' determine trade patterns which are mutually-advantageous. 'There is no difference between producing potato chips & semi-conductor chips	Is comparative advantage necessarily exogenous? And, aren't some activities More desirable (because of externalities) than others?

Table 2.1 (cont.) – Taxonomy of various views on national competitiveness

Schools of thought	Main view on competitiveness	Underlying key Argument	Possible counter-argument
Semi-competitiveness	Has a limited meaning: it is about benchmarking of national economic performance without implying any potential international economic rivalry	Comparative advantage 'evolves' to reflect changing 'capabilities' for innovation and growth (competitive advantage)	What is the rationale for casting the issue of economic success (capability) in the context of international competition? Why should one be concerned with 'relative' as opposed to 'absolute' productivity?
Competitiveness	A central theme in economic development: it is about being engaged & being efficient in 'high-value' sectors capable of raising overall national welfare (as opposed to mere ability to sell or locational attractiveness)	'Comparative advantage' in some products is more desirable (in terms of the overall economy) than others. And 'comparative advantage' can be created through 'auto-catalytic' external economies (i.e. chance, history & public policy can produce trade patterns)	Is 'competitiveness' any use for real-world policymaking?

Source: Mulatu (2016:56)

However, Lall (2001) concedes that the GCI (and by association Porter's (1990) Diamond) captures much of the dynamic nature of comparative advantage. Furthermore, as acknowledged by Díaz-Chao *et al.* (2016), the seminal work done by Porter (1990) has enabled interest in the field of competitiveness. This has led to Díaz-Chao *et al*. (2016:1770) formulating a microeconomic model of competitiveness entitled the "*Concentric circles model of small network-firm competitiveness*".

Against the background of this debate, studies such as the afore-mentioned indicate that Porter's (1990) could then still be applied as a framework for analysing the state of microeconomic activity / competitiveness in a country. Porter (1998) outlines the elements of microeconomic competitiveness, namely company sophistication, the business environment and clusters. Company sophistication is attained through a unique product or service offering, the use of innovative technology and the employment of sophisticated business methods. The business environment is described by the four forces of Porter's (1990) Diamond of National Advantage, while clusters contain a critical mass of firms involved in a specific field within a geographic location. The above factors indicated what aspects of microeconomic competitiveness were envisaged for analysis by Porter (1998).

This is substantiated by Porter (2004) who considers various country sources of competitive advantage in his Business Competitiveness Index (BCI), which has its origins in the Diamond of National Advantage. Furthermore, Porter's (1990) seminal work on the Diamond of National

Advantage forms the theoretical approach to identifying constraints to firm-level competitiveness in the business environment, as in the study done by Matthee *et al.* (2015).

Smit (2010) acknowledges the shift in Porter's approach, where the focus on the microeconomic foundations of competitiveness becomes evident. The focus is therefore on ensuring the microeconomic competitiveness of firms in countries, which can be affected by various factors. From Porter's research and the research niche of competitive analysis which developed from it, various studies analysing both macroeconomic and microeconomic factors in the field have evolved, which is discussed in the next section. "*Macroeconomics*," as defined by Weber (2003:33), "*is the study of entire economies and economic systems and specifically considers such broad economic aggregates as gross domestic product, economic growth, national income, employment, unemployment, inflation, and international trade*." Webber (2003:33) further defines microeconomics as the "*study of the behaviour and interaction of individual economic agents*…" and that some of its focal areas include "*profit maximization, utility maximization, revenue or sales maximization, product pricing, input utilization, production efficiency, market structure and capital budgeting*…" Webber (2003:33). In Section 2.2.3, various factors which affect competitiveness from a microeconomic and / or macroeconomic standpoint are identified from various reports analysing competitiveness.

2.2.3 Measuring competitiveness: macroeconomic and microeconomic factors affecting competitiveness

The IMD's (2013) definition of competitiveness mentioned two important elements of competitiveness, namely the creation of an environment conducive to value creation and secondly one of the key role players, namely firms. Similarly, drivers of or factors affecting competitiveness can be divided into two sets according to Ketels (2006). Firstly, these drivers occur on a social, political, macroeconomic and legal level, which forms the overall environment or macroeconomic dimensions that influence competitiveness. Ulengin *et al.* (2002) underline these drivers and add technology as an important factor.

Secondly, drivers also exist in microeconomic foundations (Ketels, 2006). Microeconomic factors which affect competitiveness according to Porter (2004) encompass two areas. Firstly, the sophistication of domestic firms' and foreign subsidiaries' company operations and strategy plays a role and secondly, the quality of the business environment where their operations are of importance.

Various institutions analyse the competitiveness and business environment of countries. A range of factors affect productivity and competitiveness, as stated by the WEF (2013). Three of the reports which consider various macroeconomic and microeconomic factors that affect competitiveness are the WEF's (2015) Global Competitiveness Index (GCI), the IMDs (2014) World Competitiveness Yearbook and the World Bank's (2016d) Doing Business Report, which are discussed separately.

2.2.3.1 World Economic Forum – Global Competitiveness Index

With its first publication in 1979, the World Economic Forum's Global Competitiveness Report can be viewed as one of the original analyses on competitiveness (WEF, 2014). The WEF's (2015) GCI for 2015-2016 studies 140 economies and twelve pillars are used to form the index. These pillars are illustrated in Figure 2.2 below. The factors listed indicate a mixture of both macro- and microeconomic factors affecting competitiveness. To compile the data used in the report, statistical data is sourced from internationally recognised agencies such as the International Monetary Fund and combined with qualitative data from the WEF's yearly Executive Opinion Survey (WEF, 2015). Based on this data, countries receive a ranking out of seven for each of the pillars below, which is then combined to give an overall ranking out of seven (where seven is best) and this is used to determine the countries' relative position in the index (WEF, 2015).

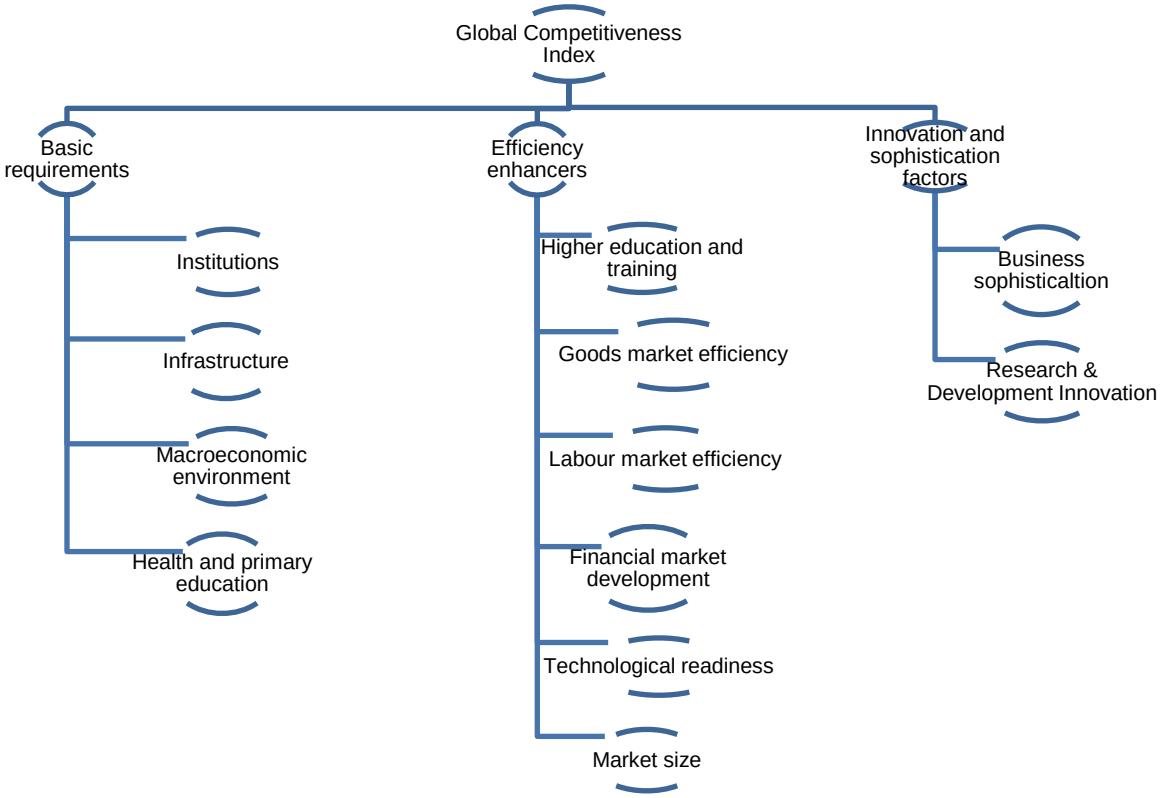

Figure 2.2 - Global Competitiveness Index

Source: WEF (2015)

The indicators in the GCI are divided into three categories pertaining to levels of development in a country, namely basic requirements, efficiency enhancers and innovation and sophistication factors. Basic requirements are instrumental in ensuring competitiveness while countries compete with their factor endowments (factor-driven stage of development). Developmental progress of a country will move it into the efficiency-driven stage of development, where efficiency enhancers are significant factors in ensuring competitiveness. The final stage of development (innovation-driven stage) is dependent on various innovation and sophistication factors (WEF, 2015).

The WEF (2013) states that its focus is to study and benchmark the underlying factors affecting competitiveness, while also helping countries gain insight into and overcome barriers to competitiveness. The WEF's (2015) analysis of competitiveness has been based on the Global Competitiveness Index since 2005, ensuring that both macroeconomic and microeconomic factors' effects on competitiveness could be analysed.

Another recent addition to its analysis of competitiveness is the focus on the complex relationship that exists between competitiveness and sustainability, as represented by environmental and societal dimensions. This adjusts the GCI by adding two further pillars (environmental – and social sustainability) to the GCI. Key indicators for environmental sustainability are environmental policy, the use of renewable resources and degradation of the environment. Social sustainability indicators evaluate access to basic necessities, vulnerability to shocks and social cohesion (WEF, 2013). This provides an even more holistic view of competitiveness.

The second comprehensive study in the competitiveness field is the IMD's (2014) World Competitiveness Yearbook. This report is discussed below.

2.2.3.2 International Institute for Management Development – World Competitiveness Yearbook

The IMD's (2014) World Competitiveness Yearbook for 2014, much like the WEF's (2015) GCI, allows an extensive micro- and macroeconomic study of competitiveness elements within a nation. The Yearbook was first published in 1989 and currently comprises 60 nations (IMD, 2014). Four groups of factors with 20 elements form the World Competitiveness Yearbook. Macerinskiene and Sakhanova (2011) illustrated these factors, as can be seen in Figure 2.3. Similar to the GCI, quantifiable data for 135 criteria is compiled from regional, national and international organisations, while qualitative data for 118 criteria is sourced from an Executive Opinion Survey (IMD, 2014). This data is then combined into indices (0 to 100) for the individual competitiveness factor rankings, as well as the overall competitiveness ranking (IMD, 2014).

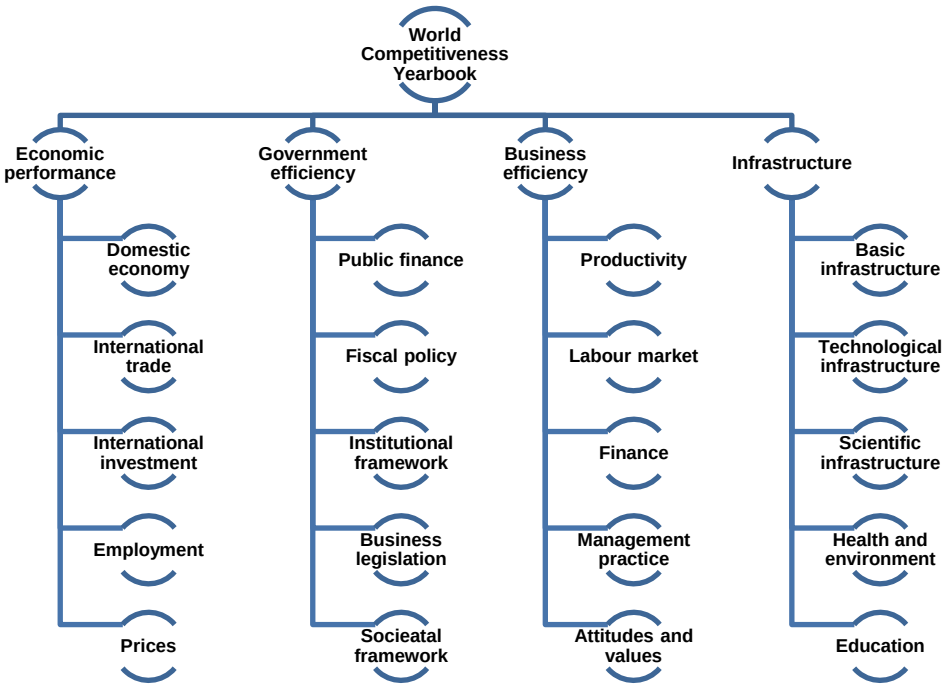

Figure 2.3 - World Competitiveness Yearbook

Source: Macerinskiene and Sakhanova (2011)

The four groupings of factors consider the economic performance, government efficiency, business efficiency and infrastructure of a country. Economic performance reveals a macroeconomic analysis of the country's domestic economy, while government efficiency determines the extent to which policies of government are conducive to competitiveness. Furthermore, business efficiency gives an indication of the national environment's ability to encourage firms to perform in an innovative, profitable and responsible manner. The final grouping of factors pertain to infrastructure and explains the extent to which basic, technological, scientific and human resources meet the needs of business (IMD, 2013).

The IMD (2013) World Competitiveness Center's focus with regard to world competitiveness is to examine how countries and firms manage the entirety of their competencies to achieve increased prosperity. Although an in-depth analysis, only 60 countries (mostly developed / industrialised nations) are included in IMD's (2014) World Competitiveness Yearbook. The issue that presents itself from the above is that only limited country data can be gleaned from the Yearbook, especially from countries which need to improve their competitiveness. Having considered both the afore-mentioned Global Competitiveness Index and the World Competitiveness Yearbook, which contained micro- and macroeconomic factors affecting competitiveness, it remains to overview the micro economically-focussed World Bank (2016d) Doing Business Report.

2.2.3.3 World Bank – Doing Business Report

With its specific focus on the business environment, the World Bank's (2016d) Doing Business 2016 report considers ten factors in its analysis. It was first published in 2004 and currently covers 189 economies (World Bank, 2016d). These factors can be subdivided into five

categories spread across the scope of business activities, which are illustrated in Figure 2.4, as seen below.

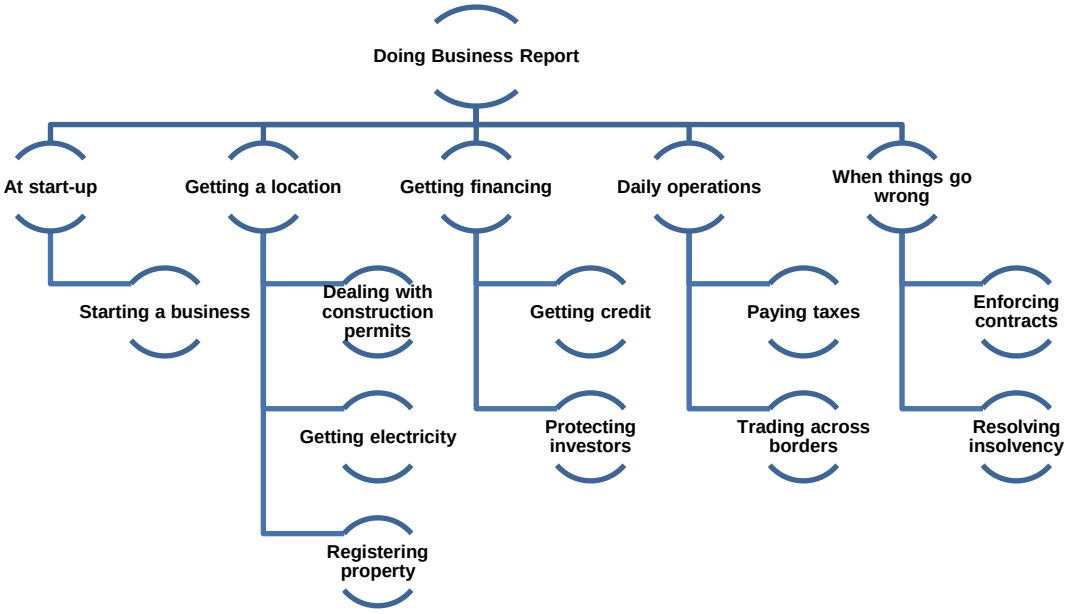

Figure 2.4 - Doing Business Report

Source: World Bank (2016d)

These five categories represent phases in a firm's existence and the factors which affect them. In each of these phases, the factors displayed either indicate the complexity and cost of regulatory processes or display the strength of legal institutions in the country. The complexity and cost of regulatory processes mainly consider time, costs and procedures associated with starting a business, dealing with construction permits, getting electricity, registering property, paying taxes and trading across borders. Conversely, the strength of legal institutions analyses underlying legal facets linked to getting credit, protecting investors, enforcing contracts and resolving insolvency. Another factor related to the afore-mentioned considers employing workers, specifically the flexibility of employment regulations, but was not included in the 2014 rankings and onwards (World Bank, 2013).

Data is sourced from pertinent regulations and laws in the countries included in the report and questionnaires are sent to government officials and private sector practitioners, governments themselves and regional staff from the World Bank (World Bank, 2016d). Each country's ranking is established by a distance to frontier score which compares the distance of a country's score to best performance in each factor. This is then averaged across the various topics for a total ranking, where the closer the score is to the frontier (i.e. higher), the better (World Bank, 2016d).

When considering the focus of the Doing Business Report, the World Bank (2013:v) aims to *"...deliver a body of knowledge that will catalyse reforms and help improve the quality of the rules underpinning the activities of the private sector."* The importance of the above focus lies in the sensibility and transparency of regulations which encourages competition. This in turn leads to an environment conducive for the creation and growth of firms (World Bank, 2013).

With the three reports and the various focal points overviewed, it remains to identify recurring factors in these reports. The following section is dedicated to the summary of corresponding micro- and macroeconomic factors affecting competitiveness according to these reports.

2.2.3.4 Corresponding factors

All the factors in the three abovementioned reports have a greater or lesser impact in determining the competitiveness of firms in a country. However, only certain indicators of competitiveness recur across the WEF's (2015) Global Competitiveness Index for 2015-2016 (GCI), the IMD's (2014) World Competitiveness Yearbook and the World Bank's (2016) Doing Business Report.

The three recurrent factors visible in all reports to a certain extent are finance, the labour market and infrastructure. Investment, technology, health and education, business legislation, institutions, productivity and international trade correspond in two of the three reports. These factors give an indication of the wide range of factors affecting the environment in which firms operate and in turn the competitiveness of a firm.

When the corresponding factors are discussed, it remains important to identify possible linkages to Porter's (1990) Diamond of National advantage and its four elements.

The quality of factor conditions, as discussed in Section 2.2.1.1, refer in essence to the cost and availability of resources (human-, natural- and capital resources) and a range of physical, administrative-, information, scientific and technological infrastructures which assist in attaining competitiveness.

Secondly, the context for firm strategy and rivalry denotes conditions which affect firm creation, organisation and management, while also highlighting aspects pertaining to domestic competition, as overviewed in Section 2.2.1.2.

Section 2.2.1.3 further discussed the third aspect, namely quality of local demand conditions and comprised the demand for domestic products or services and the ability to adapt to customer expectations.

The fourth element, namely the presence of related and supporting industries was discussed in Section 2.2.1.4. This element pertains to the clustering of firms in the same industry and the accessibility of proficient domestic suppliers and related industries' firms.

Table 2.2 contains selected factors from the afore-mentioned three reports, the WEF's (2015) GCI (Global Competiveness Index), the IMD's (2014) WCY (World Competitiveness Yearbook) and the World Bank's (2016d) DB (Doing Business report) which broadly correspond to these elements.

Table 2.2 – Corresponding competitiveness aspects

GCI	WCY	DB
Quality of factor conditions		
Judicial independence	Total employment	Improved regulation of electricity connection process & costs

Table 2.2 (Cont.) – Corresponding competitiveness aspects

GCI	WCY	DB
Intellectual property protection	Accessibility of capital markets	Strengthened transport / port infrastructure
Quality of overall infrastructure	Labour regulations	Improved customs administration
Quality of roads, railroads-, port- & air transport infrastructure	Availability of credit	Improved port procedures
Quality of electricity supply	Availability of venture capital	Altered labour hiring rules
Mobile telephone subscriptions	Basic Infrastructure	Changed labour redundancy cost & procedures
Fixed telephone lines	Technological Infrastructure	
Internet users	Scientific Infrastructure	
Availability & affordability of financial services		
Quality of scientific research institutions		
University-industry collaboration on research & development		
Context for firm strategy and rivalry		
Favouritism in decisions of government officials	Bribing and corruption	Simplified pre-registration & registration procedures
Efficacy of corporate boards	Tariff barriers	Simplified post registration procedures
Ethical behaviour of firms	Competition legislation	Expanding shareholders' role in company management
Intensity of local competition	Ease of doing business	
Extent of market dominance	Start-up days & procedures	
Number of procedures & time to start a business	Overall productivity of employees & firms	
Prevalence of trade barriers	Number of listed domestic companies	
Trade tariffs	Social responsibility	
Company spending on research & development		
Quality of local demand conditions		
Degree of customer orientation	Public sector contract openness	Expanded scope of information collected by credit bureaus
Buyer sophistication	Gini-Index	Introduced bureau or registry credit scores as a value added service
Domestic market size index	Adaptability of companies to market changes	
Capacity for innovation	Customer satisfaction	
	Innovative capacity	
Presence of related and supporting industries		
Availability of latest technologies	Efficient support of banking and financial services	
Local supplier quantity & quality	Public and Private sector ventures	
State of cluster development		

Source: Author's compilation from WEF (2015), IMD (2014), World Bank (2016)

Without the presence of finance, labour and infrastructure, as well as the other corresponding factors recurring in these reports, the ability of firms to compete in and contribute to the national economy is detrimentally affected. Against this background, the microeconomic competitiveness of firms is investigated in Section 2.3, with specific consideration given to fragile states.

2.3 LITERATURE REVIEW – MICROECONOMIC COMPETITIVENESS AND FCS COUNTRIES

In Chapter 1, the importance of intervention in fragile and conflict-affected states (FCS)[2] was emphasised. The causes of fragility were mentioned, as well as the various economic differences between FCS countries and other developing nations. As such, a possible intervention to identify barriers to microeconomic competitiveness was mooted to improve African countries' resilience to fragility. The focus of this section is firstly to underline the role of the firm and its competitiveness in the economy, followed by an analysis of barriers to growth. Thirdly, the importance of the micro economy is discussed within the context of FCS countries.

2.3.1 Role of firms in the economy

To ascertain the impact of barriers to firm-level competitiveness in FCS countries, one firstly has to understand the role that firms play within any country's economy. The contributions of firms to the economy can be seen in the income-and-expenditure as well as the goods-and-services flows, where they play a role in production, imports, exports, income-generation, expenditure, savings and taxation (Mohr & Fourie, 2007). These contributions include employment of workers, as stated by Mohr and Fourie (2007), as well as the production of various goods and services (Pindyck & Rubinfield, 2005). Furthermore, firms are responsible for innovation, as stated by Stangler (2010), while also serving as an initiator and source of investment. Productivity and living standards are also affected, as indicated by Nasar (2013).

The inherent nature of heterogeneous firms and the characteristics which define them link to the contribution that these firms make in the economy (Mehanna & Yazbeck, 2009). The size of firms is an important consideration according to Shaffer (2002). Webster (2003) also refers to firm size by indicating that firms are able to gain certain efficiencies (i.e. productivity) with increased size. Dolfsma and Van der Velde (2014) counter this by stating that smaller firms are more innovative. The competitiveness of both the firm, according to Porter *et al.* (2007) and market (monopoly, oligopoly, monopolistic competition or a theoretical fully competitive market) as indicated by Pindyck and Rubinfield (2005) affects the firm's interaction with the economy. Another characteristic advocated by Fort *et al.* (2013) is the age of the firm. Fort *et al.* (2013) have found that younger firms are more exposed to business cycles and able to innovate, but make a disproportionately large contribution to job creation compared to older firms, while older firms have more stability and profitability in most cases. Stutz and Warf (2007) emphasise the role which the geographic location of the firm and the industry in which it is established fulfils in the contribution to the economy, where geographic adjacency and /

[2] International Development Association (IDA) (2013:2) defines fragile and conflict-affected states (FCS) as "(i) countries which have a harmonized average Country Policy and Institutional Assessment (CPIA) rating of 3.2 or less (or no CPIA); or (ii) have or have had a UN and / or regional peace-keeping or peace-building mission during the past three years.

or cultural similarity create opportunities for growth (and per implication increased competitiveness) through acquisitions.

When considering the relationship between firms and growth, Nasar (2013:64) overviewed both Schumpter's (fostering a business climate) and Marshall's (increasing productivity) theories on entrepreneurship and stated: *"...improving the business environment and innovation would seem to be necessary conditions for spurring growth..."* This leads to the next section, where the importance of the micro economy for fragile and conflict-affected states is investigated (FCS countries).

2.3.2 Importance of the micro-economy for FCS countries

2.3.2.1 Background to fragility

Countries become and remain fragile because of conflict, low development status, vulnerability and the inability to deliver their core functions (Naudé & McGillivray, 2011). The three fundamental elements of a state are authority, legitimacy and capacity and a deficit in any element could increase fragility, according to Carment *et al.* (2011). Carment *et al.* (2011) also overview the Country Indicators for Foreign Policy (CIFP), which analyses security and crime, the economy, governance, human development, environmental factors and the demography as indicators of fragility. Fragility in a country carries certain costs to the economy.

The costs of failing and / or fragile states to economic growth were analysed by Chauvet *et al.* (2011). They found that, during the 1990-2001 time-period, economic growth per capita averaged -0.06% in low-income countries under stress (LICUS), the predecessor to the World Bank's fragile countries. This was contrasted by an average growth per capita of 2.8% in non-LICUS countries over the same time period (Chauvet *et al.*, 2011). However, the effect on growth was not only felt in the fragile country itself, as on average, globally direct neighbours lost 0.6% off their growth rates, while their neighbours lost 0.2% of their growth rate, as indicated by Chauvet *et al.* (2011). This significant impact on growth leads to various responses and actions initiated by various countries, to move out of fragility into resilience.

Responses available to countries are divided by Kaplan (2009) into two categories, namely traditional responses and a new paradigm proposed by Kaplan. Traditional responses include international aid, competitive elections, as well as economic and administrative reform (Kaplan, 2009). In contrast, Kaplan's (2009) new paradigm comprises decentralisation, the integration of traditional norms, while also focussing on the preservation of unity and security in the state. One of the traditional responses, namely economic reform and the development that flows from it, cannot be underestimated.

Olson (1993) explained that the long-run relationship between economic development and democracy (i.e. a stable, open political system) is positive. Dibeh (2011) furthers the role of economic development by espousing that the formulation of a national economic development plan is necessary to transcend divisions in a country. Economic development is seen, according to Porter, as "*a sequential process of building interdependent microeconomic*

capabilities, shifting company strategies, improving incentives and increasing rivalry" (Matthee *et al.*, 2015:529).

However, the political environment and the state itself in various fragile countries are not necessarily conducive to the afore-mentioned economic development. Ault and Spicer (2016:1809) contend that *"the state fragility literature extends the conceptualization of the state's influence on economic activity to include multiple functions and consequences."* In other words, the political stability or inversely instability of a state can lead to various economic consequences. Political instability, economic collapse and weakness of institutions are prevalent in fragile states, as stated by Grimm *et al.* (2014). "*These* (business / microeconomic) *environments* (in fragile states) *do not necessarily deviate from other emerging and developing countries only because of their depth of failure on a single indicator of state capacity, but also the breadth of collapse across multiple state functions at the same time"* (Ault & Spicer, 2016:1810). With the evident exposure of the microeconomic environment in fragile states to political instability, this becomes an important aspect which is analysed further in the empirical section.

2.3.2.2 Improving the micro-economy in FCS countries

While many interventions or responses to improving resilience in FCS countries are on a macroeconomic level, this article attempts to lay the microeconomic foundations (bottom-up approach) for firm-level competitiveness. Lall (2001) emphasised that the focus on the micro-economy as vital contributor to competitive performance forms one of the core strengths of the World Economic Forum's (WEF) competitiveness report. The WEF's Global Competitiveness Report also has Porter's (1990) Diamond of National Advantage, with its focus on microeconomic competitiveness, at its heart. Furthermore, Lall (2001) states that the WEF is accurate in its assessment that, though the improvement of a country's macroeconomic situation is important, it is not sufficient to ensure persistent economic growth in countries where severe structural deficiencies are present.

If macroeconomic responses alone are deemed to be deficient, as per the above statement, then the role of the micro-economy needs to be considered. Leo *et al.* (2012:4) indicate the importance of the micro-economy in the rebuilding of fragile states"...*could make the private sector a particularly viable and valuable target for economic development interventions in fragile states. Therefore, promoting private sector growth in fragile states could be one tangible first step toward better governance and more diverse, robust economies.*" The microeconomic application of Porter's (1990) Diamond of National Advantage forms the final section of the literature review.

2.3.3 Microeconomic application of Porter's Diamond of National Advantage

Porter and Van der Linde (as cited by Ketels (2006)) indicate that problems at environmental and social level (which could in this case point to Fragile and Conflict affected states) regularly point to low productivity when using resources and that this is exacerbated by low competitiveness. With the above relationship between competitiveness and FCS countries in

mind, a compilation of selected studies was done where competitiveness as envisaged by Porter (1990) was investigated at a microeconomic level. Porter (1998) equates competitiveness to productivity in his overview of the microeconomics of competition and identifies company sophistication, the business environment and clusters as the microeconomic contributors of competitiveness.

One of the studies building on Porter (1990)'s study on competitiveness (termed economic prosperity in the study) was done by Mehanna and Yazbeck (2009), applying it to the microeconomic environment. The study was done across 107 countries from 2003 to 2006 and evaluated three key areas by firstly determining how business ethics and business innovation were related to discrepancies in economic prosperity. Secondly, the relationship between ethics and innovation in firms was investigated and finally, what role macro- and microeconomic foundations played in competitiveness (economic prosperity). Mehanna and Yazbeck (2009:14) found that "*…the sustainability of economic prosperity relies on the capacity of companies to enhance their competitive advantage through innovative products and processes.*"

Another theme flowing from the Diamond of National Advantage which was investigated on a microeconomic level by Rugman, Oh and Lim (2012:218) is entitled: *The regional and global competitiveness of multinational firms*. The study investigated the links which international competitiveness created between firm- and country-specific advantages with specific focus on multi-national firms. Data for 1999 and 2008 from 500 firms (part of the Fortune Global 500) was used in this study. Rugman *et al.* (2012) found that, except for a few firms, most firms established location-specific advantages in their region of origin and struggled to translate that competitiveness to regions outside their own.

Firm- and country-specific advantages also form the basis of Bhaumik *et al.* (2016) but is investigated in terms of emerging markets, specifically considering China. Around 13 107 firms were overviewed as part of this study for a period from 2005 to 2009. The research contends that emerging multinational firms gain benefits from country specific- (e.g. economies of scale) rather than firm-specific advantages (e.g. technology), which is contrary to the traditionally held view.

One of the key factors of Porter's (1990) Diamond is investigated in Murmann *et al.* (2015), namely demand conditions. The study is entitled: "*The role of home country demand in the internationalization of new ventures*" (Murmann *et al*., 2015:1207). It encompassed 1838 firms which were split between "*small-demand*" countries (e.g. Israel, Australia and Taiwan) and "*large-demand*" countries (e.g. France, Germany and the United Kingdom). Murmann *et al.* (2015) postulated that limited demand in so-called "*small-domestic demand countries*" led to a greater tendency by new ventures to form international partnerships which cause these ventures to internationalise.

Finally, Matthee *et al*. (2015) studied post-conflict reconstruction in Zimbabwe and the constraints to microeconomic competitiveness which existed within the country. In the study, 598 firms were assessed through business related data compiled by the World Bank in 2011, specifically also comparing non-politically constrained firms with those that were politically constrained. The differences in obstacles to competitiveness between these two types of firms were analysed and it was found that these obstacles might influence firms' willingness to invest.

The various responses to fragility in Section 2.3.2 above considered the economy and in certain cases conceded that the micro-economy has a role to play. Section 2.3.3 overviewed selected research where microeconomic competitiveness was applied in these studies. However, what has not yet been considered is the microeconomic competitiveness aspect with respect to fragile and conflict-affected states. This article focusses on microeconomic competitiveness as derived from Porter's (1990) seminal work on the Diamond of National Advantage, in a similar vein as Matthee *et al*. (2015), but the article focusses on a group of fragile countries in Africa.

2.3.4 Conclusion

This section overviewed competitiveness in general and specifically the role of microeconomic competitiveness. Porter's (1990) seminal research on the Diamond of National Advantage was first highlighted, with an overview of the key components of the Diamond. These were firstly strategy, structure and rivalry, secondly factor conditions, thirdly related and supporting industries and finally demand conditions, as well as the external forces which affect the Diamond. This was followed by a discussion on the importance of competitiveness and key aspects of the debate around national competitiveness. Criticism from both the management and economic schools of thought was included and also comprised a taxonomy of views on competitiveness from the neoclassical, "semi- competitiveness" and competitiveness schools of thought. The shift in approach in applying competitiveness on a microeconomic level was acknowledged, which was followed by an overview of three key reports on competitiveness (World Competitiveness Yearbook, Global Competitiveness Index and Doing Business Report). Corresponding factors between the reports included a focus on finance, the labour market and infrastructure, while applicable aspects in the three reports corresponding to Porter's (1990) Diamond were also highlighted which concluded Section 2.2.

In Section 2.3, the role of microeconomic competitiveness was overviewed. An explanation of the role of firms in the economy was given, including the contributions that firms make to employment, production and investment, as well as how firm characteristics such as size, age and geographic location affect the role fulfilled by firms. The relationship between the political environment (or state) and the microeconomic environment was also overviewed. Thereafter, the importance of the micro-economy for FCS countries was discussed, as especially highlighted by Leo *et al.* (2012). In the final segment of Section 2.3, the microeconomic application of Porter's Diamond of National Advantage was considered. The studies amongst others investigated the role that microeconomic and macroeconomic foundations play in competitiveness, as well as evaluated links between firm- and country specific advantages created by international competitiveness. Other studies also evaluated how demand conditions affect the internationalisation of new ventures, as well as the role of microeconomics in post conflict reconstruction. This leads to the Diamond's use as theoretical basis for the empirical analysis which follows in Sections 2.5 to 2.7, after the country analysis that is done in Section 2.4.

2.4 AFRICAN FRAGILE COUNTRIES

Among the World Bank's (2015) list of fragile countries, 18 African countries were identified as being in fragile situations. These countries are spread across the continent as well as different income groups. Furthermore, there are also various underlying reasons for these countries' fragility.

To overview these countries, they are first sub-divided into the various geographic regions of Africa. This is useful as possible causal commonalities with regard to fragility might come to the fore within regions, while also allowing a more focussed approach to overviewing these 18 countries. The United Nations' (2013) division of countries into various geographical locations was used as the basis of this overview. However, various other classifications could have been used to distinguish between countries, including but not limited to linguistic and economic groupings (customs unions, free trade areas).

The 18 fragile and conflict-affected states (FCS) in Africa identified by the World Bank (2015) are Burundi, CAR, Chad, Comoros, Côte d' Ivoire, DRC, Eritrea, Guinea-Bissau, Liberia, Libya, Madagascar, Mali, Sierra-Leone, Somalia, South Sudan, Sudan, Togo, Zimbabwe. Using the above-mentioned division, the 18 countries defined as FCS nations by the World Bank (2015) are spread across the below geographic regions indicated in Figure 2.5. It is interesting that none of the Southern African countries in the United Nations' (2013) geographic division (Botswana, Lesotho, Namibia, South Africa and Swaziland) are classified as fragile, while contrastingly at least two of the countries in the remaining regions experience fragility.

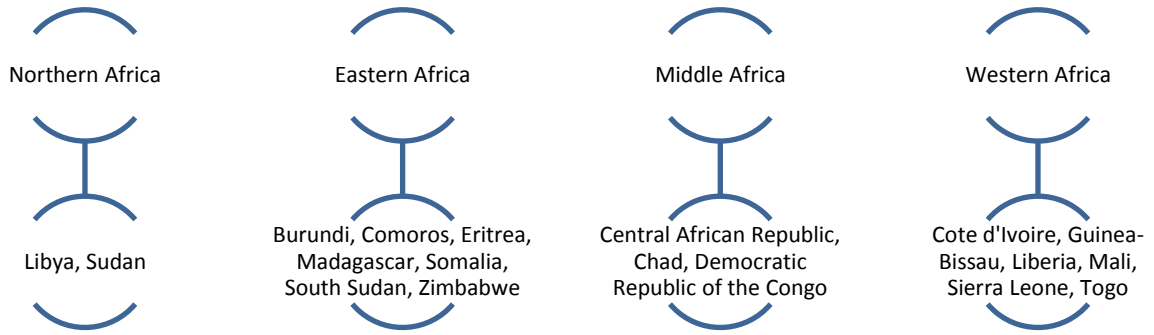

Figure 2.5 – African FCS countries according to the United Nations' (2013) geographic division

Source: Author's own compilation, United Nations (2013), World Bank (2015)

An abbreviated overview of these 18 countries is done per region. Firstly, FCS countries' performance in the most recent WEF Global Competitiveness Report (2016) and World Bank (2016) Doing Business Report were analysed. Important to note is that the IMD's World Competitiveness Yearbook evaluates more developed / advanced nations, as can be seen in the make-up of its 60 countries and therefore the above 18 countries are not ranked.

Secondly, the overview gives a synopsis of the state of certain economic factors for each of these nations, as well as the reason why these countries were classified as fragile. GDP, GDP growth and GDP per capita (for 2014 or closest available year) for each country are displayed as well as the three main sectors which contribute to the economy (also for 2014 or closest available year). When discussing the reason for a country's fragility, it is again useful to reference the IDA's (2013:2) definition of fragile and conflict affected states (FCS) which defines these countries as *"(i) countries which have a harmonized average Country Policy and Institutional Assessment (CPIA) rating of 3.2 or less (or no CPIA); or (ii) have or have had a UN and / or regional peace-keeping or peace-building mission during the past three years."* Against this background, Table 2.3 commences the overview by discussing the state of competitiveness in Northern African FCS countries.

2.4.1.1 State of competitiveness in Northern African FCS countries

Table 2.3 - State of competitiveness in Northern African FCS countries

Country	Global Competitiveness Index		Ease of doing business
	Score (out of 7)	Global ranking (out of 140 countries)	Global ranking (out of 189 countries)
Libya	Not rated	-	188 (187-2015)
Sudan	Not rated	-	159 (159 – 2015)

Source: WEF (2015), World Bank (2016)

The main reasons for Libya's weak ranking in the World Bank's (2016) Ease of Doing Business Index in Table 2.3 is the fact that the study could not identify any set practice for dealing with construction permits, registering property or resolving insolvency, for which it is placed last in the index. Libya is placed highest in the trading across borders category relative to FCS countries, where the country is positioned at 107th of the 189 countries in the index. Notably, the inverse is true for the other Northern African FCS country, Sudan. Trading across borders (184th) in Sudan's case forms the weakest of the country's Doing Business Indicators, while registering property proves to be the strongest element for the nation with a ranking of 89th (World Bank, 2016). Neither of the two countries were ranked in the WEF (2016)'s Global Competitiveness Index. Next key economic focal points for the region are overviewed in Table 2.4.

Table 2.4 - Breakdown of key economic focal points in Northern African FCS countries

Country	GDP (Growth) - 2014	GDP per Capita - 2014	Reason(s) for Fragility	Main Economic Sectors (Top 3 – GDP% @ Current prices)
Libya	US$ 41.143 bn (-24%)	US$ 6573	Political and Peace- Building Missions	– Mining and quarrying (60.8%) – Public administration & defence (16.9%) – Finance, real estate and business services (6.3%)

Table 2.4 (Cont.) - Breakdown of key economic focal points in Northern African FCS countries

Country	GDP (Growth) - 2014	GDP per Capita - 2014	Reason(s) for Fragility	Main Economic Sectors (Top 3 – GDP% @ Current prices)
Sudan	US$ 73.815 bn (3.10%)	US$ 1876	Low CPIA score & Peace-keeping mission	– Agriculture, forestry, fishing & hunting (31.5%) – Manufacturing (15.7%) – Public administration & defence (11.8%)

Source: IMF (2016), World Bank (2015), African Economic Outlook (2016)

Northern African FCS countries have both the average highest GDP (US$ 57.48bn) and GDP per capita (US$ 4224.5) of all fragile states in all African regions, as indicated by Table 2.4 above, with varying growth rates for Libya (negative growth rates) and Sudan (small positive growth rates). These growth rates, as well as those for the subsequent region overviews, have to be viewed with caution, as they are off a low base as evidenced by the GDP of these countries. The reason why Libya is classified as fragile is because of the presence of political and peace-building missions in the country, while Sudan's fragility is because of both a low Country Policy and Institutional Assessment (CPIA) score and a peace-keeping mission in the country. Mining and quarrying (which includes oil), form the largest economic sector in Libya by far, while Sudan receives its largest contribution to GDP from the agriculture, forestry, fishing and hunting sector. This concludes the synopsis on Northern African FCS countries. Section 2.4.1.2 gives an overview of Eastern African FCS countries.

2.4.1.2 State of competitiveness in Eastern African FCS countries

Table 2.5 - State of competitiveness in Eastern African FCS countries

Country	Global Competitiveness Index		Ease of doing business
	Score (out of 7)	Global ranking (out of 140 countries)	Global ranking (out of 189 countries)
Burundi	3.11	136 (139 – 2015)	152 (152 – 2015)
Comoros	Not rated	-	154 (154 – 2015)
Eritrea	Not rated	-	189 (189 – 2015)
Madagascar	3.32	130 (130 – 2015)	164 (164 – 2015)
Somalia	Not rated	-	Not rated
South Sudan	Not rated	-	187 (187 – 2015)
Zimbabwe	3.45	125 (124 – 2015)	155 (155 – 2015)

Source: WEF (2015), World Bank (2016)

When evaluating the ease of doing business for Eastern African FCS countries in the World Bank's (2016) Doing Business Report in Table 2.5, it becomes clear that the procedures in Burundi for starting a business are very highly valued, with a ranking of 19th assigned out of 189 countries. The Comoros' relative strength lies in trading across borders (80th), while Eritrea's strongest indicator is rated a lowly 122nd (Protecting minority investors) and Somalia was not ranked. Madagascar's strength in relation to the other aspects studied lies in the ease

to pay taxes (74th), South Sudan's in the enforcing of contracts (76th) while Zimbabwe's is the ability to get credit (79th), which is interesting when viewed against the country's current weak economic climate.

Although no clear parallels can be seen between the countries' strengths in the region, Eastern African FCS countries have similarities in the weakest indicator in the World Bank's (2016) Doing Business Report. Three of the countries (Comoros, Eritrea at and South Sudan jointly at 189th) indicated that resolving insolvency was their biggest weakness. Getting electricity ranked as the lowest of the indicators for Burundi (185th) and Madagascar (188th), while another joint weakness for Eritrea and Zimbabwe was dealing with construction permits (189th and 184th respectively).

The WEF (2016)'s Global Competitiveness Index in Table 2.5 also highlights low classifications for even Burundi's (110th from 140 countries) and Zimbabwe's (104th) strongest indicators, namely health and primary education and the macroeconomic environment respectively. Madagascar's highest rated indicator was its labour market efficiency (42nd), which was conversely Zimbabwe's weakest (134th). Burundi's most pronounced weakness from the aspects analysed lies in the lack of financial market development (140th) and Madagascar lacks sufficient infrastructure (138th). Eastern African FCS countries' key economic focal points for the region are overviewed below in Table 2.6.

Table 2.6 - Breakdown of key economic focal points in Eastern African FCS countries

Country	GDP (Growth) - 2014	GDP per Capita - 2014	Reason(s) for Fragility	Main Economic Sectors (Top 3 – GDP% @ Current prices)
Burundi	US$ 3.094 bn (4.66%)	US$ 286	Political and Peace-Building Missions	– Agriculture, forestry, fishing & hunting (39.5%) – Wholesale & retail trade; repair of vehicles household goods; restaurants and hotels (21.3%) – Other services (13.6%)
Comoros	US$ 0.624 bn (2.06%)	US$ 810	Low CPIA score	– Agriculture, forestry, fishing & hunting (33.6%) – Wholesale & retail trade; repair of vehicles household goods; restaurants and hotels (29.2%) – Public administration & defence (13.2%)
Eritrea	No data	No data	Low CPIA score	– Finance, real estate and business services (27.7%) – Wholesale & retail trade; repair of vehicles household goods; restaurants and hotels (19.2%) – Agriculture, forestry, fishing & hunting (17.2%)
Madagascar	US$ 10.593 bn (3.32%)	US$ 449	Low CPIA score	– Agriculture, forestry, fishing & hunting (26.4%) – Transport, storage and communication (23.7%) Manufacturing (14.4%)
Somalia	US$ 5.352 bn (6.63%)	US$ 543	Low CPIA score & Political and Peace-Building Missions	No data

Table 2.6 (cont.) - Breakdown of key economic focal points in Eastern African FCS countries

Country	GDP (Growth) - 2014	GDP per Capita - 2014	Reason(s) for Fragility	Main Economic Sectors (Top 3 – GDP% @ Current prices)
South Sudan	US$ 13.282 bn (3.37%)	US$ 1115	Low CPIA score & Peace-keeping mission	No data
Zimbabwe	US$ 14.197 bn (3.85%)	US$ 931	Low CPIA score	– Wholesale & retail trade; repair of vehicles household goods; restaurants and hotels (15.8%) – Agriculture, forestry, fishing & hunting (14.0%) – Other services (13.1%)

Source: IMF (2016), World Bank (2015), African Economic Outlook (2016)

When reviewing Eastern African FCS countries listed in Table 2.6, this region has the lowest GDP (US $ 7.86bn) and GDP growth rate (3.98%) among FCS countries on average for the period. Again it is important to view the growth rate against the low GDP base. This excludes Eritrea, which had no data for these variables. The region had the second lowest average GDP per capita (again excluding Eritrea), at US $689. When reviewing the main reasons why these countries are classified as FCS countries, all but one are listed with a low CPIA score as reason. The agriculture, forestry, fishing & hunting sector is prevalent in all of the countries' top three contributors to GDP, while wholesale & retail trade, repair of vehicles household goods and restaurants and hotels feature in all but one of the nations' top three (South Sudan is excluded as no data could be found). In the following section, the Middle (Central) African FCS countries are evaluated, starting with the state of competitiveness in the region in Table 2.7.

2.4.1.3 State of competitiveness in Middle (Central) African FCS countries

Table 2.7 - State of competitiveness in Middle (Central) African FCS countries

Country	Global Competitiveness Index		Ease of doing business
	Score (out of 7)	Global ranking (out of 140 countries)	Global ranking (out of 189 countries)
CAR	Not rated	-	185 (185 – 2015)
Chad	2.96	139 (143 – 2015)	183 (183 – 2015)
DRC	Not rated	-	184 (152 – 2015)

Source: WEF (2015), World Bank (2016)

All three of the Middle (Central) African FCS countries in Table 2.6 rank within the six lowest countries in the 2016 Doing Business Report (World Bank, 2016). The Central African Republic (CAR) and Chad's strongest ranking was for getting credit (jointly 133rd), while the Democratic Republic of the Congo (DRC)'s relative strength lies in the ability to start a business (89th). Inversely, this is the biggest weakness for the CAR (189th), with Chad's lowest ranking existing in the ease of paying taxes (186th) and the DRC's in resolving insolvency (189th).

Only one of the Middle (Central) African FCS countries was rated in the WEF (2016)'s GCI, as indicated by Table 2.7, namely Chad. Its highest ranking indicator was its labour market efficiency at a relatively low 106th from 140 countries and a weakness in infrastructure where it was placed 140th. Table 2.8 provides a breakdown of the region's key economic focal points.

Table 2.8 - Breakdown of key economic focal points in Northern African FCS countries

Country	GDP (Growth) - 2014	GDP per Capita - 2014	Reason(s) for Fragility	Main Economic Sectors (Top 3 – GDP% @ Current prices)
CAR	US$ 1.723 bn (1.01%)	US$ 358	Low CPIA score & Political and Peace- Building Missions	– Agriculture, forestry, fishing & hunting (45.5%) – Wholesale & retail trade; repair of vehicles household goods; restaurants and hotels (14.0%) – Other services (8.8%)
Chad	US$ 13.922 bn (7.30%)	US$ 1025	Low CPIA score	Agriculture, forestry, fishing & hunting (23.8%) Mining and quarrying (22.2%) Wholesale & Retail Trade; Repair of vehicles household goods; Restaurants and hotels (13.6%)
DRC	US$ 33.171 bn (9.05%)	US$ 442	Low CPIA score & Peace-keeping mission	– Mining and quarrying (23.8%) – Agriculture, forestry, fishing & hunting (20.1%) – Manufacturing (16.8%)

Source: IMF (2016), World Bank (2015), African Economic Outlook (2016)

Of the three fragile countries in the region, the Central African Republic makes the smallest contribution to both GDP and GDP growth, as can be seen in Table 2.8. As outlined in Section 2.4.1.1, the low GDP base from which these fragile countries are growing, inflates the growth percentage. The region has the second highest average GDP level (US$ 16.272bn) of all FCS countries' regions, but fares worst when average GDP per capita (US 608.37) is taken into consideration. Similarly to the Eastern African region, a low CPIA score was one of the reasons why all three countries were classified as fragile. Agriculture, forestry, fishing & hunting again features most as all countries have this sector as one of the top three contributors of GDP% at current prices. This is followed closely by the wholesale & retail trade, repair of vehicles household goods and restaurants and hotels sector, as well as the mining and quarrying, which both feature twice. Table 2.9 next starts the overview of the Western African FCS countries.

2.4.1.4 State of competitiveness in Western African FCS countries

Table 2.9 - State of competitiveness in Western African FCS countries

Country	Global Competitiveness Index		Ease of doing business
	Score (out of 7)	Global ranking (out of 140 countries)	Global ranking (out of 189 countries)
Côte d' Ivoire	3.93	91	142 (142 – 2015)
Guinea-Bissau	Not rated	-	178 (178 – 2015)
Liberia	3.37	129	179 (179 – 2015)

Table 2.9 (Cont.) - State of competitiveness in Western African FCS countries

Country	Global Competitiveness Index		Ease of doing business
	Score (out of 7)	Global ranking (out of 140 countries)	Global ranking (out of 189 countries)
Mali	3.44	127	143 (143 – 2015)
Sierra-Leone	3.06	137	147 (147 – 2015)
Togo	Not rated	-	150 (147 – 2015)

Source: WEF (2015), World Bank (2016)

Various inverse findings are revealed when analysing some of the strengths and weaknesses for Western African FCS countries' performance in the World Bank's (2016) Doing Business Report, as illustrated by Table 2.9. The clearest contrast is illustrated by Liberia and Mali, with Liberia's highest ranking being the ease of starting a business (37th), whilst struggling most trading across borders (183rd). Mali on the other hand received a ranking of 172nd for starting a business, which strengthens to 82nd for trading across borders. Côte d' Ivoire also has a strength in starting a business (46th) in relation to the Doing Business Indicators surveyed, but struggles most in dealing with construction permits (180th).

Another inverse finding is that, while resolving insolvency (93rd) is a strength for Togo, the country has a weakness in the ease of registering property (182nd). Resolving insolvency (189th) ranks last overall for Guinea-Bissau. Guinea-Bissau is strongest in getting access to credit (133rd). Lastly, Sierra-Leone's highest rated indicator pertains to its ability to protect minority investors (88th), but the country struggles in getting electricity (178th).

Interestingly, when further analysing the WEF's (2016) Global Competitiveness Index listed in Table 2.9, some similarities between countries are shown, compared to the converse rankings as illustrated in the Doing Business Report. Two countries have a relative strength in the efficiency of their labour markets, namely Liberia (61st) and Sierra-Leone (104th), while Côte d' Ivoire (129th), Mali (139th) and Sierra-Leone (137th) share a weakness in health and primary education. Côte d' Ivoire is ranked highly for financial market development (60th) when viewed against its Western African FCS counterparts, while Mali has a comparatively strong macroeconomic environment (86th). The final weakest ranking for Western African FCS countries is Liberia with a small market size (137th). Table 2.10 concludes the overview of fragile and conflict affected states by considering key economic variables for Western African FCS countries.

Table 2.10 - Breakdown of key economic focal points in Western African FCS countries

Country	GDP (Growth) - 2014	GDP per Capita - 2014	Reason(s) for Fragility	Main Economic Sectors (Top 3 – GDP% @ Current prices)
Côte d' Ivoire	US$ 34.254 bn (8.55%)	US$ 1546	Peace-keeping mission	– Agriculture, forestry, fishing & hunting (26.1%) – Finance, real estate and business services (17.6%) – Manufacturing (15.0%)
Guinea-Bissau	US$ 1.022 bn (2.54%)	US$ 568	Low CPIA score & Political and Peace- Building Missions	– Agriculture, forestry, fishing & hunting (47.1%) – Wholesale & retail trade; repair of vehicles household goods; restaurants and hotels (19.2%) – Manufacturing (12.4%)

Table 2.10 (Cont.) - Breakdown of key economic focal points in Western African FCS countries

Country	GDP (Growth) - 2014	GDP per Capita - 2014	Reason(s) for Fragility	Main Economic Sectors (Top 3 – GDP% @ Current prices)
Liberia	US$ 2.013 bn (0.70%)	US$ 458	Peace-keeping mission	– Agriculture, forestry, fishing & hunting (35.6%) – Mining and quarrying (14.5%) – Wholesale & retail trade; repair of vehicles household goods; restaurants and hotels (13.4%)
Mali	US$ 12.037 bn (7.19%)	US$ 705	Peace-keeping mission	– Agriculture, forestry, fishing & hunting (39.7%) – Wholesale & retail trade; repair of vehicles household goods; restaurants and hotels (17.0%) – Public administration & Defence (9.9%)
Sierra-Leone	US$ 4.838 bn (4.61%)	US$ 766	Political and Peace- Building Missions	– Agriculture, forestry, fishing & hunting (50.5%) – Mining and quarrying (20.2%) – Other Services (8.2%)
Togo	US$ 4.518 bn (5.71%)	US$ 635	Low CPIA score	– Agriculture, forestry, fishing & hunting (47.6%) – Public administration & Defence (9.4%) – Finance, real estate and business services (9.3%)

Source: IMF (2016), World Bank (2015), African Economic Outlook (2016)

Western African FCS countries as a region has the third highest average GDP (US$ 9.78bn) and GDP growth rate (4.88%), albeit of a very low GDP base, while being placed second highest in terms of GDP per capita (US$ 779.67). Similar to the two previous regions, agriculture, forestry, fishing & hunting as a sector features most often in the top three contributors of GDP% at current prices. This is indicative of a continent as a whole which still strongly relies on primary economic sector activity. In terms of fragility, contrary to the previous regions, Western African countries are mostly classified as fragile because of the presence of either a peace-keeping mission or a political and peace- building mission.

2.4.2 Conclusion

To allow for a practical overview, the 18 fragile and conflict-affected states (FCS) in Africa were subdivided into regions as per the United Nations' (2013) geographical division of countries.

An analysis was done in table format of the state of competitiveness in each individual region. Key aspects of four regions were evaluated by making use of the Doing Business Report and the Global Competitiveness Index. It is important to keep in mind that the focus of this article is to identify constraints to FCS firms. With that in mind, competitiveness of the regions according to the Doing Business Report showed significant weakness, with the highest ranking attained by Cote d'Ivoire at 142nd out of 189 countries. Two of the constraints experienced in Northern Africa related to registering property and trading across borders, while resolving insolvency and getting electricity negatively affected Eastern Africa. Middle Africa's

competitiveness was limited by the ability to start a business and resolving insolvency, whereas Western Africa was affected by dealing with construction permits and resolving insolvency. All of the countries that were ranked in the GCI were ranked lower than 100th out of 140 countries, with the exception of Cote d'Ivoire at 91st. This indicated that the countries in which firms operated placed significant constraints on their business environment.

Secondly, each region's overview also contained a breakdown of key economic focal points. The reason why the majority of countries (11) were classified as fragile was as a result of the countries' low CPIA score. Furthermore, 12 of the African countries had a GDP per capita of less than 1000 US$, while most of these countries also displayed significant GDP growth fluctuations from a low base. A significant reliance on primary and / or extractive industries is indicated by the fact that, for all 16 of the 18 countries which had data, either agriculture and forestry or mining and quarrying featured under the top three sectors which contribute to GDP.

This section served to give a better understanding of fragility in Africa, while also providing an overview of the levels of competitiveness and its causes in the regions. Section 2.5 next addresses the questionnaire and dataset used in the empirical analysis.

2.5 EMPIRICAL ANALYSIS

2.5.1 Overview of the questionnaire

As discussed in preceding sections, this article focusses on microeconomic (firm-level) aspects of competitiveness. Therefore, this article makes use of the World Bank's set of Enterprise Survey Data, which regularly compiles firm-level surveys covering an extensive range of country-specific and universally comparable topics. Hallward-Driemeier (2013) states that the purpose of the World Bank's Enterprise Surveys is threefold, namely to fill an important enterprise-level gap in data, to allow benchmarking across countries and time and to link firm performance with the business environment where it operates. From the below table it can be seen that 14 out of 18 countries identified as "fragile" by the World Bank had comparable datasets available for analysis. These countries are Burundi, Central African Republic, Chad, Côte d'Ivoire, Democratic Republic of the Congo, Eritrea, Liberia, Madagascar, Mali, Sierra Leone, South Sudan, Sudan, Togo and Zimbabwe.

Table 2.11 – Survey overview

Country	Applicable and Comparable	Number of variables	Number of firms surveyed
Burundi	**Yes - 2014**	**297**	**157**
CAR	**Yes - 2011**	**248**	**150**
Chad	**Yes - 2009**	**226**	**150**
Comoros	No	N/A	N/A
Côte d'Ivoire	**Yes - 2009**	**353**	**526**
DRC	**Yes – 2010 & 2013**	**302**	**529**
Eritrea	**Yes - 2009**	**226**	**179**
Guinea-Bissau	No	N/A	N/A
Liberia	**Yes - 2009**	**211**	**150**
Libya	No	N/A	N/A
Madagascar	**Yes – 2009 & 2013**	**335**	**532**

Table 2.11 – Survey overview

Country	Applicable and Comparable	Number of variables	Number of firms surveyed
Mali	**Yes - 2010**	**288**	**360**
Sierra-Leone	**Yes - 2009**	**211**	**150**
Somalia	No	N/A	N/A
South Sudan	**Yes - 2014**	**278**	**738**
Sudan	**Yes-2014**	**291**	**662**
Togo	**Yes - 2009**	**250**	**155**
Zimbabwe	**Yes - 2011**	**301**	**600**

Source: Author's summary from World Bank (2016c) survey

Of the 18 fragile and conflict affected countries, only 14 were surveyed, pointing to the well-established fact that quality firm-level data is not readily available on the African continent. This is underlined by statements such as the one by Mushtak (2016:40) that *"In emerging countries data deficits in government decision-making and economic planning have in many instances slowed down the much-needed development process."* A limitation to this study is that the surveys for the various countries were completed in different years. Table 2.11 illustrates the above statement, indicating that these surveys were completed in 2009, 2010, 2011, 2013 and 2014.

Furthermore, the surveys contain both universally comparable topics which are covered in all studies, as well as topics that are country-specific. The universal topics are as follows; Background and control information, General Information, Infrastructure and Services, Sales and Supplies, Degree of Competition, Land, Innovation, Crime, Business-Government Relations, Finance, Labour and Performance of Firms.

The country-specific themes covered certain firm-level aspects in more depth which formed part of the universal topics, while also surveying additional topics not overviewed in other countries. Themes included aspects of the Business-Government Relationship, Competition, Corruption, Crime, Dispute Resolution, Finance, Health, Intra-regional Trade, Investment Incentives, Labour, Land, Linkages, Mining, Regulation and Taxes, Sales and Inputs, Trade, Training Programmes, Transportation, Gender, Infrastructure and Innovation. However, these topics do not lend themselves to analysis, as comparable variables do not exist across all of the 14 FCS countries.

Both the number of variables and firms in the different surveys fluctuate significantly, with variables surveyed in the individual FCS countries fluctuating from 211 to 353 and firms from 150 to 738. Of the above variables, 119 variables were identified as useful, while this also allows further numerical and dummy variables to be derived from the data. These useful variables are outlined in Addendum A. To gain better insights into the data itself, an overview of descriptive statistics pertaining to the data-set now follows.

2.5.2 Descriptive statistics

The majority of recent enterprise surveys compiled by the World Bank make use of the United Nation's (2016) International Standard Industrial Classification of All Economic Activities (ISIC)

revision 3.1 to categorise firms into various economic sectors. In certain current and earlier versions of Enterprise Surveys, the only distinction made however was between the broad groups which the surveys focussed on, namely manufacturing and services. There are four countries with the afore-mentioned limitation, namely the Central African Republic, Chad, Eritrea and Togo. Table 2.12 gives an overview of these sectors, as well as two other key aspects, namely firm size (using number of employees as a proxy) and the main obstacle for the firms (as identified by the firms themselves).

Table 2.12 – Geographic summary of Economic Sectors, Firm Size and Biggest Firm-level Obstacle

	Eastern Africa	Middle Africa	Northern Africa*	Western Africa	Grand Total
Number of Firms	2206	829	662	1341	5038
Economic Sector					
Manufacturing Sector	874	335	85	498	1792
Basic metals	16	4	4	10	34
Chemicals	43	29	15	21	108
Electronics	10	-	6	7	23
Fabricated metal products	31	32	3	16	82
Food	235	37	21	90	383
Furniture	53	44	1	-	98
Garments	73	37	3	106	219
Leather	6	2	4	-	12
Machinery and equipment	26	9	8	18	61
Manufacturing	93	92	-	51	236
Non-metallic mineral products	30	6	6	11	53
Other manufacturing	1	-	-	128	129
Paper	16	3	-	-	19
Plastics and rubber	34	3	7	24	68
Precision instruments	2	-	1	-	3
Publishing, printing, and Recorded media	41	10	2	-	53
Recycling	4	1	-	-	5
Refined petroleum product	4	2	3	-	9
Textiles	93	3	-	16	112
Tobacco	8	1	1	-	10
Transport machines	6	-	-	-	6
Wood	49	20	-	-	69
Services Sector	1332	494	577	831	3234
Construction	82	11	39	57	189
Hotel and restaurants	286	49	15	101	451
IT	26	10	15	34	85
Other services	11		-	134	145
Retail	492	136	143	264	1035
Service	86	208	-	104	398
Services of motor vehicles	54	15	61	9	139
Transport services	133	26	32	57	248
Wholesale	162	39	272	71	544
(Missing values – Data not captured)	-	-	-	12	12
Firm Size (Grouped by employees)					
Micro (1 to 4)	1	-	-	1	2
Small (5 to 19)	1383	564	355	916	3218
Medium (20 to 99)	561	213	252	329	1355
Large (100+)	261	52	55	95	463

Table 2.12 (Cont.) – Geographic summary of Economic Sectors, Firm Size and Biggest Firm-level Obstacle

	Eastern Africa	Middle Africa	Northern Africa*	Western Africa	Grand Total
Main Obstacle to the Firm					
Access to finance	426	102	39	486	1053
Access to land	65	23	21	44	153
Business licensing and permits	40	2	17	11	70
Corruption	93	85	51	75	304
Courts	11	9		19	39
Crime, theft and disorder	42	22	5	44	113
Customs and trade regulations	41	51	144	33	269
Electricity	262	214	5	98	579
Inadequately educated workforce	28	24	11	13	76
Labour regulations	16	8	19	12	55
Political Instability	652	113	92	195	1052
Practices of competitors in the informal sector	164	84	33	90	371
Tax administration	34	43	136	46	259
Tax rates	142	28	62	46	278
Transport	63	13	24	28	128
(Missing values – Data not captured)	127	8	3	101	239

Source: Author's calculations from World Bank (2016c)

**Note that Northern Africa only contains one country with data, Sudan, as per the previous regional split*

A total of 5038 firms were surveyed, which are split across four geographical regions in Africa, as described previously in Section 2.4. Table 2.12 firstly provides an overall view of how these firms are spilt across geographic location. The majority of the firms reside in Eastern Africa (43.79%), followed by Western Africa with 26.62%, then Middle Africa with 16.45% and finally Northern Africa (13.14%). In the case of Northern Africa, the only country surveyed was Sudan, while all other geographic regions comprise three or more countries. Furthermore, it is also interesting to note that none of the fragile countries in Africa are in the Southern African geographical region, although Zimbabwe in Eastern Africa is located very close to the region.

Secondly, the various economic sectors in which each of the firms' main economic activities reside were outlined. Madagascar did not have data defined pertaining to the relevant economic sector variable, but after further investigation the author was able to derive the appropriate sector for each firm from an additional variable (see d1a2 in Appendix A) provided in the country's data to address the observed shortcoming in the Madagascar survey data. This underlines the challenges relating to quality data on the African continent, as alluded to by Mushtak (2016). It is interesting to note that the majority of the firms (64.19%) function in the services sector, with the retail, wholesale and the hotel and restaurants sector forming a significant element of firms which were surveyed. Manufacturing accounts for all but 12 of the remaining firms (the remaining 12 firms are missing data points) at 35.57%, with the food and garment sectors each containing a significant amount of firms.

As can be expected, the four different geographic regions have different economic sectors which contain the majority of the firms which were surveyed. In Eastern Africa, the three major sectors of retail (492 firms), hotel and restaurants (286 firms) and food (235 firms) contribute 45.92% of all firms surveyed. Similarly, in Middle Africa, retail (136 firms) remains one of the sectors, along with the general services (208 firms) and manufacturing sectors (92 firms) forming 52.59% of the overall dataset. Western Africa's three most surveyed sectors, namely wholesale (272 firms), retail (143 firms) and services of motor vehicles (61) all reside in the services cluster and cover a very significant 71.90% of the dataset. Finally, the Western Africa region also includes retail as its most surveyed sector (264 firms), along with the "other

services" (134 firms) and "other manufacturing" (128 firms) sector groupings, totalling 39.22% of firms surveyed in the region. What is evident from the above is that retail and to a lesser account, wholesale service firms will form a key underlying aspect of the empirical research in this article.

Next, the size of firms is of relevance, with the firms categorised into one of four categories based on the number of employees working for each firm. All of the four geographic areas have a similar distribution of firms. The size group with the biggest weighting is small firms with between five and 19 employees with 63.87% of all firms surveyed falling into this category. This weighting makes sense as a significant portion of firms in Africa are SME's (small and medium enterprises). The two micro firms (4 or less employees) could also be included with the small firms for ease of analysis. Medium firms (with between 20 and 99 workers) form the second biggest set of firms with regard to the amount of employees and 26.90% of the surveys can be attributed to these firms. Lastly, the firms classified as large with a workforce that exceeds 100 people only form 9.19% of the combined World Bank (2016c) Enterprise Survey for the 14 African FCS countries. By creating a supporting business environment in FCS countries, the majority of firms (currently conforming to SME status) could increase its contribution to employment, while taking advantage of the increased productivity of larger firms (see Section 2.3.1), while concurrently fostering more SMEs. The SMEs themselves also contribute significantly to exports, innovation and employment (Singh *et al.*, 2010).

The final aspect of Table 2.12 which is analysed is the main obstacle from the business environment as identified by the firms themselves. In the survey, the firms were given a set of 15 obstacles (as listed under the heading "Main obstacle to the firm" in Table 2.12), ranging from access to land, political instability to transport. From this list of obstacles, firms had to select the most significant obstacle to the firm. The obstacle identified by most Eastern African firms is political instability (652 firms), which underscores ongoing conflicts in South Sudan, as stated by Roach (2016) and protest action in Zimbabwe (Musarurwa, 2016). Firms in Middle Africa identified access to electricity as the most prevalent obstacle, with 214 firms selecting this obstacle. Access to electricity can serve as a proxy of the lack of infrastructure development on the African continent. Onerous customs and trade regulations was the obstacle identified by the majority (144) of Northern African firms. In Western Africa, the most significant obstacle lies in access to finance, which was selected by 486 firms. When taking an overall view, two key obstacles come to the fore, namely access to finance (1053 firms) and political instability (1052 firms), which account for more than 41.78%, even when including missing variables.

Section 2.3.2.1 highlighted the exposure of the microeconomic business environment to political instability in fragile states, with economic development and microeconomic activity being impaired. Firms which identified political instability as the biggest obstacle in the business environment, one of the main obstacles selected by firms as evidenced in Table 2.12, have been used in this article as a proxy for firms that are politically constrained in their respective fragile and conflict-affected African countries. Table 2.13 below compares selected metrics between firms that are politically constrained to firms that are not.

Table 2.13 – Overview of key metrics

Variable	Politically constrained firms	Non- politically constrained firms
Number of firms in survey	1052	3747
Firm age (Average in years)	15.71	13.93
Firm size (Average full-time employees)	70.06	34.99
Total sales (Average US$ million / Purchasing Power Parity $ million)	US$6.95mn / PPP$ 14.72mn	US$71.92mn / PPP$ 220.53mn
Exports (Average US$ million / Purchasing Power Parity $ million)	US$ 0.72mn / PPP$ 1.65mn	US$0.51mn / PPP$ 1.06mn
Total labour cost (Average US$ million / Purchasing Power Parity $ million)	US$ 0.36mn / PPP$ 0.78mn	US$0.23mn / PPP$ 0.74mn
Private domestic ownership (Average %)	71.10%	73.01%

Source: Author's calculations from World Bank (2016c)

Table 2.13 gives an overview of key firm metrics as the final element of the descriptive statistics section. Politically constrained firms on average have been in business 1.78 years longer than non-constrained firms. When using average full-time employees as a proxy for firm size, the politically constrained firms employ more than double the labour force of firms that are not politically constrained.

What is however interesting to note is that firms that are politically constrained only average yearly sales of US$ 6.95 million (average Purchasing Power Parity of $14.72 million), which is exceeded more than ten-fold by politically non-constrained firms' sales of US$ 71.92 million (PPP of $220.53 million). Against this sales background, it is notable that politically constrained firms export a higher percentage of their total sales compared to politically non-constrained firms with average exports in a year of US$ 0.72 million (Average PPP of $1.65 million) contrasted with average exports of US$ 0.51 million (Average PPP of $1.06 million). Keeping in mind that politically constrained firms on average employed more than double the number of full time employees of non-constrained firms, it is noteworthy that the ratio is not as pronounced when comparing labour costs. This might be as a result that possibly politically non-constrained firms employ more temporary labourers than constrained firms, resulting in increased labour costs. Finally, it can be seen that politically constrained firms have slightly less domestic ownership on average in relation to non-constrained firms.

In the preceding sections, it was established that the data set for the empirical investigation into microeconomic competitiveness in fragile and conflict-affected states in Africa contains 14 out of 18 countries identified as fragile by the World Bank. The enterprise survey questionnaire covered a variety of topics including infrastructure and services, crime, finance and labour, which were refined to a set of approximately 120 usable variables, contained in Addendum A of this study. The 5038 firms in the dataset are split across both services (9 broad categories) and manufacturing sectors (22 broad categories).

Furthermore, a distinction was made between the 1052 that identified themselves as politically constrained and the 3747 firms that were most affected by other obstacles, while 239 firms had missing values for this question. Certain metrics illustrated differences between politically constrained and non-constrained firms. Politically constrained firms were both longer in business and larger when using the number of full-time employees as proxy to contrast these firms with politically non-constrained firms. Politically non-constrained firms however had

significantly more average total sales and marginally more private domestic ownership, while the value of politically constrained firms' exports and total labour costs exceeded those of the politically non-constrained firms.

With this as background, the next section contains the independent samples t-tests and Chi-squared tests of independence as the final elements of the empirical analysis. This is done to satisfy the research objective to empirically determine which microeconomic competitiveness factors explain the differences between politically constrained firms versus those who are not in fragile and conflict-affected countries.

2.5.3 Regression analysis

The preceding sections overviewed the descriptive statistics and research methodology, leading to the empirical analysis which now follows. This section comprises the list of both categorical and continuous variables identified for analysis, followed by the parametric independent samples t-test. The final element of the analysis contains the non-parametric Chi-square test for independence, which leads to the conclusions of this article.

2.5.3.1 Methodology

In a similar vein to the study done by Matthee *et al.* (2015), which evaluated microeconomic competitiveness and post-conflict reconstruction in Zimbabwe, this study aimed to investigate microeconomic competitiveness in fragile and conflict-affected states in Africa, with a specific distinction between firms which are politically constrained and those which are not. To accomplish this, this study made use of both independent samples t-tests and Chi-squared tests of independence as analyses.

2.5.3.1.1 Independent samples t-test

Independent-samples t-tests are used "*when you want to compare the mean score, on some continuous variable, for two different groups of participants"* (Pallant, 2011:239). T-tests, as well as ANOVA tests and analyses of covariance, are examples of parametric analysis and are subject to assumptions.

Certain key assumptions underlie all parametric analyses (Pallant, 2011:205);

- Level of measurement – the dependent variable is measured using an interval or ratio level, rather than discrete categories.
- Random sampling – data points are selected at random from the population.
- Independence of observations – each measurement should not be influenced by another.
- Normal distribution – scores for data points are normally distributed across the population, though for larger sample sizes (more than 30), this violation should not present significant issues.

- Homogeneity of variance – this indicates that the variability of scores for each group is similar.

What now follows is an overview of the independent-samples t-tests. These tests were completed with a 95% confidence interval, in other words $a = 0.05$. Firstly, it was important to test for homogeneity of variances using Bartlett's test for equal variances. In the case of a value higher than 0.05, the assumption of non-homogeneity of variance was not violated and equal variances could be assumed. If lower, the Welch adjustment for unequal variances had to be completed. Then the independent-samples t-test itself would be evaluated, where the significance (p value) of the overall equal variances or Welch adjusted unequal variances t-test would be investigated. If the value was found to be significant against the $a = 0.05$ confidence interval, an asterisk is annotated on the group to indicate where the effect was significantly different between the groups being compared. This allowed the next step, calculating the effect size, which indicates the degree in which variables were associated with one another, using the below formula (Pallant, 2011:243);

$$eta\ squared = \frac{t^2}{t^2 + (\mathrm{N1} + \mathrm{N2} - 2)} \qquad (2.1)$$

Cohen (1988) classifies the effects as follows: 0.01 is viewed as a small effect, 0.06 as a medium effect and finally, 0.14 is seen as a large effect of the variables on one another.

A non-parametric alternative exists to the independent-samples t-test as indicated by Howitt and Cramer (2000), namely the Mann-Whitney U-Test, but it was not considered in this study. Because the independent samples t-test is only used to test the relationship of continuous independent variables with the dependent variable as highlighted above, this necessitates another test to determine the relationship of independent categorical variables with the dependent variable. To test this relationship, the Chi-square (χ^2) test for independence can be performed and the method is discussed in the next section.

2.5.3.1.2 Chi-square test for independence

Chi-square tests for independence are used, as indicated by Pallant (2011:217) *"to explore the relationship between two categorical variables. Each of these variables can have two or more categories."* These tests are completed in cross tabulations, which allow the comparison of the results of one or multiple variables with the results of others. Chi-square tests for independence form part of non-parametric analyses.

Certain key assumptions underlie non-parametric analyses, which correspond to part of the assumptions made for parametric analyses (Pallant, 2011:214);

- Random sampling – data points are selected at random from the population.
- Independence of observations – each measurement should not be influenced by another.

A further assumption specific to the Chi-square test for independence is:

- The expected frequency should include at least five observations for any cell, while some studies relax this requirement to 80% of cells which is needed to fulfil this requirement.

It is important to note that, in this study, these tests were completed with a 95% confidence interval, in other words $a = 0.05$. Firstly, a cross tabulation between the sets of categorical variables was completed, which calculated a Chi-square value and significance (p) value. Any value less than the alpha (a) value was perceived to be significant. Tests where the cross tabulation of variables violated the above-mentioned expected frequency assumption required the use of the Fisher's exact probability test to determine significance. Thereafter, it remained to identify the strength of association by making use of Cramér's V-value. The scale of the strength of association was dependent on the number of categories in the two categorical variables. The variable with the smaller number of categories determined the scale of the strength of association outlined below (Pallant, 2011:220);

- Two categories – Small association = 0.01, medium association = 0.30, large association = 0.50
- Three categories – Small association = 0.07, medium association = 0.21, large association = 0.35
- Four categories – Small association = 0.06, medium association = 0.17, large association = 0.29

Unlike the independent samples t-test, no parametric alternative existed to the non-parametric Chi-square test for independence.

The empirical analysis initiated in Section 2.5 contains an overview of the questionnaire and data, followed by a set of descriptive statistics in Section 2.6. Finally, the empirical application of the independent-samples t-test and the Chi-square test for independence are completed in Section 2.7 to analyse the microeconomic competitiveness of African fragile and conflict-affected states, based on the methodology outlined above.

2.5.3.2 Variables

As highlighted in the literature, the microeconomic or firm-level aspect of fragile and conflict affected states plays a key role in assisting countries to move beyond fragility. Therefore it is of key importance to assist firms by identifying and removing barriers to productive and competitive operations. Four key competitiveness aspects identified by Porter (1990) in his Diamond of National Advantage are factor conditions, the context for firm strategy and rivalry, local demand conditions and the presence of related and supporting industries.

Various variables which relate to these four aspects were identified for analysis from the valid World Bank's (2016c) Enterprise Surveys conducted for 14 of the 18 countries identified as fragile by the World Bank (2015). The grouping variable identified to serve as proxy of firms which were identified as being affected by fragility is the politically constrained dummy variable. Table 2.14 below gives an overview of the variables identified for the analysis. These variables were identified, as done in the comparison between three competitiveness reports in Section 2.2.3.4, by highlighting variables that conform to the four competitiveness aspects as defined in Porter's (1990) Diamond of National Advantage.

Table 2.14 – Variable overview

Question Number	Question Description
Grouping variable	
Politically Constrained - Generated from question m1a (Element of the business environment representing the biggest obstacle for this establishment) 0 = Other Factor, 1 = Political instability	
Factor conditions	
POutage_Num (c7)	Number Of Power Outages Experienced In A Typical Month In Last Fiscal Year
Outage_Loss (c9bP)	Total annual losses that resulted from power outages, adjusted for purchasing power parity
Elec_Genr (c11)	% Electricity From Generator Owned/Shared By The Establishment In Last Fiscal Yr
WShortage_Num (c16)	Frequency Of Incidents Of Water Shortages In A Typical Month In Last Fiscal Yr
Tax_Obs (j30b)	How Much Of An Obstacle: Tax Administrations
License_Obs (j30c)	How Much Of An Obstacle: Business Licensing And Permits
WCap_Retain (k3a)	% Of Working Capital Financed From Internal Funds/Retained Earnings
WCap_Bank (k3bc)	% Of Working Capital Borrowed From Banks
Uneduc_Obs (l30b)	How Much Of An Obstacle: Inadequately Educated Workforce?
Context for firm strategy and rivalry	
Exper_Man (b7)	How many years of experience working in this sector does the Top Manager have?
Trans_Obs (d30a)	How Much Of An Obstacle Is: Transportation Of Goods, Supplies, And Inputs?
InfComp_Obs (e30)	How Much Of An Obstacle: Practices of competitors in informal sector?
Land_Obs (g30a)	How Much Of An Obstacle: Access To Land?
License_Days (j11)	Approx. how many days did it take to obtain this import license?
LabourReg_Obs (l30a)	How Much Of An Obstacle: Labour Regulations?
Local demand conditions	
Nat_Sales (d3a)	What % of establishment's sales were: national sales?
Gov_Contract (j6a)	In the last year, has this establishment secured or attempted to secure a gov. contract?
Credit_Sales (k2c)	% of the establishment's total annual sales paid after delivery (sold on credit) in in last fiscal year
Presence of related and supporting industries	
Input_Dom (d12a)	% Of Material Inputs And Supplies Of Domestic Origin In Last Fiscal Year
Input_For (d12b)	% Of Material Inputs And Supplies Of Foreign Origin In Last Fiscal Year
Sec_Costs% (i2aFull)	Percentage Of Total Annual Sales Paid For Security In Last Fiscal Year (i2a) & In last fiscal year, what is the total annual cost of security (i2b) divided by total annual sales in fiscal year (d2) for firms without i2a data
Material_Costs (n2eP)	Cost Of Raw Materials And Intermediate Goods Used In Prod. In Last Fiscal Year, adjusted for purchasing power parity

Source: Author's summary from World Bank (2016c) survey

The list of variables contains 14 continuous variables and eight categorical variables used in the analysis. Because of the differing nature of these variables, two different types of empirical analyses were performed on the variables to test these variables' relationship with the politically constrained grouping variable. These analyses are reviewed in the following two sub-sections.

2.5.3.3 Independent samples t-test

Subsequently, after the overview of variables, the empirical analysis itself was conducted. As part of the independent samples t-test analysis two hypotheses were tested. Firstly the null hypothesis (H_0) states that there is no difference between the scores of politically constrained and politically non-constrained firms. The alternative hypothesis (H_a) postulates that a significant difference exists between the scores of politically constrained and politically non-constrained firms. The independent samples t-test analysed the relationship between the grouping variable (politically constrained compared to politically non-constrained firms) and a list of continuous variables to evaluate the above hypotheses.

Similarly to the division of variables in Table 2.14, the summary table divides the variables into the four main aspects of Porter's (1990) diamond of national advantage. To determine whether equal variances or unequal variances existed in the relationship between the grouping and continuous variable, Bartlett's test for equal variances was performed. This was completed to ensure that the assumption of homogeneity of variance, stated in section 2.5.3.1.1, was not violated. Of the 14 continuous variables, 12 did not have a significance value of more than the alpha ($a = 0.05$), indicating that the assumption of non-homogeneity of variance was violated and required the Welch adjustment for unequal variances. The means help to distinguish between the politically constrained firms and their politically non-constrained counterparts, while the results of the applicable Welch's approximation t-test or equal variances t-test include the t-statistic, degrees of freedom (df) and significance (p). Furthermore, the effect size is also tabulated.

The results of these tests are displayed in Table 2.15 below, while Addendum B contains the individual t-tests for each variable.

Table 2.15 – Independent samples t-test

Variable	Unit of measure	Obs	Bartlett's test for equal variances (Sig. - unequal variances)	Mean	Std. Dev.	Welch's approximation / equal variances t-test			Effect Size
						t	df	Sig (Ha diff <> 0)	Eta^2
Factor conditions									
Elec_Genr (c11)	%	2065	0.01			-1.82	632.5	0.0687	
- Politically non-constrained				41.02	38.23				
- Politically constrained				45.1	42.1				
WShortage_Num (c16)	Days	494	0.01			0.36	134.48	0.7192	
- Politically non-constrained				5.92	9.47				
- Politically constrained				5.58	7.32				
POutage_Num (c7)	**Number**	**3051**	0			**2.44**	**1145.2**	**0.0149***	**0.002**
- Politically non-constrained				**10.86**	**13.72**				
- Politically constrained				**9.52**	**12.11**				
Outage_Loss (c9bP)	**PPP $**	**272**	0			**2.19**	**250.054**	**0.0292***	**0.018**
- Politically non-constrained				**35522.56**	**211208.3**				
- Politically constrained				**4833.13**	**15521.17**				
WCap_Retain (k3a)	**%**	**4686**	0			**-3.74**	**1790.93**	**0.0002****	**0.003**
- Politically non-constrained				**82.73**	**26.79**				
- Politically constrained				**86.02**	**24.42**				
WCap_Bank (k3bc)	**%**	**4677**	0			**2.45**	**1853.03**	**0.0146***	**0.001**
- Politically non-constrained				**5.59**	**16.47**				
- Politically constrained				**4.31**	**14.34**				
Context for firm strategy and rivalry									
Exper_Man (b7)	Years	4629	0			0.41	4613.45	0.6846	
- Politically non-constrained				14.41	34.56				
- Politically constrained				14.15	10.41				
License_Days (j11)	Days	965	0			0.5	346.597	0.6188	
- Politically non-constrained				11.26	23.06				
- Politically constrained				10.47	18.67				

Table 2.15 (Cont.) – Independent samples t-test

Variable	Unit of measure	Obs	Bartlett's test for equal variances (Sig. - unequal variances)	Mean	Std. Dev.	Welch's approximation / equal variances t-test			Effect Size
						t	df	Sig (Ha diff <> 0)	Eta^2
Local demand conditions									
Nat_Sales (d3a)	**%**	**4634**	0			**3.73**	**1286.34**	**0.0002****	**0.003**
- Politically non-constrained				**94.88**	**18.06**				
- Politically constrained				**91.76**	**24.46**				
Credit_Sales (k2c)	**%**	**4379**	0.01			**-1.97**	**1493.45**	**0.0491***	**0.001**
- Politically non-constrained				**25.08**	**30.53**				
- Politically constrained				**27.4**	**33.23**				
Presence of related and supporting industries									
Input_Dom (d12a) (equal variances t-test)	%	1714	0.57			0.73	1712	0.4662	
- Politically non-constrained				69.02	37.64				
- Politically constrained				67.46	38.51				
Input_For (d12b) (equal variances t-test)	%	1715	0.53			-0.81	1713	0.4167	
- Politically non-constrained				30.98	37.56				
- Politically constrained				32.54	38.51				
Sec_Costs% (i2aFull)	%	**2337**	0.01			**3.39**	**954.54**	**0.0007***	**0.005**
- Politically non-constrained				4.46	6.84				
- Politically constrained				3.42	5.99				
Material_Costs (n2eP)	PPP $	1616	0			0.73	1530.69	0.4676	
- Politically non-constrained				3809299	54700000				
- Politically constrained				2601953	11500000				

Source: Author's calculations from World Bank (2016c)

Note: indicates significance at the 95% confidence level (alpha=0.05), ** indicates significance at the 99% confidence level (alpha=0.01)*

The significant results from the independent samples t-tests, which are highlighted in bold in Table 2.15, are discussed below. Four of the six variables analysed as part of the “Factor Conditions” aspect of competitiveness showed a significant difference between politically constrained and politically non-constrained firms.

Firstly, a significant difference was found in the number of power outages experienced in a typical month in the last fiscal year (c7) for politically constrained (Mean = 9.5 outages, SD = 12.11 outages) and politically non-constrained firms (Mean = 10.86 outages, SD = 13.72 outages), subject to t(1145.20 degrees of freedom) = 2.44, p (significance) = 0.0149. The effect size (eta^2) which exists between the two variables is computed to be 0.002. This translates into a very small effect, according to Cohen (1988).

Secondly, a significant difference is highlighted in the firms’ total annual losses that resulted from power outages, adjusted for purchasing power parity (c9bP) for politically constrained (Mean = $4833.13 PPP, SD = $15521.17 PPP) and politically non-constrained firms (Mean = $35522.56 PPP, SD = $211208.3 PPP), subject to t(250.05 df) = 2.19, p = 0.0292. This is as expected as it can be inferred that a close relationship exists between the amount of power outages and the losses which result from these outages. The effect size (eta^2) which exists between the two variables is computed to be 0.018. This effect, according to Cohen (1988), is small.

The third significant difference of the “Factor Conditions” variables analysed is the percentage of working capital financed from internal funds or retained earnings (k3a) for politically constrained (Mean = 86.02%, SD = 24.42%) and politically non-constrained firms (Mean = 82.73%, SD = 26.79%), subject to t(1790.93 df) = -3.74, p = 0.0002. The effect size (eta^2) which exists between the two variables is computed to be 0.003. According to Cohen (1988), this translates into a very small effect.

A significant difference is also evident in the percentage of working capital borrowed from banks (k3bc) for politically constrained (Mean = 4.31%, SD = 14.34%) and politically non-constrained firms (Mean = 5.59%, SD = 16.47%), subject to t(1853.03 df) = 2.45, p = 0.0146. The effect size (eta^2) which exists between the two variables is computed to be 0.001. This Cohen (1988) highlights this as a very small effect. While the above four variables pertaining to “Factor Conditions” were found to be significant, neither of the “Context for firm strategy and rivalry” variables showed significance

Local demand conditions were also analysed and both of these variables were found to be significant. Firstly, a significant difference exists in the percentage of the establishment's sales which were national sales, i.e. sold domestically, (d3a) for politically constrained (Mean = 91.76%, SD = 24.46%) and politically non-constrained firms (Mean = 94.88%, SD = 18.06%), subject to t(1286.34 df) = 3.73, p = 0.0002. The effect size (eta^2) which exists between the two variables is computed to be 0.003. According to Cohen (1988), this translates into a very small effect.

Furthermore, the second significant difference of the “Local demand conditions” aspect is found in the percentage of the establishment's sales sold on credit (k2c) for politically constrained (Mean = 27.40%, SD = 33.23%) and politically non-constrained firms (Mean = 25.08%, SD = 30.53%), subject to t(1493.45 df) = -1.97, p = 0.0491. The effect size (eta^2)

which exists between the two variables is computed to be 0.001. Cohen (1988) highlights this as a very small effect.

The final aspect of competitiveness pertains to the presence of related and supporting industries. One variable displayed a significant difference, namely the percentage of total sales paid for security in last fiscal year (i2aFull) for politically constrained (Mean = 3.42%, SD = 5.99%) and politically non-constrained firms (Mean = 4.46%, SD = 6.84%), subject to t(954.54 df) = 3.39, p = 0.0007. The effect size (eta^2) which exists between the two variables is computed to be 0.005. This translates into a very small effect, according to Cohen (1988).

For these significant variables, the null hypothesis of no significant difference in variance between the groups is rejected. All of these seven variables discussed above were found to be significant at the 95% confidence level ($a = 0.05$), while some were found to be significant at the 99% confidence level ($a = 0.01$), when testing the alternative hypothesis. An additional variable, the percentage of electricity from a generator owned or shared by the establishment (c11), was found to be significant at the 90% confidence level, however the alpha is set to 0.05 for this analysis.

It is interesting to note that politically non-constrained firms on average experience more power outages (10.86 outages) and subsequent losses ($35522.56 PPP) from these outages when compared to politically constrained firms (9.5 outages and $4833.13 PPP). Furthermore, politically constrained firms source more of their working capital from retained earnings (86.02%) and less from banks (4.31%) relative to politically non-constrained firms (82.73% and 5.59%).

When domestic sales are evaluated, politically non-constrained firms realise more of its sales within the country (94.88%) in relation to politically constrained firms (91.76%), implying that politically constrained firms are more involved with exports. Furthermore, the analysis of credit sales indicates that politically constrained firms attribute a larger percentage of sales (27.40%) to credit sales when compared to politically non-constrained firms (25.08%). Finally, politically non-constrained firms were also found to spend a larger proportion of their income on security costs (4.46%) relative to politically constrained firms (3.42%). It is important to view all of these results, though significant at various confidence levels, against the effect size which the independent variables have on the dependent variable. The effect varies between a small to a very small effect, resulting in a reserved approach when interpreting the results.

2.5.3.4 Chi-square test for independence

Similar to the independent samples t-test, this analysis also tested the variables against a null hypothesis and alternative hypothesis as postulated by the author. For the Chi-square (χ^2) test of independence, the author's null hypothesis (H_0) postulates no association between politically constrained and politically non-constrained firms and the independent variable. On the other hand, the alternative hypothesis (H_a) advances that a significant difference exists between politically constrained and politically non-constrained firms in relation to the independent variable. In other words, the level of the politically constrained variable can assist in predicting the level of the independent variable.

None of the eight variables violated the underlying assumption that the expected frequency should include at least five observations for any combination of the two variables being compared. As such, Pearson's Chi-square was executed by making use of the below categorical variables, which were again grouped according to the elements of Porter's (1990) Diamond of National Advantage in Table 2.16. Furthermore, the individual Chi-square tests are also tabulated in Addendum C.

Table 2.16 – Chi-square test for independence

Variables	Obs	Frequency		Pearson Chi-Square Test			Cramér's V
		Politically non-constrained	Politically constrained	χ2	df	Asymp. Sig. (2-sided)	
Factor conditions							
Tax_Obs (j30b)	**4682**			**30.344**	**4**	**0.000****	**0.081**
No obstacle		**16.14%**	**22.33%**				
Minor obstacle		**24.12%**	**25.37%**				
Moderate obstacle		**26.88%**	**25.17%**				
Major obstacle		**25.08%**	**22.14%**				
Very Severe Obstacle		**7.78%**	**4.99%**				
License_Obs (j30c)	4555			4.793	4	0.309	0.032
No obstacle		29.93%	32.22%				
Minor obstacle		26.79%	25.43%				
Moderate obstacle		22.34%	23.81%				
Major obstacle		16.4%	14.59%				
Very Severe Obstacle		4.54%	3.95%				
Uneduc_Obs (l30b)	**4630**			**20.539**	**4**	**0.000****	**0.067**
No obstacle		**37.03%**	**43.98%**				
Minor obstacle		**26.24%**	**21.2%**				
Moderate obstacle		**17.75%**	**15.48%**				
Major obstacle		**13.55%**	**14.1%**				
Very Severe Obstacle		**5.42%**	**5.23%**				
Context for firm strategy and rivalry							
Trans_Obs (d30a)	4607			9.360	4	0.053	0.045
No obstacle		24.45%	29.07%				
Minor obstacle		25.39%	24.59%				
Moderate obstacle		22.66%	20.33%				
Major obstacle		20.76%	19.31%				
Very Severe Obstacle		6.73%	6.71%				
InfComp_Obs (e30)	**4518**			**21.010**	**4**	**0.000****	**0.068**
No obstacle		**20.9%**	**25.87%**				
Minor obstacle		**20.39%**	**21.74%**				
Moderate obstacle		**20.56%**	**21.53%**				
Major obstacle		**21.96%**	**18.66%**				
Very Severe Obstacle		**16.2%**	**12.2%**				

Table 2.16 (Cont.) – Chi-square test for independence

Variables	Obs	Frequency		Pearson Chi-Square Test			Cramér's V
		Politically non-constrained	Politically constrained	χ2	df	Asymp. Sig. (2-sided)	
Land_Obs (g30a)	4646			7.516	4	0.111	0.04
No obstacle		29.26%	33.3%				
Minor obstacle		23.24%	22.17%				
Moderate obstacle		19.31%	19.38%				
Major obstacle		19.59%	17.1%				
Very Severe Obstacle		8.6%	8.05%				
LabourReg_Obs (l30a)	4688			6.074	4	0.194	0.036
No obstacle		37.39%	40.33%				
Minor obstacle		32.11%	31.4%				
Moderate obstacle		20.88%	20.41%				
Major obstacle		8.29%	7.16%				
Very Severe Obstacle		1.34%	0.69%				
Local demand conditions							
Gov_Contract (j6a)	4435			1.429	1	0.232	-0.018
No		82.6%	84.26%				
Yes		17.4%	15.74%				

Source: Author's calculations from World Bank (2016c)

Note: indicates significance at the 95% confidence level (alpha=0.05), ** indicates significance at the 99% confidence level (alpha=0.01)*

The significant results for the Chi-square tests for independence are highlighted in bold in Table 2.16 above. It is important to note when interpreting Cramér's V that the strength of association threshold is determined by the variable with the least amount of categories. In this case, because the politically constrained variable only contains two categories (politically constrained and politically non-constrained), the strength of association thresholds is set at 0.01 for a small association, a medium association at 0.30 and finally 0.50 for a large association according to Pallant (2011).

All but one of the above variables (Gov_Contract - j6a) listed in Table 2.16 pertained to the perceived level of obstacle which the specific variable presented to a firm in the World Bank's (2016c) Enterprise Survey, as evaluated by the firms themselves. The various obstacles surveyed varied between five levels of severity, from "No Obstacle" to "Very Severe Obstacle", as can also be seen in Table 2.16 and the frequencies of variables discussed below take these levels into account. Gov_Contract (j6a) was a *"Yes" / "No"* question in the survey, indicating if the firm had entered into a government contract.

Two variables evaluated as an indication of the "Factor Conditions" aspect of competitiveness were found to be significant, namely the obstacles presented by tax administrations (Tax_Obs or j30b) and an inadequately educated workforce (Uneduc_Obs or l30b). Firstly, Pearson's Chi-square test for independence finds a significant association between the level of obstacle presented by tax administrations (j30b) and the level of the politically constrained variable,

subject to χ^2 (4 df) = 30.344, p = 0.000. The strength of association (Cramér's V) which exists between the two variables is computed to be 0.081. This translates into a small effect, according to Pallant (2011). A higher frequency of politically non-constrained firms indicated that the obstacle presented by tax administrations was perceived to be more of an obstacle, where the frequency of firms which classified this as a moderate, major and very severe obstacle amounted to 59.74% for politically non-constrained firms, compared to 52.30% of politically constrained firms. Comparatively, a higher frequency of politically constrained firms (47.70%) indicated that the obstacle presented by tax administrations was perceived to be less of an obstacle (no- and minor obstacle) relative to politically non-constrained firms (40.26%).

The second variable with a significant association with the level of the politically constrained variable was found to be the level of obstacle presented by an inadequately educated workforce (l30b), subject to χ^2 (4 df) = 20.539, p = 0.000. The strength of association (Cramér's V) which exists between the two variables is computed to be 0.067. This translates into a small effect, according to Pallant (2011). A higher frequency of politically non-constrained firms (36.72% vs politically constrained firms' 34.81%) indicated that the obstacle presented by an inadequately educated workforce was perceived to be more of an obstacle (i.e. a moderate, major or very severe obstacle). Inversely, a higher frequency of politically constrained firms (65.18% vs politically non- constrained firms' 63.27%) indicated that the obstacle presented by an inadequately educated workforce was perceived to be less of an obstacle (no- and minor obstacle).

Furthermore, a variable relating to the "Context for firm strategy and rivalry" element of competitiveness was also found to have a significant association with the level of the politically constrained variable. Pearson's Chi-square test for independence finds a significant association between the level of obstacle presented by the practices of competitors in the informal sector (e30) and the level of the politically constrained independent variable, subject to $\chi 2$ (4 df) = 21.010, p = 0.000. The strength of association (Cramér's V) which exists between the two variables is computed to be 0.068. This translates into a small effect, according to Pallant (2011). A higher frequency of politically non-constrained firms (58.72%) indicated that the obstacle presented by practices of competitors in the informal sector was perceived to be more of an obstacle when compared to politically constrained firms (52.39%). Inversely, a higher frequency of politically constrained firms (47.61%) indicated that the obstacle presented by practices of competitors in the informal sector was perceived to be less of an obstacle relative to politically non-constrained firms (41.29%).

For these significant variables, the null hypothesis of no significant association between the groups are rejected. All three of the variables discussed above were found to be significantly associated at the 95% confidence level ($a = 0.05$) and the 99% confidence level ($a = 0.01$), when testing the alternative hypotheses (a significant difference between politically constrained- and politically non-constrained firms in relation to the independent variable). An additional variable, the level of obstacle presented by the transportation of goods, supplies and inputs (d30a), was found to be significantly associated at the 90% confidence level, however similarly to the independent samples t-tests in the previous section, the alpha is set to 0.05 for this analysis.

The three variables which were found to be significantly associated with the politically constrained variable were the levels of obstacle presented by tax administrations, the practices of competitors in the informal sector and an inadequately educated workforce. In each case, the politically non-constrained firms perceived that the individual variables presented a larger obstacle relative to the perception from politically constrained firms. However, when the strength of the association for all the significant variables is overviewed, only a small effect or association is observed for all three variables.

2.5.3.5 Discussion of the results

The objective for the empirical analysis as stated in Chapter 1 was to "empirically determine which microeconomic competitiveness factors explain the differences between politically constrained firms versus those who are not in fragile and conflict-affected countries."

To achieve this first, a "politically constrained" proxy was generated for firms which perceived themselves to be affected by fragility in the political environment. This was derived from variable m1 in the World Bank (2016c) Enterprise Survey data, where firms which stated that their biggest obstacle in the business environment was political instability was assigned a value of 1. All firms which listed other obstacles were assigned a value of 0, in other words politically non-constrained.

Variables were then identified which corresponded to the four elements of competitiveness as outlined by Porter (1990), namely factor conditions, the context for firm strategy and rivalry, local demand conditions and the presence of related and supporting industries. A list of these variables can be found in Table 2.14. The identification of these variables correspond to a comparison done in Section 2.2.3.4, where underlying variables in three competitiveness reports (the WEF's (2015) Global Competitiveness Index, the IMD's (2014) World Competitiveness Yearbook and the World Bank's (2016) Doing Business Report) were identified. To determine which of these variables showed significant differences for politically constrained and politically non-constrained firms, independent samples t-tests were compiled for continuous variables and Chi-square tests for independence for the categorical variables.

The independent samples t-test was first compiled. The significant differences in the frequency of power outages and the consequent losses in sales were highlighted between politically constrained and politically non-constrained firms. Politically non-constrained firms were subjected more to these outages and losses. This might be as a result of a larger percentage of electricity gained by politically constrained firms from generators (c11), allowing politically constrained firms to continue with business. Constraints in the various environments (political and otherwise) where firms operated could have assisted firms in becoming more independent. These results reflected similar findings by Matthee *et al.* (2015) for Zimbabwe.

Furthermore, politically constrained firms' were found to be less reliant on bank loans for their working capital, employing more funds from retained earnings relative to politically non-constrained firms. Again, a similarity can be found with Matthee *et al.'s* (2015) results, where politically constrained firms in Zimbabwe sourced more working capital from retained earnings. This could indicate a self-reliance within a constrained political environment, which ensures

that these firms are less exposed to monetary policy interventions such as fluctuations in interest rates.

Politically constrained firms are more dependent on credit sales relative to politically non-constrained firms. However, when domestic sales are evaluated, politically non-constrained firms are found to generate more of its sales within the domestic market relative to politically constrained firms, implying that politically constrained firms are more involved with exports. This could have a double-edged effect for politically constrained firms - by being less exposed to domestic sales, the firm diversifies away from country risk, but higher sales on credit could lead to liquidity issues for the firm, especially with the above-mentioned reliance on retained earnings for working capital. Finally, politically non-constrained firms were also found to spend a larger proportion of their income on security costs relative to politically constrained firms. This increased spending could point to less protection being afforded to politically constrained firms.

After the completion of the t-tests, the Chi-square tests for independence were completed. Three obstacles evaluated by firms also indicated significant differences between politically constrained and politically non-constrained firms. Politically non-constrained firms perceived that the levels of obstacles presented by tax administrations, the practices of competitors in the informal sector and an inadequately educated workforce all presented a larger obstacle relative to the perception from politically constrained firms. The difference in firms' perception of the obstacle presented by tax administrations could possibly be ascribed to the fact that politically non-constrained firms' average yearly sales are significantly higher compared to the politically constrained firms, as seen in the descriptive statistics. Because domestic sales contribute more to politically non-constrained firms' finances, it stands to reason that the informal sector could be perceived as a bigger obstacle. Finally it could be inferred that politically constrained firms, which on average employ more fulltime employees, might have a more dedicated recruitment process ensuring adequately trained employees. The last two obstacles were also identified by Matthee *et al.* (2015) as significant differences between politically constrained and politically non-constrained firms in Zimbabwe, with politically non-constrained firms perceiving these to be more of an obstacle.

The majority of significantly different variables pertain to Porter's (1990) factor conditions element of competitiveness, i.e. the human, natural and capital resources necessary to initiate and sustain competitive operations. This could point out that politically constrained firms are more developed and in a better position to make use of the factors of production. That is underscored by the descriptive statistics which found that politically constrained firms were longer in business, had more full time employees and were proportionally more involved in export activities compared to politically non-constrained firms.

2.6 CONCLUSION, RECOMMENDATIONS AND FUTURE RESEARCH

The majority of all countries identified as fragile and conflict affected situations (FCS) are located in Africa. Leo *et al.* (2012) emphasised the importance of assisting microeconomic growth in African FCS, while Kaplan (2009) advocated that a better distribution of economic

resources would assist countries in moving out of fragility. It could then be advocated that a bottom-up, firm-level approach could assist in establishing economic stability and the move away from fragility. By removing barriers which prevent firms from attaining competitiveness, one could assist in this process.

The research question developed from the above background therefore states: "What factors constrain the competitiveness of firms in African fragile and conflict-affected countries?" The study first made use of a literature overview to achieve the first two research objectives. These objectives as outlined in Chapter 1 were to firstly give an overview of the literature on microeconomic competitiveness and the importance of the micro economy for fragile countries and secondly to provide an overview of fragile and conflict-affected countries and specifically the state of fragility in Africa.

To attain the first objective, Section 2.2 contained an overview of Porter's (1990) seminal work on competitiveness in the form of the Diamond of National Advantage was given, replete with its four main forces of strategy, structure and rivalry, factor conditions, related and supporting industries and finally demand conditions, as well as the external forces which affect the diamond. This theory however created a debate around the role of competitiveness, which was overviewed in part through a taxonomy on the neoclassical, "semi- competitiveness" and competitiveness schools of thought on this issue. Furthermore, key reports on competitiveness (such as the Global Competitiveness Index) and their overarching themes investigating finance, the labour market and infrastructure were overviewed, before the microeconomic application of the competitiveness concept was discussed. In this section, the exposure of the microeconomic environment to political stability was also highlighted. The importance of the micro economy for FCS countries was discussed, as well as various studies investigating microeconomic competitiveness. However, a gap in the literature was highlighted as very few studies outside Matthee *et. al.* (2015) have investigated microeconomic competitiveness in fragile countries, which is where this article makes a contribution.

In reaching the second literature objective as outlined in Chapter 1, competitiveness was investigated in the 18 countries defined as fragile by the World Bank (2015) by making use of the Doing Business Report and the Global Competitiveness Index. This highlighted key constraints to competitiveness including access to electricity and resolving insolvency, while the highest competitiveness ranking attained by one of the 18 African FCS countries was achieved by Cote d'Ivoire, with a ranking of 142nd out of 189 in the Doing Business Report and 91st in the GCI report. Additional economic aspects found that most of these countries had a GDP per capita of less than US$ 1000, fluctuating growth rates from a low GDP base and had a reliance on primary industries, while the main cause of fragility was a low CPIA score.

After the literature review, the empirical research objective's focus was to empirically determine which microeconomic competitiveness factors explain the differences between politically constrained firms versus those who are not in fragile and conflict-affected countries. This was analysed against the background of the four elements of competitiveness from Porter's (1990) diamond. As indicated in the literature, the political environment in FCS countries can have a significant impact on the micro economy (firms) and economic development. Fourteen of the 18 African countries identified as fragile by the World Bank (2015) had survey data from the World Bank's (2016c) Enterprise Surveys which could be

used to analyse the data. To achieve this, a "politically constrained" proxy was generated for firms which perceived themselves to be affected by fragility in the political environment.

The empirical analysis highlighted that politically non-constrained firms were more exposed to higher frequency of power outages and incurred higher sales losses as a result, while also being more dependent on the domestic market. Furthermore, these firms indicated that the spending on security-related costs was significantly more than that of politically constrained firms. Additionally, politically non-constrained firms experienced bigger obstacles in relation to tax administrations, an inadequately educated workforce and the practices of competitors in the informal sector. Politically constrained firms on the other hand indicated a higher dependency on credit sales. Furthermore, these firms indicated a higher reliance on the firms' internal funds for working capital, rather than sourcing working capital from the banks.

When viewing the above results against Porter's (1990) framework of competitiveness, it is evident that the majority of obstacles experienced by politically non-constrained firms pertain to the "Factor conditions" aspect of competitiveness. This aspect relates to the various factors of production (such as human, capital and natural resources) which assist firms in creating sustainable competitive enterprises. It could then be inferred that politically constrained firms attained higher levels of development allowing them to make better use of these factor conditions. The descriptive statistics underline this difference with politically non-constrained firms by highlighting that the politically constrained firms had been in business longer, had more full time employees and were proportionally more involved in export activities compared.

As mentioned above, this article makes a contribution in relation to increasing the literature pertaining to firm-level studies in Africa, as well as studies on fragility and competitiveness. Olsen *et al.* (2008:222) highlights that firms' competitive advantage depends on *"…the efficiency of their nation's public institutions, excellence of the educational, health and communication infrastructures, as well as on the nation's political and economical stability. On the other hand, an outstanding macroeconomic environment alone cannot guarantee a high level of national competitive position unless firms create valuable goods and services with a commensurately high level of productivity at the micro-level."* Again firm-level exposure to the political environment is emphasised in the above statement, which is explored in the below recommendations.

Different interventions could be made in firms which are politically constrained, compared to those who are not. Recommendations that could be made to increase firms' competitiveness in African FCS countries therefore could be made to especially assist politically non-constrained firms in better utilising the resources available to them. This could be achieved by investing in alternative off the grid electricity solutions such as solar power or generators, developing in-house training initiatives to overcome education shortcomings in the workforce and incorporating tax-specialists in the firms to ensure the most efficient approaches to tax returns are followed. Because the politically non-constrained firms gain a larger proportion of their sales from the domestic market, it is imperative to better understand the disruptions which the informal economy brings and being adaptable to these changes, while clusters of firms which collaborate on security could assist in decreasing these costs as well. For politically constrained firms, emphasis should be placed on ensuring better payment terms with customers, while also further exploiting the advantage that these firms have in exporting.

By implementing these recommendations, the firms in African FCS countries could become more competitive. The resulting increased competitiveness could lead to firms playing an increased role to bring stability to fragile countries through increased economic activity and subsequent economic development. The importance of the contribution that these firms can make in fragile countries to help overcome fragility is underlined by Leo *et al.* (2012), which indicates that key interventions can be made in the private sector of FCS countries, leading to economic diversification, robustness and the improvement of governance. This is underscored by Kolk and Lenfant (2015:422) by their statement that *"Partnerships between business and nongovernmental actors have increasingly been presented as important for helping to fill institutional gaps"* (in fragile countries).

This article was limited by data availability, especially regularly compiled surveys of the environment where firms operate which constrains the analysis of business conditions. For future research, it would be beneficial to compile and analyse panel data to evaluate which microeconomic barriers to competitiveness showed improvement as countries move beyond fragility. This will assist in indicating what microeconomic interventions would be most beneficial in ensuring a competitive micro economy that can assist the country in moving out of fragility. Furthermore, studies of the individual African fragile and conflict-affected countries' firms could add value, as this could lead to policy recommendations and bespoke microeconomic interventions ensuring the identification of country-specific barriers as well. As identified in the overview of African countries, the countries displayed various reasons of fragility, which could point to another avenue of research by distinguishing between different causes of fragility and their related microeconomic barriers to competitiveness.

2.7 LIST OF REFERENCES

African Economic Outlook. 2016. Statistics. http://www.africaneconomicoutlook.org/en/statistics Date of access: 10 March 2016.

Ault, J. K. & Spicer, A. 2016. Measuring the political context of entrepreneurship in the developing world: lessons from the state fragility literature. *Academy of management annual meeting proceedings,* 1806-1811.

Berman, E. 1990. Government, politics and economic competitiveness in the global economy. *Journal of interamerican studies and world affairs,* 32(3):247-257.

Bhaumik, S. K., Driffield, N. & Zhou, Y. 2016. Country specific advantage, firm specific advantage and multinationality - Sources of competitive advantage in emerging markets: Evidence from the electronics industry in China. *International business review,* 25(1):165-176.

Carment, D., Prest, S. & Samy, Y. 2011. The causes and measurement of state fragility. (*In* Naude, W. A., Santos-Paulino, A. U. & Mcgillivray, M., *eds.* Fragile states: cost, causes and responses. Oxford: Oxford University Press. p. 43-58).

Chauvet, L., Collier, P. & Hoeffler, A. 2011. Cost of failing states and the limits to sovereignty. (*In* Naude, W. A., Santos-Paulino, A. U. & Mcgillivray, M., *eds.* Fragile states: costs, causes and responses. Oxford: Oxford University press. p. 91-107).

Cohen, J. W. 1988. Statistical analysis for the behavioural sciences. 2nd ed. Hillsdale, NJ: Lawrence Erlbaum Associates.

Davies, H. & Ellis, P. D. 2000. Porter's competitive advantage of nations: time for a final judgment? *Journal of management studies*, 37(8):1189-1213.

Díaz-Chao, A., Sainz-González, J. & Torrent-Sellens, J. 2016. The competitiveness of small network-firm: a practical tool. *Journal of business research,* 69:1769–1774

Dibeh, G. 2011. Resources, conflict and state fragility: Iraq and Somalia. (*In* Naude, W. A., Santos-Paulino, A. U. & Mcgillivray, M., *eds*. Fragile states: costs, causes and reponses. Oxford: Oxford University Press. p. 68-86).

Dolfsma, W. & Van der Velde, G. 2014. Industry innovativeness, firm size and entrepreneurship: Schumpeter mark III? *Journal of evolutionary economics,* 24:713–736.

Fort, T. C., Haltiwanger, J., Jarmin, R. S. & Miranda, J. 2013. How firms respond to business cycles: the role of firm age and firm size. Cambridge, MA: National Bureau of Economic Research.

Grimm, S., Lemay-Hébert, N. & Nay, O. 2014. 'Fragile states': introducing a political concept. *Third world quarterly,* 35(2):197-209.

Hallward-Driemeier, M. 2013. World Bank's Enterprise Surveys – capturing gender. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=10&ved=0ahUKEwiAtvTqqvDPAhVHL8AKHb3ACuUQFghZMAk&url=http%3A%2F%2Funstats.un.org%2Funsd%2Fgender%2FEvents%2F5-6%2520Dec%25202013%2FSession%25206_World%2520Bank.ppt&usg=AFQjCNFhHC9sednv2XVPQKpj85s7jGFTMQ&sig2=71ONYHcTOqgqMyGAv56flQ&cad=rja Date of access: 10 August 2016. [Powerpoint Presentation].

Herciu, M. 2013. Measuring international competitiveness of Romania by using Porter's diamond and revealed comparative advantage. *Procedia economics and finance*, 6: 273-279.

Howitt, D. L. & Cramer, D. 2000. First steps in research and statistics: a practical workbook for psychology students. London: Routledge.

Institute for Management Development. 2013. World competitiveness yearbook 2014. Lausanne: International Institute for Management Development.

Institute for Management Development. 2014. World competitiveness yearbook 2014. Lausanne: International Institute for Management Development.

International Development Association. 2013. IDA's support to fragile and conflict-affected states. Washington DC: World Bank Group.

International Monetary Fund. 2016. World economic and financial surveys: world economic outlook. Database http://www.imf.org/external/pubs/ft/weo/2016/01/weodata/index.aspx Date of access: 15 April 2016.

Kaplan, S. 2009. Fixing fragile states. *Policy review*, 152:63-77.

Ketels, C.H.M. 2006. Michael Porter's competitiveness framework - recent learnings and new research priorities. *Journal of industry, competition and trade*, 6:115-136.

Kolk, A. & Lenfant., F. 2015. Partnerships for peace and development in fragile states: identifying missing links. *Academy of management perspectives,* 29(4): 422–437.

Krugman, P. R. 1994. Competitiveness: a dangerous obsession. *Foreign affair*s, 73(2):28-44

Lall, S. 2001. Competitiveness indices and developing countries: an economic evaluation of the global competitiveness report. *Word development*, 29(9):1501-1525.

Leo, B., Ramachandran, V. & Thuotte, R. 2012. Supporting business growth in African fragile states. Washington DC: Centre for Global Development.

Macerinskiene, I., & Sakhanova, G. 2011. National economy competitiveness of Kazakhstan Republic. *Engineering economics*, 22(3):292-299.

Matthee, M., Krugell, W. F. & Mzumara, M. 2015. Micro-economic competitiveness and post-conflict reconstruction: firm-level evidence from Zimbabwe. *International business and economics research journal*, 14(3):525-536.

Mehanna, R. & Yazbeck, Y. 2009. Business innovation, ethics, and prosperity: the primacy of microeconomics. *Journal of business strategies*, 26 (2):1-17.

Mohr, P. & Fourie, L. 2007. Economics for South African students: Fourth edition. Pretoria: Van Shaik Publishers.

Mulatu, A. 2016. On the concept of 'competitiveness' and its usefulness for policy. *Structural change and economic dynamics,* 36:50-62.

Murmann, J. P., Ozdemir, S. Z. & Sardana, D. 2015. The role of home country demand in the internationalization of new ventures. *Research policy*, 44(6):1207-1225.

Musarurwa, H. J. 2016. The rise of youth activism and non-violent action in addressing Zimbabwe's crisis. *Conflict trends,* 3:50-56.

Mushtak, P. 2016. Why numbers matter: efforts are being ramped up to improve the availability and reliability of economic data on Africa. *African business*, 431:40-43.

Nasar, S. 2013. The grand pursuit of Alfred Marshall and Joseph Schumpeter: the firm, the entrepreneur, and economic growth. *Proceedings of the American philosophical society*, 157(1):58-66.

Naude, W. A. & Mcgillivray, M. 2011. Fragile states: an overview. (*In* Naude, W. A., Santos-Paulino, A. U. & Mcgillivray, M. *eds*. Fragile states: costs, causes and responses. Oxford: Oxford University Press. p. 1-29).

Olson, M. 1993. Dictatorship, democracy, and development. *The American political science review*, 87(3):567-576.

Önsel, Ş., Ülengen, F., Ulusoy, G., Aktaş, E., Kabak, Ö. & Topcu, Y. Í. 2008. A new perspective on the competitiveness of nations. *Socio-economic planning sciences* 42:221–246.

Oz, O. 2002. Assessing Porter's framework for national advantage: the case of Turkey. *Journal of business research,* 55:509-515.

Pallant, J. 2011. SPSS survival manual: a step by step guide to data analysis using SPSS. 4th ed. Crows Nest: Allen and Unwin. 345 p.

Pindyck, R. S. & Rubinfield, D. L. 2005. Microeconomics. 6th ed. Upper Saddle River, NJ: Pearson Prentice Hall.

Porter, M. E. 1990. The competitive advantage of nations. *Harvard business review*, 68(2):73-93.

Porter, M. E. 1998. The Adam Smith address: location, clusters, and the 'new' microeconomics of competition. *Business economics*, 33(1):7-13.

Porter, M. E. 2000. Location, competition and economic development: Local clusters in a global economy. *Economic development quarterly*, 14(1):15-34.

Porter, M. E. 2004. The microeconomic foundations of prosperity: findings from the business competitiveness index. *In*: SCHWAB, K & SALA-I-MARTÍN, X, eds. *Global competitiveness report: 2003-2004*, Geneva: World Economic Forum. 29-56 p.

Porter, M. E. ., Ketels, C. & Delgado, M. 2007. The microeconomic foundations of prosperity: findings from the business competitiveness index. (*In* SCHWAB, K & SALA-I-MARTÍN, X, *eds*. Global competitiveness report: 2007-2008. Geneva: World Economic Forum. p. 51-81).

Roach, S. C. 2016. South Sudan: a volatile dynamic of accountability and peace. *International affairs,* 92(6):1343–1359.

Rugman, A. M. 1991. Diamond in the rough. *Business quarterly,* 56(3):61-64.

Rugman, A.M, Chang, H.O. & Lim, D. S. K. 2012. The regional and global competitiveness of multinational firms. *Journal of the Academy of Marketing Science,* 40:218-235.

Shaffer, S. 2002. Firm size and economic growth. *Economics letters*, 76:195–203.

Singh, R. K., Garg, S. K. & Deshmukh, S. G. 2010. The competitiveness of SMEs in a globalized economy: observations from China and India. *Management Research Review*, 33(1):54-65.

Smit, A. J. 2010. The competitive advantage of nations: is Porter's diamond framework a new theory that explains the international competitiveness of countries? *Southern African business review*, 14(1):105-130.

Stangler, D. 2010. High-growth firms and the future of the American economy. Kauffman Foundation research series.

Stutz, F. P. & Warf, B. 2007. The World Economy: Resources, Trade and Development. 5th ed. Pearson Prentice Hall.

Ulengin, F., Ulengin, B. & Onsel, S. 2002. A power-based measurement approach to specify macroeconomic competitiveness of countries. *Socioeconomic planning sciences*, 36:203-226.

United Nations. 2013. Composition of macro geographical (continental) regions, geographical sub-regions, and selected economic and other groupings. http://millenniumindicators.un.org/unsd/methods/m49/m49regin.htm Date of access: 19 February 2016.

United Nations. 2016. Detailed structure and explanatory notes - ISIC Rev.3.1. http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=17 Date of access: 26 July 2016.

United Nations Industrial Development Organisation. 2011. African investor report 2011. Vienna: United Nations Industrial Development Organization.

Webster, T.J. 2003. Managerial economics: theory and practice. London: Academic Press. 739p.

World Bank. 2013. Doing business 2014: understanding regulations for small and medium sized enterprises. Washington, DC: World Bank Group. 306 p.

World Bank. 2015. Harmonised list of fragile situations 2015. http://siteresources.worldbank.org/EXTLICUS/Resources/511777-1269623894864/FY15FragileSituationList.pdf Date of access: 10 January 2016.

World Bank. 2016c. Full Survey Data. https://www.enterprisesurveys.org/portal/index.aspx#/library?dataset=Enterprise%20Survey Date of access: 29 January 2016.

World Bank. 2016d. Doing business 2016: measuring regulatory quality and efficiency. Washington, DC: World Bank Group.

World Economic Forum. 2013. World competitiveness report: 2013-2014. Geneva: World Economic Forum.

World Economic Forum. 2014. History. http://www.weforum.org/history. Date of access: 20 July 2014.

World Economic Forum. 2015. World competitiveness report: 2015-2016. Geneva: World Economic Forum.

CHAPTER 3 – ARTICLE 2

IDENTIFYING FIRM-LEVEL EXPORT BARRIERS IN AFRICAN FRAGILE AND CONFLICT-AFFECTED COUNTRIES CONSTRAINING THEIR EXPORT PROPENSITY AND INTENSITY

Abstract

A variety of barriers exist within African FCS countries which impact firms' export propensity and –intensity, which forms the focus of this article. Within these countries this holds true, as highlighted by their low levels of mostly primary exports. Through literature the benefits of international trade to various economic actors were underscored, including aspects such as increased foreign exchange and employment. This was elaborated upon by outlining theories, motives and triggers of internationalisation where firms become more involved in exports. Three groupings of firm-level export barriers were then expounded upon, underscoring the wide variety of barriers which exists to exports. Against the above the empirical analysis in this article investigated the firm-level barriers to the likelihood (or propensity) of becoming involved in exports, as well as the volume (or intensity) of these exports, with a specific focus on African fragile and conflict-affected countries. A Heckman two-step selection model was specified to serve as the above analysis. Aspects displaying a significant negative correlation with export propensity include working capital sourced from retained earnings and credit sales, corruption and firm productivity. Contrarily foreign ownership, firm size and –age, access to a website and email, the utilisation of foreign inputs and notably also an inadequately educated labour force displayed a positive relationship with export propensity. Export intensity displayed a significant positive relationship with firm size, productivity and firms which experience corruption as an obstacle, while firm age was the only variable which was found to have a significant and negative relationship with export intensity.

Keywords: **Africa, fragile and conflict-affected countries, firms, export barriers, export propensity, export intensity**

JEL classification codes: D22, F14, F23

3.1 INTRODUCTION

Fragile countries' exports make a very limited contribution when compared to the entire global export market. Hoeffler (2012) calculated that fragile countries only contribute 2% to global exports, while the majority (60%) originate in OECD (Organisation for Economic Co-operation and Development) countries, followed by 29% in middle- and low-income developing countries and interestingly only 9% in high-income developing countries. Considering the well-established relationship between exports and economic growth and – development as outlined by Todaro and Smith (2011), this creates an opportunity to increase export and import trade and through it, development in fragile countries.

Exports also form one of the elements analysed in the Country Policy and Institutional Assessment (CPIA), the assessment of fragility used by the World Bank (2015) to determine its list of fragile and conflict-affected states. Baliamoune-Lutz (2009) indicates that trade is one of the underlying factors of the CPIA's cluster evaluating countries' structural policies.

Trade however, does not take place unhindered, as the many rounds of GATT [3] and the WTO[4] discussing trade liberalisation will attest, the latest rounds of talks at Doha (Doha Development Agenda) which aimed for a "*single undertaking*" on trade liberalisation remain unresolved (Hartman, 2013:413). Trade liberalisation is hampered by trade barriers, which take the form of both tariff- and non-tariff barriers, while these barriers also exist as either self-imposed barriers and / or barriers that result from a country's economic, institutional and resource make-up, as can be seen from the research done by Arndt, Buch and Mattes (2009), Jacobs (2012), Hartwell (2016) and others. These barriers exist at country-level and firm level (Arndt *et al.*, 2009).

While widely emphasised in international economic literature, the cumulative level (country-wide or overall sectors) does not represent the only level of importance for export analysis, as alluded to by Van Marrewijk (2012). He continues by emphasising that; *"…it is ultimately not countries, but firms that export to, and invest in, other countries. These firms differ from one another enormously in terms of amount of capital, labour and technology used in the production process and in terms of size and productivity level"* (Van Marrewijk, 2012:400). Taking this statement and the importance of removing export barriers into consideration, this article aims to identify the firm-level barriers to export in African fragile and conflict-affected states (FCS), especially in the context of export propensity and – intensity. By identifying and addressing trade barriers this could result in increasing export propensity (the tendency or inclination to export) and –intensity (the volume of exports). This could allow the transmission of the benefits of exports to African FCS firms and these countries' economies as a whole.

The delimitation of the article now follows. A review on literature with regard to exports and internationalisation is firstly done in Section 3.2, while Section 3.3 focuses on firm-level export barriers and fragile states. Section 3.2 is used to reach the first objective of the article, namely providing an overview of the benefits of international trade, while Section 3.3 attains the objective of overviewing existing literature on export barriers. Furthermore in Section 3.4, an overview of African FCS countries' economies is done with a specific focus on exports and related economic

[3] General Agreement on Tariffs and Trade
[4] World Trade Organisation

activity which satisfies the second article-objective and serves as introduction to the empirical analysis. This is followed in Section 3.5 by an overview of the questionnaire used in the article. Thereafter in section 3.6 the descriptive statistics are overviewed and 3.7 contains a discussion of the research method, which in this case is a Heckman two-step empirical analysis compiled through STATA on data from various African FCS countries' World Bank Enterprise Surveys completed from 2009 to 2014. Furthermore in Section 3.7 this analysis is applied to African FCS countries to determine which firm-level export barriers affecting export propensity and intensity are prevalent in African fragile and conflict-affected countries. This also satisfies the final objective of the article. Finally a conclusion is reached in section 3.8 and recommendations with regard to possible further research stemming from this article are made.

3.2 LITERATURE REVIEW – ROLE OF EXPORTS IN THE COUNTRY AND THE FIRM

This section overviews the role of exports on a national and firm level. Against the background of fragile and conflict-affected African countries, it is important to consider which benefits trade and specifically exports can hold for a country and its economic participants (consumers and firms), as first outlined in Section 3.2.1. The firms themselves are the main entities which are actually involved in exports and therefore it is necessary to understand how and why firms get more involved in exports (internationalisation). This is overviewed in Section 3.2.2. When measuring these firms' involvement in exports two concepts come to the fore, namely their propensity to export, as well as the intensity of involvement in exports, outlined in Section 3.2.3.

3.2.1 Benefits of exporting

The question of why countries trade has been an ongoing point of debate for the last three centuries, since the publication of Adam Smith's (1776) seminal work entitled "An inquiry into the nature and causes of the wealth of nations". Negishi (2014) and others summarised key theorems which highlight the development of economists' understanding of why countries trade and divides these between the classical school and more modern approaches. Classic school of thought theories included absolute- (Smith, 1776) and comparative advantage (Ricardo, 1817). Comparative advantage was built upon by Mill's (1848) "Political Economy" by emphasising the effect of reciprocal demand on terms of trade (relative international value of a commodity) and investigating the protection of infant industries.

More recent trade theories include the Hecksher-Ohlin theory, as derived from work by Hecksher (1919) and Ohlin (1933) on specialisation based on capital or labour endowments, which was challenged by the findings of Leontief (1954) in a study of American exports. Another theory proposed by Porter (1990) deals with the competitive advantage of nations in his Diamond of National Advantage, but which was challenged by Rugman (1991) and Krugman (1994), amongst others. Krugman on the other hand published two important trade theories, namely his "new trade theory" (1979) and theory on the role of geography (1991). As seen from the above, there is no definitive answer or agreement why trade and therefore exports takes place, especially in modern theory. Stutz and Warf (2007:376) state that while the theories have their limitations, they provide

an essential foundation on which the understanding of international trade is based. Although consensus does not necessarily exist in theories of trade, clear benefits of trade can result on various levels of a country's economy.

Exporting is beneficial to various elements in the economy and as such this synopsis provides an overview of the benefits of exports on a country level, as well as the benefits for consumers and firms.

Firstly in this overview of the benefits of trade, with specific reference to exports, certain benefits to the consumer are summarised. Some of the main benefits of trade which relate to a consumer are outlined by Stutz and Warf (2007). They state that an increased variety of goods and services were available to consumers in export markets. Secondly, exports induced competitive prices through returns to scale and competition created in the domestic market. Furthermore consumers are also exposed to innovation through exported goods (Stutz & Warf, 2007). Owen and Wu (2007) also established that because of knowledge spill-overs trade also has a positive correlation with health. Benefits also exist on a firm level, as can be seen below.

The firms, which are the entities ultimately responsible for exports as per Van Marrewijk (2012), are also beneficiaries of exports, are discussed next. Firstly it opens new markets beyond current domestic markets to firms which export (Chadha, 2009). Furthermore products' life-cycles can be extended in international markets, while it might have reached maturity in the exporting firm's domestic market, as stated by Chadha (2009). The increased revenue which firms receive is also an evident benefit (ITRISA, 2010). Finally, the international standards to which exporting firms are exposed can also result in both better product quality and increased efficiencies in exporting firms' production (Goedhuys & Sleuwaegen, 2016).

Two key benefits which exports provide on a national level are related to economic growth, as well as development, which follows below. In the first instance the diversification of markets can be the result of increased exports, as attested to by Xuefeng and Yaşar (2016), as the development of various new economic sectors and export markets can result from this for exporting countries' economies. They also secondly continue by indicting that exports can assist in creating economies of scale and returns to scale, as evidenced by increased productivity and decreased costs (Xuefeng & Yaşar, 2016; Ang, Madsen & Robertson, 2015).

Another evident benefit of exports for a country is the resulting inflow of foreign exchange and subsequent positive impact on a country's trade balance (Schaling & Kabundi, 2014). Exports also contribute to increased employment, as in Rueda-Cantuche et al. (2013), while Kiyota (2014) found evidence of directly- and indirectly related employment creation as a result of exports. Lastly exports have a marked advantage for countries in resultant increased levels of foreign direct investment, as in Sothan (2016), and it creates investment opportunities in the economies as a result of the higher income- and savings levels, which in turn leads to growth in the various sectors of the economy (Saad, 2012).

There is further developmental advantage to be gained for a country in the form of trade and specifically exports. Various empirical studies have been done to investigate the role of exports on economic growth and / or the export-led growth hypothesis (see Hye et al., 2013; Tiwari & Ludwig, 2014; Tang et al., 2015 and others). Hey *et al.* (2013) state that two of the key studies that led to the export-led growth hypothesis were those done by Helpman and Krugman (1985), as well as Bhagwathi (1988). The export-led growth hypothesis indicates that export is a vehicle that is used to promote economic growth and therefore increases the rewards of factors of

production. Furthermore, it creates opportunities for investments in the economies as a result of the higher level of income and saving, which leads in return to growth in the various sectors of the economy (Saad, 2012).

Exports is believed to play a crucial role in promoting economic growth for both developed and developing countries (Todaro & Smith, 2011). Exports relieve the pressure on a nation's balance of payments as it is an important source of foreign exchange, while it also contributes to employment creation in these countries, as stated by Mohamed et al. (2012). Furthermore, exports create incentives for domestic firms to increase its production capabilities for both goods and services demanded in the world-wide market. Additionally, exports increase various domestic inter-industry linkages which assist in the integration of an economy, reducing its exposure to the risks of external shocks. Finally export also assists in the transfer of technology between countries (Mohamed *et al.*, 2012). All of these elements can assist countries' economic growth.

However, while the relationship between exports and economic growth can be seen from the above overview, Bhagwathi (1958) proposed a theory called "*Immiserizing Growth*", which raised concerns on the combined effect of economic growth and international trade. This postulates that although both international trade and economic growth are generally accepted as contributors to the welfare of a country, these contributors can actually decrease a country's welfare when the aggregated effect of both is measured. This is caused by a deterioration in a country's terms of trade (the ratio of a country's average export price compared to its average import price) because of resultant changes to exports and imports (Negishi, 2014). However, results from studies by Yeh (1999), Sawada (2009) and especially Sarker et al. (2008), which investigated immiserizing growth in least developed countries (LDC's), proved inconclusive in searching for evidence of immiserizing growth. Immerizing growth touches on welfare in a country, which forms part of the study of economic development and therefore a synopsis of the arguments relating to trade and economic development is provided in Table 3.1.

Table 3.1 – Summary of key elements of the Trade and Development debate

Trade and Development Concerns	Traditional arguments for Trade and Development	Arguments posed by Todaro and Smith
How does international trade affect the rate, structure and character of economic growth?	Trade is important for economic growth (through increased consumption & world output, access to scarce resources & world markets necessary for poor countries' growth)	Trade can be an agent of growth (e.g. China & South Korea), but growth of national output may have limited development benefits by biasing economy away from domestic people
How does trade alter the distribution of income and wealth between and within countries?	Trade promotes domestic and international equality (by increasing trading countries' income, levelling factor prices)	Developing countries have benefitted disproportionately less from trade (because of multinational firms, unequal distribution of economic assets)
What conditions are necessary for trade to assist countries in achieving their developmental goals?	Trade promotes economic sectors with comparative advantage (through labour efficiency and / or resource endowments)	This will be influenced by developing countries' ability to gain and maintain trade concessions from developed countries, create links between export earnings and the rest of the economy and efficiently utilise scarce capital and abundant labour resources
Can a country's own actions determine what and how much it trades	Free trade determines the amount of trade necessary to maximise welfare (by making use of international prices, production costs and comparative advantages)	Countries cannot function apart from the international economy, but needs to balance domestic- and international trade, promoting selected rather than all export sectors

Table 3.1(Cont.) – Summary of key elements of the Trade and Development debate

Trade and Development Concerns	Traditional arguments for Trade and Development	Arguments posed by Todaro and Smith
Should developing countries adopt an inward – or outward looking policy	For growth and development an outward-looking policy is mooted (self-reliance is viewed as economically inferior)	A combination of inward –looking polices in a region (e.g. South-South trade) as well as outward looking policies can co-exist to the benefit of developing countries

Source: Author's summary from Todaro and Smith (2011)

In the above Table 3.1 the arguments around trade and its developmental concerns are listed. Traditional arguments advocate that trade is beneficial to development. However, what also does arise from counter-arguments is that trade is not a panacea for development, with risks including enforcing inequality and the afore-mentioned "*Immiserizing Growth*". Furthermore the importance of establishing links between earnings from exports and the rest of the economy is underlined, while also indicating that trade between developing countries (so-called "*South – South"* trade) should not be neglected. Through trade and specifically exports, several of the benefits listed in this section can be transmitted to countries, the consumers and firms, albeit while accounting for certain reservations.

At this point a variety of advantages which trade holds for the various economic actors (country, consumer and firm) has been discussed, as well as the developmental role which trade can perform in countries. As Van Marrewijk (2012) stated, firms are the entities which are ultimately involved in trade. Against this premise it is important to understand why these firms become involved in trade and specifically exports (i.e. internationalisation).

After this overview of exports and economic growth and development, it is important to understand how firms, which is previously established above as the entities that actually export, become involved in international trade.

3.2.2 Internationalisation of firms

To gain an understanding of how exports are generated and lead to the afore-mentioned benefits, including economic growth and development, one needs to understand how and why firms internationalise. Internationalisation is defined as "*the process of adapting firms' operations (strategy, structure, resources, etc.) to international environments*" (Calof & Beamish, 1995:116).

There are three variables which were identified by Weng-Ting (2012) to analyse the process of internationalisation, namely rhythm, pace and scope. Rhythm concerns itself with the irregularity of the international expansion pattern. Pace is indicative of the speed at which internationalisation progresses. Finally scope refers to the geographical spread of the internationalisation (Weng-Ting, 2012). These variables can be inherently seen in the different processes (or theories) of internationalisation and can be different for various firms.

Theories describing internationalisation are either incremental or instantaneous in nature. The Uppsala model formulated by Johanson and Vahlne (1977), which first described the internationalisation process as such, describing it as an incremental process where a firm becomes increasingly involved in export activity. Other incremental theories include the transaction cost, as first mooted by Coase (1937) and expanded by Williamson, according to

Hollensen (2007) and innovation model from Bilkey and Tesar (1977). Additionally, Coviello and Munro's (1997) network theory, where "internationalisation is influenced by the set of relationships a firm develops as a part of its network", as stated by Jaeger (2008:29), also points to incremental internationalisation.

Furthermore, an important model of internationalisation (through foreign direct investment) was highlighted by Jeager (2008:21), which "explains internationalisation of firms' expansion into world markets using their financial investment for achieving optimal cost / benefit relationship." Finally, a model proposed and refined by Dunning (1988) postulates that "the propensity of a firm to engage itself in international production increases if the following three conditions are being satisfied", as per Hollensen (2007:62).

A more recent internationalisation theory is the "born global" phenomenon or also referred to as "new international ventures" by Oviatt and McDougall (1994). This theory pertains to instantaneous internationalisation. The goal with which these firms are established and immediately start to function with is providing in international demand (Loustarinen & Gabrielsson, 2006).

Firms have various motives in becoming involved internationalisation, while also being exposed to certain triggers leading to internationalisation, which are discussed in the next sections.

3.2.2.1 Motives for internationalisation

Firms have various motives driving the process of internationalisation. Motives of internationalisation can be subdivided into two categories, namely proactive motives and reactive motives (Czinkota, 2002; Hollensen, 2007).

Proactive motives are described by Hollensen (2007:42) as "stimuli to attempt a strategy change by exploiting the firms' unique competencies or market possibilities." He continues by listing the major proactive motives. These are profit and growth goals to contribute to the firm's economic well-being, managerial urge (the desire of management for international involvement), foreign market opportunities not present domestically, economies of scale, technical competence and a unique product as well as tax- and government benefits (Hollensen, 2007).

Furthermore, market imperfections and competitive advantage as well as the attractiveness of the opportunity are motives of internationalisation as stated by Ibrahim (2004). The expansion of the firm's horizon and the firm's growth process are also identified by Ibrahim (2004) as motives at the core of internationalisation. In certain cases however, firms are reactively motivated to become involved in internationalisation.

These reactive motives are described as indications "that the firm reacts to pressures or threats in its home – or foreign market and adjusts passively to them by changing its activities over time" (Hollensen, 2007:42). Hollensen (2007) continues by identifying key reactive motives to internationalisation. These include a small or saturated domestic market, competitive pressures, proximity to international customers or inversely psychological distance, unsolicited foreign orders, over production or excess capacity and finally extended sales of seasonal products.

Other studies identified additional reactive motives, including the importance of an appropriate product offering, as underlined by Calof and Beamish (1994). Unsolicited orders from abroad and

limited domestic market size and demand could reactively motivate firms in becoming involved in internationalisation, as indicated by Ibeh and Kasem (2011). Ibrahim (2004) further highlights the stage of a product in the product life cycle, knowledge about the foreign target market and locational advantage were also identified by Ibrahim (2004) as being motives of internationalisation.

Additional agents of change exist, otherwise known as internal and external triggers to internationalisation, above and beyond proactive and reactive motives which initiate the process of internationalisation of a firm (Hollensen, 2007; Czinkota, 2002).

3.2.2.2 Triggers of internationalisation

Change agents, or triggers of internationalisation, are defined by Czinkota (2002:272) as being "someone or something within the firm that initiates it (exporting) and shepherds it through to implementation." These triggers can occur within a firm on both internal and external levels (Hollensen, 2007).

Ibeh and Kasem (2011) noted that the management of a firm's export experience could serve as an internationalisation trigger. Calof and Beamish (1994) state that the attitude of a firm's leadership should be appropriate if a firm wishes to experience success on an international level. Additional key internal triggers to internationalisation were outlined by Czinkota (2002), namely perceptive management, a specific internal event and importing as inward industrialisation. Internationalisation can also be triggered by external factors.

These factors, as outlined by Czinkota (2002) include market demand, competing firms, trade associations and outside experts. Calof and Beamish (1995) corroborate the above and state that attitudes within the firm can be refined by exposure to experts in international business, competition, government trade officials and suppliers. These assessed attitudes should in turn help the firm in its internationalisation process. Ibeh and Kasem (2011) also found that foreign market demand could serve as a trigger for internationalisation.

The preceding sections established an understanding of both the motives for- and the various triggers initiating internationalisation, while acknowledging that internationalisation theories account for both incremental and instantaneous internationalisation. After understanding the aspects preceding firms' involvement in trade and specifically exports, the following section underlines two aspects, export propensity and –intensity, which allude to the extent of firms' involvement in exports.

3.2.3 Export propensity and intensity

The aim of this article, as reflected in the title is to identify firm-level barriers in African fragile and conflict-affected countries which affect their export propensity and –intensity. At this point in the literature the benefits of exports and its role in economic growth and development was underlined. The focus then shifted to firms by investigating the motives, triggers and various theories underlying internationalisation. Now it is important to investigate export propensity and – intensity, one of the key elements of this article.

Export propensity, or the extensive margin of exports is described by Van Marrewijk (2012:383) as “the number of products a firm trades and the number of export destinations.” Van Marrewijk (2012:383) continues by designating the intensive margin (also known as export intensity) as “the value of trade per product per country.” Estrin *et al.*’s (2008:574) definition of both export propensity and intensity differs from the one provided by Van Marrewijk (2012). They define export propensity within the context of the firms as “the choice of whether or not sales are exported” and export intensity as “the proportion of sales that are exported” (Estrin *et al.,* 2008:575). This more closely reflects the aim of this article as listed above, as it relates to firms.

Various studies regarding the export propensity (or the extensive margin of exports) and export intensity (or intensive margin of exports) have been compiled. Pham (2015) found positive association with characteristics such as firm size, revenue, employment, value addition and total factor productivity when analysing firms which are considering involvement in exports. By identifying characteristics which promote export propensity and intensity within firms, and inversely counteracting barriers to exports, the afore-mentioned developmental and other benefits listed in the first section could possibly be better transmitted through firms into the economy as a whole. A selected set of studies are now overviewed with reference to the above factors.

Estrin et al.’s (2008) study of export propensity and –intensity reviewed the preceding factors within the context of subsidiaries in six emerging economies, namely Egypt, Hungary, India, Poland, South Africa and Vietnam. The study reviewed 498 firms in the six countries. They found that export propensity and intensity are determined by different factor sets and certain subsidiary specific advantages are causal factors of export propensity.

The role of the entrepreneurial founding team (owners who make the strategic decisions at the inception of a business) was investigated relative to export propensity, intensity and firm performance by Ganotakis and Love (2012). This study considered 412 firms in high-technology sectors within the United Kingdom. Ganotakis and Love (2012) identify that experience is important for export propensity, while education rather than experience is important for the success of export ventures (export intensity).

Another analysis of the extensive- and intensive margins of trade was done by Xuefeng and Yaşar (2016). The study evaluated the diversification of export markets and productivity of firms in Chinese firms from 2000 to 2006. Xuefeng and Yaşar (2016:37) find “*that both the intensive margins of trade and extensive margin of trade are positively associated with firm labour productivity and total factor productivity*.”

The next two studies form the basis of the empirical analysis of this article. Arndt *et al*. (2009) evaluated firm-level barriers to internationalisation in Germany. They made use of 16 000 firms in their analysis. Arndt *et al*. (2009) find that firm size and productivity are two of the main determinants of firm-level exports and while financial constraints have a limited impact on exports, labour constraints affect export propensity more than export intensity.

The second study of export propensity and intensity was compiled by Matthee and Krugell (2012). This study, in a similar vein to Arndt *et al.* (2009), assessed firm-level barriers to internationalisation from a South African dataset. The data comprised two sets, for 2003 and 2007 respectively, with 603 and 1055 firms in the corresponding data sets. Matthee and Krugell (2012) also identify a positive association between firms’ productivity and size and their resultant exports, similar to Arndt *et al.* (2009). They also find barriers in the form of transportation and electricity access, while also identifying the dependency of exports on imported inputs.

From the above studies elements such as factors of production, the level of education and experience of the entrepreneur, productivity, firm size and value addition are found to have impacted export intensity and propensity. In the studies barriers to exports, such as financial, transportation, electricity and labour constraints are also acknowledged in impacting export propensity and intensity. This discussion and analysis of barriers to export propensity leads into the next section, which overviews various barriers to economic growth and trade.

3.2.4 Conclusion

This section focussed on the underlying literature on trade. An understanding of the extent of trade theories served as an introduction, which highlighted the progressive increase in literature and divided opinions on the subject, starting with the works of Adam Smith and David Ricardo, up unto the present with Paul Krugman and Michael Porter, amongst others. The above preceded an overview of the benefits of exports for various role players in an economy (including employment creation, increased investment, increased product lifecycles and variety to name but a few). Exports play a significant role in economic growth and development, with a sub-section devoted to the discussion of its benefits and detractors, while including the effect of immiserizing growth. The focus then shifted to internationalisation, where the motives for (reactive and proactive) and triggers of internationalisation (internal and external) were first overviewed, followed by a synopsis of various theories of internationalisation. This included theories such as the incremental internationalisation process and the "born global" phenomenon, which emphasise the changing nature of global trade. Finally an overview of export propensity and –intensity was given, which included selected firm-level studies on the matter, which included two studies which evaluated the relationship between it and firm-level export barriers.

As such, the section underlined why exports are important to a country and its various economic elements (consumers and firms), how the internationalisation of firms (resulting in exports) takes place and finally the key concepts of export propensity and intensity which resulted from it. However, economic activity in general and exports in particular are constrained by various barriers. Therefore, the focus now shifts in the next section to firm-level barriers to private investment, entrepreneurship, economic growth and especially exports.

3.3 LITERATURE REVIEW - BARRIERS TO ECONOMIC GROWTH AND TRADE

This section starts with an overview of barriers which exist to economic activity and growth (relevant to the economic developmental agenda of countries and their economic entities) before the focus is narrowed to barriers which specifically affect trade. These barriers hold true especially for firms as well.

3.3.1 Barriers to private investment, entrepreneurship and economic growth

As can be seen from the above section, firms play an important role in a country's economy. The promotion of entrepreneurial activity and the growth of the private sector serve as an engine of

growth for the economy (Lu & Beamish, 2001). Thus the significance of barriers to private investment and entrepreneurship becomes evident. Furthermore, the analysis of factors constraining firms should not only be limited to existing firms, but also take into account the factors which restrict the creation of firms.

Hausmann et al. (2006) developed a growth diagnostics framework which indicates various constraints to private investment as well as entrepreneurship at a specific time. Figure 2.5 illustrates the decision tree formed by the growth diagnostics framework.

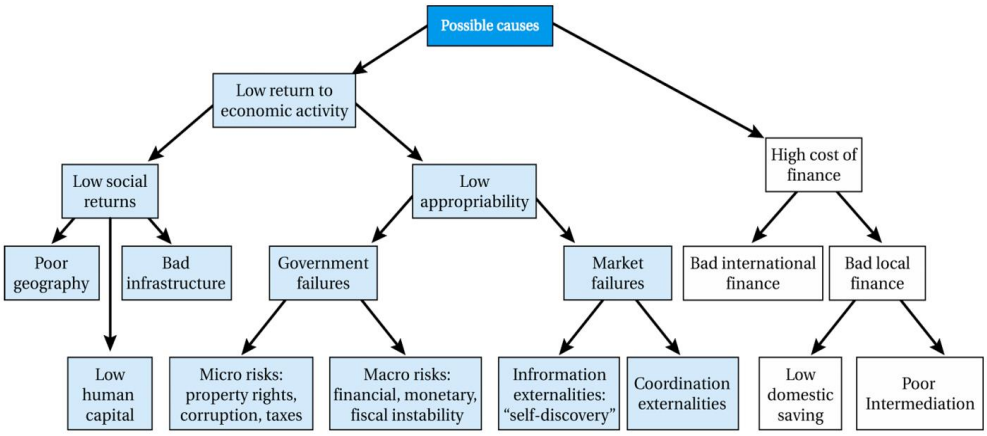

Figure 3.6 - Hausmann, Rodrik, Velasco growth diagnostics framework

Source: Hausmann, et al. *(2006:13)*

Hausmann *et al.* (2006) propose that one of two main factors, namely the disproportionate cost of finance or the low returns on private investment, constrain economic activity. This in turn leads to a decreased prevalence of entrepreneurship as well as private investment (Todaro & Smith, 2011). The subsequent levels in the diagnostics tree framework lead to one of ten possible constraints on the country, which is evident in Figure 2.1.

The significance of the Hausmann, Rodrik and Velasco (HRV) growth diagnostics framework lies in its identification of the most binding constraint (or barrier) to economic growth for a specific country. This allows governments to design economic development strategies to target this constraint, rather than encompassing strategies without clear focus (Todaro & Smith, 2011).

An advantage of the above, as espoused by Todaro and Smith (2011) is the country-specific approach to policy that this allows, rather than a one size fits all approach. Hausmann *et al.* (2006) acknowledge that the selection of binding constraints will change over time, while predicting future constraints will also remain challenging. However, this framework has been used in various World Bank sanctioned studies according to Todaro and Smith (2011). Two country-level studies executed by Hausmann *et al.* (2006) indicate that Brazil and El Salvador's constraints are respectively low domestic savings and low returns on investment. Within the context of fragility in African countries, it becomes noteworthy to overview growth diagnostics studies in African countries. Table 3.2 gives an overview of various growth diagnostic studies as well as the main constraint to the various African countries' economies.

Table 3.2 – African countries and their binding constraint to growth

Country	Binding Constraint	Source
Cameroon	Human capital	Luc et al. (2009)
Congo, Republic of	Human capital	World Bank (2011a)
Democratic Republic of Congo	Government failures, Finance, Infrastructure	Ulloa et al. (2009)
Guinea Bissau	Macro risks	Andriamihaja et al. (2012)
São Tomé and Príncipe	Infrastructure	World Bank (2011b)
Uganda	Infrastructure, Human capital	World Bank (2011c)

Source: Author's own compilation

Both low levels of human capital and weak infrastructure are prevalent as constraints to private investment, entrepreneurship and economic growth in the majority of these countries. From the above table it is interesting to note that three (Congo, DRC and Guinea Bissau) of the six African countries studied are fragile as per the IDA (2013) definition of fragile and conflict-affected states. Economic development strategies such as the growth diagnostics framework allow for the identification and removal of barriers to growth which exist on macroeconomic- and microeconomic (firm) level. Studies have similarly investigated barriers which exist for exports, leading to the next section, which addresses the various barriers for exports, especially from a firm level perspective.

3.3.2 Types of barriers to trade

The barriers to private investment and entrepreneurship identified above by Huasmann *et al.* (2006) outline various constraints for firms. As Van Marrewijk (2012) identified earlier, firms are the entities performing export activities, while the afore-mentioned investment (in the guise of foreign direct investment) is one of the methods of internationalisation as identified by Jaeger (2008). In light of this, and the focus of this article, it is important to identify barriers to exports, especially on a firm level.

Export barriers are defined by Leonidou (1995:31) as "*all those attitudinal, structural, operational, and other constraints that hinder the firm's ability to initiate, develop, or sustain international operations*." Suárez-Ortega (2003:403) concurs by describing barriers to exports as "*all those factors – external or internal – that serve to dissuade a firm from exporting or which hinder its actual export activity*".

Firms' perception of barriers is not uniform. This perception is based on forces which are either managerial, environmental or organisational in nature. Differences in the perception of barriers can also depend on experience in international environments, the level of involvement in exports, firm size and the firm's ability to seek information (Leonidou, 1995). Below are examples of various aspects which are all perceived as barriers to exports.

National barriers to exports are mainly divided into tariff and non-tariff barriers (Imbruno, 2016), indicating barriers can impact trade through monetary and non-monetary constraints. One of the original studies indicating the importance of firm-level presence of export barriers was that of Bilkey and Tesar (1977), find that experienced exporting firms are confronted by practices in foreign commerce, incompatibilities between foreign and domestic product standards, revenue

collection – and representation difficulties in international markets as four barriers to exports. These are all examples of constraints which are not necessary imposed by governments, as in the form of tariff barriers. Several of these factors also allude to a “cultural distance” which exporters experience.

However, the physical distance can also serve as a barrier to trade, specifically in the form of geography. Eaton and Kortum (2002) specify two impacts of geography as a barrier, namely that there is firstly a significant inverse relationship between trade and distance, while secondly increased price differences manifest with increased distance. Rose (2004) finds that landlocked and physically larger countries also see lower trade levels on average. Jacobs (2012) furthermore point increased transport time and –costs as barriers resulting from geography.

The selected above examples serve to illustrate that barriers can be presented in different guises, including tariff and non-tariff barriers, as well as cultural- and physical barriers. Because of the broad scope that barriers cover, it becomes imperative to structure barriers in various groupings to better analyse the impact it has on firms. Three key groupings of export barriers are overviewed, based on consolidations done by Leonidou (1995), Morgan and Kasikeas’ (1997) and Arteaga-Ortiz and Fernández-Ortiz’s (2010).

3.3.2.1 Internal and external grouping

Chronologically, the first of these consolidations of export barriers into a grouping was done by Leonidou (1995), who formulated the grouping by evaluating 35 previous studies on export barriers. As part of the analysis, Leonidou (1995) identified that certain barriers were inherent to a firm, and classified these barriers as internal barriers. Secondly the firm is vulnerable to the environment in which it operates and these barriers are termed external barriers.

A second part of the analysis acknowledged the presence of barriers in the domestic environment where the firm operates, while also underlining inherent barriers in the foreign markets which will be the destination of exports. Leonidou (1995) then combined these four afore-mentioned barrier types into a grouping, with the elements being internal-domestic barriers, internal-foreign barriers, external-domestic barriers, and external-foreign barriers. Narayanan (2015) indicates that internal-domestic barriers relate to barriers within the firm pertaining to the domestic environment, while internal-foreign barriers included aspects such as the firm’s marketing approach in the foreign country. External-domestic barriers are those in the firm’s domestic environment, but outside it’s control, while similarly external-foreign barriers reflect barriers in the environment being exported to which the firm has no control over (Narayanan, 2015). An empirical analysis found that all four sets had nearly the same inhibiting effect when compared to one another as firm-level barriers to exports. In other words all four of these sets of barriers were relatively uniform in its effect on exports. These four sub-sets were identified after an analysis of 35 preceding studies of export barriers. One aspect which was found to have had a significant effect on export activity was the limited information available for the analysis of foreign markets, while location and representation in foreign countries also presented an obstacle to export activities (Leonidou, 1995).

3.3.2.2 Strategic, operational & logistical, informational and process based grouping

The second grouping was proposed by Morgan and Katsikeas (1997) in a study entitled "Obstacles to Export Initiation and Expansion." Morgan and Katsikeas (1997) acknowledged Leonidou's (1995) in-depth study of literature on export barriers, but proposed a new grouping.

The first set of barriers or obstacles as termed by Morgan and Katsikeas (1997) was strategic barriers or obstacles, which relates to restrictions in the resource-based capabilities of the firm. An example could be the lack of capital or personnel, as well as tariffs. Secondly, the operational barriers or obstacles relate to the limitations in the four key marketing elements of promotions, place (or distribution), price and the product itself, as exemplified by export product design requirements or transport or distribution challenges. The third set is informational barriers specifically in relation to knowledge about foreign markets (Morgan & Katsikeas, 1997). Finally, process-based barriers are created when shortcomings arise with the firm's interactions with external participants including elements such as its supply chain and regulatory agencies. This could be typified by firms' unfamiliarity with export assistance from their domestic governments. As with Leonidou (1995), Morgan and Katsikeas (1997) also found empirical underpinnings for their grouping. A study was compiled containing 449 firms based in the United Kingdom and identified that firms in different stages of export intention (ranging from weak export intention, to strong export intention to firms engaged in exports) reacted differently to export obstacles. Firms' perception of the scale of barriers decreased inversely to increased intention and involvement in exports. National export marketing knowledge and communication, as well as export administration were found to be significant in explaining differences between exporters and firms with either a strong or weak intention to export (Morgan & Katsikeas, 1997).

3.3.2.3 Knowledge, resources, procedure and exogenous barriers grouping

A more recent grouping was proposed by Arteaga-Ortiz and Fernández-Ortiz (2010), which corresponds in general layout to Ramaswami and Yang (1990). This again covers four sets of barriers, specifically knowledge barriers, resource barriers, procedure barriers and exogenous barriers.

Knowledge barriers relate to shortcomings in information regarding general export principles, e.g. a lack of knowledge about possible export markets and export assistance programmes. Resource barriers encapsulate shortages in productive and financial resources and external aid. An example of a resource barrier is insufficient capacity for export production. Thirdly, procedure barriers refer to barriers encountered in the firm's own export processes. This could include tariff and non-tariff barriers, as well as language and cultural differences in the foreign environment. The final barrier set, exogenous barriers, arises from external factors outside the control of the firm (Arteaga-Ortiz & Fernández-Ortiz, 2010). Exogenous barriers are typified by aspects including higher foreign competition as well as political instability in the foreign country (Arteaga-Ortiz & Fernández-Ortiz, 2010).

The empirical evaluation of this grouping found that by "*using a population of 2,590 companies (478 responses) and structural equations, we confirmed the four proposed dimensions or factors of export barriers, namely, knowledge, resources, procedure and exogenous barriers*" (Arteaga-Ortiz & Fernández-Ortiz, 2010:395). This study concluded from the 478 Spanish firms included in

the study that the knowledge barrier with the most significant impact is the lack of knowledge about general export processes, while the comparative resource barrier was indicated to be the inadequacy of foreign banks. Procedure barriers' most influential barrier was cultural differences, and finally exogenous barriers had the most significant impact in the form of the variability in the exchange rate and its associated risks (Arteaga-Ortiz & Fernández-Ortiz, 2010).

3.3.2.4 Empirical research on barriers, application and results

As evidenced by the above three groupings of export barriers developed by Leonidou (1995), Morgan and Kasikeas' (1997) and Arteaga-Ortiz and Fernández-Ortiz's (2010), there is a significant, if fragmented field related to the study of export barriers. As such, after the overview of these groupings above, it only remains to overview selected empirical research which was done on the matter.

Milanzi (2012) completed a study entitled "The Impact of Barriers on Export Behavior of a Developing Country Firms: Evidence from Tanzania". This study evaluated 122 firms involved in manufacturing in Tanzania. Five main export barriers came to the fore, which pointed to these groupings identified above. These barriers were identified as export supply capacity constraints, poor infrastructure, a lack of export market knowledge and information, inadequate financing for export and inefficiencies in the regulatory framework.

A second study by Al-Hyari et al. (2012) overviewed export barriers for Jordanian firms. One-hundred-and-thirty-five small and medium enterprises were included in the study. Barriers which were found to have a significant impact on the firms included financial barriers, political and economic barriers and lastly informational barriers. This study highlights barriers in a smaller country which is exposed to instability in its surrounding countries.

Although not empirical, the study of Naraynan (2015) is valuable as a qualitative analysis of export barriers within the context of small and medium sized enterprises. He theorised that these firms were constrained by both external and internal barriers. External barriers identified in the study include procedural-, governmental-, task- and environmental barriers. On the other hand, internal barriers included informational-, functional- and marketing barriers.

The final study which is discussed is that of Fontagné et al. (2015), which focussed on "Product standards and margins of trade: firm-level evidence", as highlighted by the title of their study. The study included panel data on French firms between 1996 and 2005. The study found that foreign countries' sanitary and phyto-Sanitary (SPS) product standards which exporters have to adhere to discourage exports to these markets, in other words negatively impacting export propensity. Furthermore, the intensive margin of trade (i.e. export intensity) was also found to be negatively impacted by these product standard requirements.

Although listed previously as part of firm-level studies of export propensity and intensity, it is relevant to mention Arndt *et al.* (2009) Matthee and Krugell (2012) again in this section, as they evaluated the effect export barriers have on the afore-mentioned factors. Within the context of fragile countries, this is what this article aims to evaluate.

3.3.3 Conclusion

This section focussed firstly on barriers to private investment, entrepreneurship and economic growth as analysed through the Hausmann *et al.* (2006) diagnostic framework. The overview on barriers was then refined to focus on exports, evaluating three key groupings of export barriers, namely the internal and external grouping by Leonidou (1995), Morgan and Kasikeas' (1997) strategic-, operational & logistical, informational and process-based grouping and finally Arteaga-Ortiz and Fernández-Ortiz's (2010) grouping that included knowledge, resources, procedure and exogenous barriers to exports. Thereafter selected recent studies on export barriers were overviewed.

The sheer volume of export barriers under analysis is possibly best summarised by Suárez-Ortega (2003:404) when stating the following after a summary on export barrier literature; "*The results of these research works led us to affirm that, on the one hand, it is possible to identify a limited number of barriers capable of summarizing the complete set of export barriers and, on the other hand, that there is no consensus about either the number of underlying factors or the exact content of each of these*."

Countries which are exposed to fragile and conflict-affected situations could also experience barriers to trade. The majority of countries experiencing fragility in the World Bank's (2015) list of fragile countries are found in Africa. As such, the following section overviews fragility in Africa and these countries' ability to trade in conflict and fragility.

3.4 AFRICAN FCS COUNTRIES

Among the World Bank's (2015) list of fragile countries, 18 African countries were identified as being in fragile situations. These countries are spread across the continent as well as different income groups. Furthermore there are also various underlying reasons for these countries' fragility (See Chapter 1).

The 18 fragile and conflict-affected states (FCS) in Africa, as identified by the World Bank (2015) are Burundi, CAR, Chad, Comoros, Côte d' Ivoire, DRC, Eritrea, Guinea-Bissau, Liberia, Libya, Madagascar, Mali, Sierra-Leone, Somalia, South Sudan, Sudan, Togo, Zimbabwe. In this section, African FCS countries are evaluated according to the Fund for Peace's (2016) Fragile States Index, where key causes of fragility in these countries are highlighted. This is followed by an analysis of these countries' ability to trade in conflict and fragility by evaluating certain trade indicators. Finally certain studies are overviewed which investigated fragility and trade.

3.4.1 Fund for Peace – Fragile States Index

The purpose of the Fund for Peace's (2016:12) Fragile States Index lies in that "By highlighting pertinent issues in weak and failing states, the Index — and the social science framework and the data analysis tools upon which it is built — makes political risk assessment and early warning of conflict accessible to policy-makers and the public at large." Within this context, and against the

background of African fragile firms, it correlates to the article with relation to its investigation of barriers, albeit that the barriers overviewed in this article relates to exports.

The Fund for Peace (2016) divides the index into three main sets of indicators, namely social indicators, economic indicators in addition to political and military indicators. Each of these is divided into subsets (the abbreviation used for each indicator in Table 3.4 is indicated in brackets), with social indicators covering four aspects; demographic pressures (DP), refugees and internally displaced persons (REF), group grievance (GG) as well as the human brain drain (HF). Uneven economic development (UED), as well as poverty and economic decline (ECO) are the two economic indicators are included. Finally the sect of indicators pertaining to politics and the military cover six areas, namely state legitimacy (SL), public services (PS), human rights and the rule of law (HR), security apparatus (SEC), factionalised elites (FE) and external intervention (EXT) (Fund for Peace, 2016).

Each of these factors is rated out of 10, where lower scores indicate stability and higher scores contribute to fragility. Therefore the closer to a possible maximum of 120 a country scores, the more fragile it is perceived as being (Fund for Peace, 2016). Table 3.4 overviews the 18 African FCS countries identified as fragile by the World Bank (2015) and as such one would expect that corresponding evidence of fragility will be found in the Fund for Peace's (2016) fragile states Index.

Table 3.3 – African fragile and conflict-affected states' Fragile States Index rating

Country		Fund for Peace indicators - 2016											
	Total	DP	REF	GG	HF	UED	ECO	SL	PS	HR	SEC	FE	EXT
Burundi	100.7	9.5	9.1	8.1	6.5	7.4	8.2	9.0	8.2	8.5	9.0	8.5	8.7
CAR	112.1	8.7	10.0	9.3	7.2	9.9	8.6	9.8	10.0	9.9	9.2	10.0	9.5
Chad	110.1	9.9	9.8	8.5	8.9	9.3	8.0	9.2	9.8	9.3	9.1	9.8	8.5
Comoros	83.8	7.5	4.7	5.0	7.6	7.2	8.2	6.8	8.4	6.5	6.9	7.5	7.5
Côte d' Ivoire	97.9	8.2	8.0	8.3	7.0	8.2	6.8	8.1	8.7	8.1	7.7	9.4	9.4
DRC	110.0	9.1	9.7	9.7	6.8	8.9	8.1	9.3	9.7	10.0	9.2	9.8	9.7
Eritrea	98.6	9.1	8.5	6.6	8.0	7.5	8.3	9.5	8.6	9.1	7.4	8.1	7.9
Guinea-Bissau	99.8	8.3	7.5	5.4	8.3	8.7	8.5	8.9	9.5	7.5	9.1	9.6	8.5
Liberia	95.5	9.2	8.9	6.0	6.9	8.6	8.3	7.0	9.5	6.7	6.6	8.3	9.5
Libya	96.4	5.1	8.0	8.3	6.5	5.8	8.0	9.5	7.2	9.3	9.6	9.4	9.7
Madagascar	84.2	8.8	3.6	4.3	6.4	8.8	7.8	7.3	9.3	5.8	7.3	7.8	7.0
Mali	93.52	8.7	8.1	7.9	8.7	7.6	7.9	6.3	9.0	7.0	9.2	5.2	9.6
Sierra-Leone	91.0	9.2	7.9	5.9	8.7	8.5	8.8	7.1	9.0	5.5	4.5	7.8	8.1
Somalia	114.0	9.7	9.7	9.4	9.5	9.3	9.0	9.5	9.0	9.7	9.7	10.0	9.5
South Sudan	113.8	9.9	10.0	9.9	6.6	9.0	9.3	9.7	10.0	9.7	10.0	9.7	10.0
Sudan	111.5	9.0	10.0	9.8	9.1	7.6	8.7	9.8	9.1	9.3	9.2	10.0	9.9
Togo	85.8	8.0	6.8	4.8	7.6	8.4	6.5	8.0	8.3	6.9	6.7	7.6	6.2
Zimbabwe	100.5	8.6	8.7	7.5	8.1	8.2	8.3	8.9	8.5	8.4	7.8	9.8	7.7

Source: Fund for Peace (2016)

As expected, the total fragility score of these 18 countries contain high warnings to very high alerts (the Fund for Peace's four highest fragility levels) of fragility. The countries with a *"*High Warning*"* of fragility (a total score of 80 to 89.9) are Comoros, Madagascar and Togo. The largest set of African FCS countries fall into the *"*Alert*"* category with a total score of 90 to 99.9, namely Côte d' Ivoire, Eritrea, Guinea-Bissau, Liberia, Libya, Mali and Sierra-Leone. Furthermore Burundi and

Zimbabwe were classified as "High Alert" countries with a fragility score of between 100 and 109.9. Finally, in the highest fragility category "Very High Alert" (110 to 120 score), the index reveals six African FCS countries, namely the Central African Republic, Chad, the Democratic Republic of Congo, Somalia, South Sudan and Sudan.

Somalia scored highest of all 178 countries overviewed by the index, with an overall rating of 114 out of 120. South Sudan's rating of 113.8 is second highest, but displayed the most categories (four) which were rated at a maximum fragility contribution of 10. The average overall rating was 99.96 for these 18 countries, while the three indicators with highest average rating were state legitimacy (SL), security apparatus (SEC) and factionalised elites (FE).

The underlying fragility that led to countries being classified as fragile and conflict-affected states by the World Bank (2015) is also reflected in the above Fragile States index rating by the Fund for Peace (2016). It now remains to understand the ability of countries to trade in conflict and fragility.

3.4.2 Ability to trade in conflict and fragility

Marano et al. (2013) evaluated *"*The impact of conflict types and location on trade*"* in the article of the same name. Apart from underlining that armed conflict between trading partners disrupts trade, Marano *et al.* (2013) evaluated the differences between the impact of interstate- (between countries) and intrastate (within country borders) conflict on trade across all a variety of countries in conflict, including Libya, Sudan, Mexico and Colombia. Three key findings arise from this study, where firstly intrastate conflict tended to be more prolonged than interstate conflict, with resulting broader impact on the societal and physical infrastructure underlying trade. Secondly, in interstate trade, conflict in exporting countries have a more pronounced effect on imports when compared to conflict in the importing country. Finally countries are also negatively affected by spill over effects resulting from conflict in neighbouring countries (Marano *et al.,* 2013).

The fragility in the Middle-East and Africa which led to the so-called "Arab spring*"* student uprisings was investigated by Malik and Awadallah (2013) in relation to its economic underpinnings. Key aspects limiting trade in these fragile countries as highlighted in this study include unwieldy procedural requirements, increased transaction costs and the inability to derive a benefit from intermediate-goods trade because of inefficient logistics underpinning trade. By not benefiting from intermediate-goods trade this limits multinational firms' investment in the region, furthering the dependence on commodities (e.g. fuel), while border closures resulting from border disputes and lacking infrastructure further impacts trade (Malik & Awadallah, 2013).

Both the above studies highlighted the impact of conflict and fragility on trade and barriers to trade both within and beyond Africa. Next, the overview on African FCS countries ability to trade is outlined in Table 3.4 below. This gives an overview of the state of selected trade indicators for each of these nations. The value of countries' trade balances (negative balances are indicated in brackets), exports and imports in millions US dollars for 2015 will be stated in the below table. Additionally, the countries' five year annual export growth / (decline) rate, the two main sectors which contribute to exports and the African FCS countries' exports as a percentage of their GDP (for 2014 or closest available year) for each country are displayed.

Table 3.4 – Indicators of trade in African fragile and conflict-affected states

Country	Trade balance - 2015	Exports - 2015	Imports - 2015	5 year annual export growth / (decline) - 2011-'15	Main export sectors	Exports as % of GDP
Burundi	US $ (451.83 mn)	US $ 114.38 mn	US $ (566.21 mn)	(15%)	1 - Coffee, tea, mate and spices 2 - Pearls, precious stones, metals, coins, etc.	4.57%
CAR	US $ (359.74 mn)	US $ 96.85 mn	US $ (456.60 mn)	(17%)	1 - Vehicles other than railway, tramway 2 - Wood and articles of wood, wood charcoal	1.16%
Chad	US $ 1086.83 mn	US $ 2295.91 mn	US $ (1209.08 mn)	(11%)	1 - Mineral fuels, oils, distillation products, etc. 2 - Lac, gums, resins, vegetable saps and extracts nes	22.82%
Comoros	US $ (166.04 mn)	US $ 41.20 mn	US $ (207.24 mn)	(7%)	1 - Coffee, tea, mate and spices 2 - Essential oils, perfumes, cosmetics, toiletries	9.83%
Côte d' Ivoire	US $ 1818.41 mn	US $ 9184.57 mn	US $ (7366.15 mn)	1%	1 - Cocoa and cocoa preparations 2 - Edible fruit, nuts, peel of citrus fruit, melons	37.91%
DRC	US $ 433.72 mn	US $ 5109.86 mn	US $ (4676.15 mn)	(4%)	1 - Copper and articles thereof 2 - Other base metals, cermets, articles thereof	25.09%
Eritrea	US $ 147.40 mn	US $ 443.03 mn	US $ (295.63 mn)	5%	1 - Ores, slag and ash 2 - Pearls, precious stones, metals, coins, etc.	No GDP data
Guinea-Bissau	US $ 22.43 mn	US $ 241.12 mn	US $ (218.69 mn)	(3%)	1 - Edible fruit, nuts, peel of citrus fruit, melons 2 - Wood and articles of wood, wood charcoal	25.95%
Liberia	US $ (7437.84 mn)	US $ 1096.90 mn	US $ (8534.74 mn)	5%	1 - Ships, boats and other floating structures 2 - Ores, slag and ash	56.71%
Libya	US $ (139.74 mn)	US $ 10106.25 mn	US $ (10245.99 mn)	(20%)	1 - Mineral fuels, oils, distillation products, etc. 2 - Fertilizers	50.82%
Madagascar	US $ (773.96 mn)	US $ 1955.18 mn	US $ (2729.14 mn)	16%	1 - Nickel and articles thereof 2 - Coffee, tea, mate and spices	21.18%
Mali	US $ (1064.96 mn)	US $ 951.64 mn	US $ (2016.60 mn)	10%	1 - Pearls, precious stones, metals, coins, etc. 2 - Cotton	27.19%
Sierra-Leone	US $ (472.33 mn)	US $ 569.56 mn	US $ (1041.89 mn)	(6%)	1 - Ores, slag and ash 2 - Pearls, precious stones, metals, coins, etc.	5.77%
Somalia	US $ (1523.46 mn)	US $ 541.28 mn	US $ (2064.75 mn)	13%	1 - Live animals 2 - Oil seed, oleagic fruits, grain, seed, fruit, etc., nes	11.96%

Table 3.4 (cont.) – Indicators of trade in African fragile and conflict-affected states

Country	Trade balance - 2015	Exports - 2015	Imports - 2015	5 year annual export growth / (decline) - 2011-'15	Main export sectors	Exports as % of GDP
South Sudan	Data available for Sudan and South Sudan combined at source, discussed under Sudan					
Sudan	US $ (2796.77 mn)	US $ 4625.90 mn	US $ (7422.67 mn)	(13%)	1 - Mineral fuels, oils, distillation products, etc. 2 - Live animals	11.52%
Togo	US $ (1060.20 mn)	US $ 671.93 mn	US $ (1732.13 mn)	(6%)	1 - Salt, sulphur, earth, stone, plaster, lime and cement 2 - Plastics and articles thereof	17.79%
Zimbabwe	US $ (3298.14 mn)	US $ 2704.10 mn	US $ (6002.23 mn)	(7%)	1 - Tobacco and manufactured tobacco substitutes 2 - Pearls, precious stones, metals, coins, etc	21.58%

Source: International Trade Center (2016), Author's own calculations from International Trade Center (2016) and African Economic Outlook (2016)

A large majority (12) of these countries have a negative trade balance for 2015, while 11 of the African FCS countries also experienced a decline in exports over the past 5 years. It is interesting to note however that the contribution of exports as a percentage of Gross Domestic Product still amount to double digits in all but five of the countries, while in certain countries this amount was calculated at over 50%.

The main exports sectors of the 18 African FCS countries were also mainly of a primary nature (agriculture and mining), with only limited manufacturing identified. This could indicate an opportunity with respect to beneficiation of these primary exports, which could translate into increased economic activity and higher foreign exchange generated through trade.

Primary or commodity exports opens another key aspect for fragile- and conflict-affected states. Countries (and firms by association) which rely on income from exports of commodities are very exposed to price volatility, as highlighted in an extensive study by Bidarkota and Crucini (2000). Export levels of commodities fluctuate according to these prices, with Bidarkota and Crucini (2000) stating that increased volatility in a country's terms of trade is associated with more reliance on primary- or commodity exports. Another aspect of reliance on an abundance of commodities is that this can leave countries exposed to the so-called "resource curse" (Todaro & Smith, 2011). According to Arezki and Van der Ploeg (2010:1443) "…the resource dependence induces an appreciation of the real exchange rate. This leads to a decline in the traded sector and thus harms growth." Next in section 3.4.3, selected studies provides an overview of the relationship between trade and fragility.

3.4.3 Studies on trade and fragility

Various studies and indices exist which pertain to fragility, such as the Fund for Peace's (2016) Fragile states Index, the World Bank' (2015) harmonised list of fragile situations (based on its

CPIA assessment), international trade in general and export and its barriers is also an extensive field, as evidenced by the literature above. However, only a limited amount of literature exists which overview fragile states in relation to trade and this is where this article aims to make a contribution in part.

Baliamoune-Lutz (2009) studied fragile states' development with relation to trade, institutions and social cohesion. The study comprises 29 countries with data from 1999-2002. Baliamoune-Lutz (2009:877) cautions in the findings that "beyond a certain level, openness to trade may actually be harmful to income, particularly in countries with high export concentration." This corresponds to the phenomenon of Immiserizing Growth as discussed earlier in the literature (see section 3.2.1). However, proof of this phenomenon when studied in other contexts, as by Yeh (1999), Sarker *et al.* (2008) and Sawada (2009) remains elusive and therefore this should be treated with caution. This negative association with high export concentration might however be connected to the type of exports, which as indicated above mainly consists of commodities in the fragile African states, especially when taking the volatility of commodity prices into account.

In a study titled "Exporting from fragile states: challenges and opportunities" Hoeffler (2012) overviewed various challenges which fragile countries face and underlined that fragility and conflict both contribute to and result from countries which are not integrated into international trade. Challenges to trade include the resource curse and the fact that regulation complexities and limitations constrain the benefits of preferential market access policies (such as AGOA – African Growth and Opportunity Act and EBA – Everything But Arms) for fragile countries. Further challenges include OECD agricultural subsidies and trade regulation that undermine industrialisation in fragile countries (Hoeffler, 2012). The study advocates industrialisation assistance, clustering of firms, aid for trade, capacity building and the trade in tasks as methods to assist trade. Hoeffler (2012:21) specifically emphasised that "Future research could use industry and country case studies to assess the relative importance of international and domestic constraints to exports." It is specifically with this in mind that the article aims to evaluate firm-level export barriers.

Cali (2015) conducted an in-depth review of trade and fragility entitled "Trading Away from Conflict: Using Trade to Increase Resilience in Fragile States". In this analysis, Cali (2015) finds that in certain cases countries with weak institutional capacity, past or present ethnic or religious grievances, and / or detrimental environments in neighbour states might escalate conflict arising from trade shocks. This study by Cali (2015:vi) postulates the following key points regarding the role trade policy can play in decreasing underlying and overt tensions in fragile nations,

- Trade policies in fragile countries must take into account the implications for conflict
- Manage receipts from commodity exports in a conflict-sensitive way
- Protect producers, consumers, and workers from adverse trade shocks
- Promote trade with neighbours
- Support labour-intensive exports
- Build long-term conflict resilience

In addition to the role that trade fulfils in fragile countries, Figure 3.2 outlines links established by Cali (2015:19) between conflict and trade flow changes.

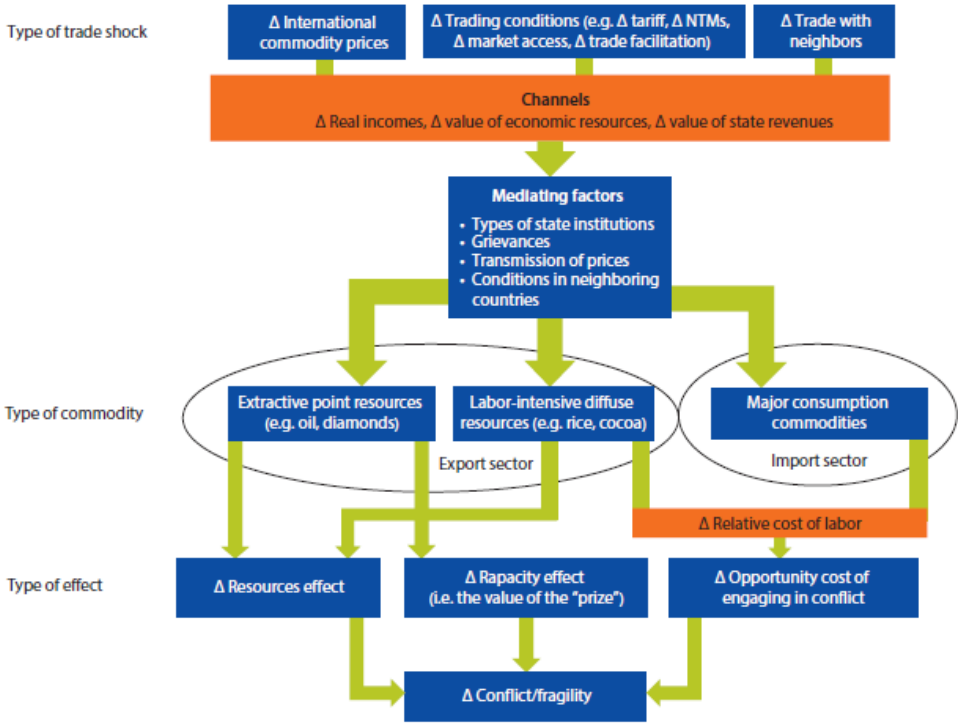

Figure 3.7 - Links between Conflict and Trade Flows Changes
Source: Cali (2015:19)

This illustrates the effect various types of trade shocks such as changes in commodity prices (as highlighted in section 3.4.2), trading conditions or trade with neighbours can have on fragile countries. These changes are transmitted to these countries through the type of commodity traded in either the import or export sector. These effects can take the form of the resource effect or a rapacity effect as well as a change in opportunity cost which can lead to a change in fragility or conflict. The resource effect refers to "to how changes in the value of traded goods will affect civil conflicts if the state or the rebels can rely on them to fund violent activities", (Cali, 2015:18). On the other hand the rapacity effect pertains "to the willingness to engage in conflict to control the production of commodities, such as oil or minerals, which do not require massive amounts of labour, are highly valuable, are not perishable, and are easily controlled", (Cali, 2015:18). Lastly opportunity cost can be illustrated through an example; as the prices of export commodities increase, employment in that sector could increase commensurately, which leads to a higher forfeiture of income if the decision is made to engage in conflict. This could decrease the willingness to engage in conflict, while the inverse could be true in a scenario with decreasing export commodity prices (Cali, 2015).

The above studies serve to underline the key role that exports can fulfil in FCS countries, which this study builds on. By identifying and addressing barriers to trade African FCS countries could utilise the advantages of trade within their context of fragility.

3.4.4 Conclusion

This overview of African fragile and conflict-affected states focussed on three main elements. Firstly, the 18 countries in Africa identified as fragile by the World Bank (2015) were analysed with reference to the Fund for Peace's (2016) Fragile States Index. It found similar indications

that these countries were fragile. Thereafter an overview highlighted selected characteristics of trade in fragile and conflict-affected countries within and beyond Africa. This included that the effect intrastate conflict on trade was more when compared to interstate conflict. Additionally barriers to exports such as procedural requirements, transactional costs and limited infrastructure were identified in fragile countries.

Additionally key trade indicators were evaluated for African FCS countries, which found a decline in export values in most countries, while a majority of these countries also had a negative trade balance, indicating room for improvement in exports. These countries' exports were also mostly of a primary nature, possibly creating an opportunity for resource beneficiation. In highlighting the effect of primary- or commodity export reliance, the risks regarding countries' exposure to the "resource curse" and volatility in the prices of commodities were indicated. Finally, selected studies on trade and fragility were overviewed, where Calì (2015) especially emphasised the role trade plays in increasing resilience in fragile and conflict-affected states.

This leads into the empirical analysis, starting with the overview of the questionnaire used in Section 3.5.1, which identifies various firm-level barriers to trade. By overcoming these barriers, one might see increased trade and a corresponding increase in these fragile countries' resilience, based on the above.

3.5 EMPIRICAL ANALYSIS

3.5.1 Overview of the questionnaire

This article makes use of data from the World Bank's (2016c) Enterprise Surveys conducted on the private sector in various countries. Enterprise Surveys are conducted on behalf of the World Bank by various private contractors in the specific country (Enterprise Surveys, 2016). This is done by means of face to face interviews with the owner of the firm or its top managers. Three important aspects which underscore the purpose of the Enterprise Surveys are highlighted by Hallward-Driemeier (2013). Firstly, the surveys fill an important enterprise-level gap in data, secondly, the surveys permit benchmarking across countries and time and finally, it links firm performance with the business environment where it operates. Data is collected according to a set questionnaire (with certain country specific sections as evidenced below), with separate questionnaires for manufacturing and services firms. This allows cross-country analysis and the creation of time series panel data sets for analysis, subject to availability of survey data. Stratified random sampling is used to determine the firms surveyed by the World Bank's Enterprise Surveys (2016), with typically 150 firms surveyed in smaller economies, 360 interviews in medium economies and between 1200 and 1800 firm interviews taking place in larger economies (Enterprise Surveys, 2016).

The dataset used in this article contains 14 of the 18 African countries defined as fragile and conflict-affected. Of these 14 countries, five are in Eastern Africa, namely Burundi, Eritrea, Madagascar, South Sudan and Zimbabwe, while Sudan is the only representative of the Northern Africa region. Furthermore, three countries are located in Middle Africa, specifically Central African Republic, Chad and the Democratic Republic of the Congo. Finally, the last six countries,

namely Cote d'Ivoire, Guinea-Bissau, Liberia, Mali, Sierra Leone and Togo are all located in Western Africa. This set of countries is therefore representative of a significant part of the African continent which allows the opportunity to analyse the constraints under which its firms operate in fragile countries.

Table 3.5 Overview of key World Bank Enterprise Survey topics

General Topics	Country-specific Topics
Background and control information	Business-Government Relations
General information	Competition
Infrastructure and services	Corruption
Sales and supplies	Crime
Degree of competition	Dispute Resolution
Land	Finance
Innovation	Intra-regional Trade
Crime	Investment Incentives
Business-Government relations	Labour
Finance	Land
Labour	Linkages
Performance of firms	Mining
	Regulation and Taxes
	Sales and Inputs
	Trade
	Training Programmes
	Transportation
	Gender
	Infrastructure
	Innovation

Source: Author's summary from World Bank (2016c) survey

Table 3.5 above gives an overview of the general and country-specific topics covered by the World Bank's various Enterprise Surveys completed in the afore-mentioned 14 countries. Country-specific topics were only overviewed in individual or certain subsets of countries and therefore precludes itself from analysis in this article. An overlap does exist in certain of the general- and country-specific topics and in these cases, the topic at hand was surveyed in more depth for selected countries, again eliminating these variables from use in the analysis.

The above separation between topics assisted in the identification of usable variables from the 14 countries' amalgamated surveys. This amalgamation included individual countries' surveys which were conducted in either 2009, 2010, 2011, 2013 or 2014. For the individual countries, the number of firms surveyed varied between 150 and 738, while a range of variables varying between 211 and 353 was measured in the 14 World Bank Enterprise Surveys. From this, approximately 120 usable variables were identified and these are listed in Addendum A annexed

to the article. Section 3.5.2 which now follows outlines key descriptive statistics in an effort to better understand the dataset.

3.5.2 Descriptive statistics

To gain a better perspective on the dataset used in the empirical analysis, selected key metrics were outlined in Table 3.6. The focus of this article is to identify the export barriers to firms in African fragile and conflict-affected countries which affect their export propensity and intensity. As such a distinction is made between firms which export compared to non-exporting firms.

Table 3.6 – Overview of key metrics

Variable	Non- exporting firms	Exporting firms
Number of firms	4313	557
Firm age (Average in years)	13.69	19.83
Firm size (Average full-time employees)	29.81	142.44
Total sales (Average PPP million – US$))	197.49mn	19.98mn
Total labour cost (Average PPP million – US$))	0.81mn	4.95mn
Private domestic ownership (Average %)	74.81%	60.32%
Private foreign ownership (Average %)	12.69%	29.99%

Source: Author's calculation from World Bank (2016c)

Firms were split between exporters and non-exporters by comparing national domestic sales as a percentage of total sales by the firms. In any cases where the firm's national domestic sales percentage was less than a 100% it was identified as an exporter (557 firms), while the inverse holds for non-exporting firms (4313 firms). The data also contained 168 firms with missing values, which were excluded. Exporting firms on average are in business longer than non-exporting firms, while also employing more than four times the number of full time employees when compared to the non-exporting entities.

Interestingly, Non-exporting firms' total sales (adjusted to show purchasing power parity or PPP) of 197.49 million exceeded exporting firms' sales (19.98 million PPP) by an approximate factor of ten. This contrasts the total labour cost, where exporting firms on average paid 4.95 million (PPP) for their labour costs, while non-exporting firms had a significantly lower wage bill of 0.81 million (PPP) on average. One of the reasons why the labour bill of non-exporting firms could be lower on average might be the presence of lower paid, seasonal labourers in the work force, as well as the fact that far fewer full-time workers are employed by these firms. The final two elements of this synopsis overviews ownership of these firms, focussing specifically on private domestic and –foreign ownership. Exporting firms have 60.32% average private domestic ownership, as well as 29.99% private foreign ownership, indicating a significant external presence in these firms, which might be ascribed to multi-national enterprises. Ownership of non-exporting firms is on average tending to be more domestic (74.81%), with a smaller base of foreign ownership (12.69%).

After gaining insight into key aspects of the firms, the next step is to overview both selected categorical- and continuous variables in the dataset. In Table 3.8 the categorical variables are firstly overviewed. The table contains an indication of the amount of firms which responded to the question, while also indicating the valid response percentage for each individual category. Furthermore the distinction between exporting and non-exporting firms is also maintained for the selected categorical variables.

Table 3.7 contains selected aspects which can assist in highlighting firm-level constraints to exports. The majority of these variables or aspects encompass self-evaluated barriers, where the firms indicated the level of constraint that each particular variable placed on each individual firm. The focus of the article is on firm-level barriers to exports, with specific emphasis on barriers which pertain to the firm's internal environment. This corresponds to the internal grouping identified by Leonidou (1995), as well as Morgan and Katsikeas' (1997) strategic barriers (which allude to resource-based capabilities) and Arteaga-Ortiz and Fernández-Ortiz's (2010) resource barriers discussed in the literature overview (see section 3.3.2). Both the number (frequency) and percentage of respondents is separately displayed per categorical variable for exporters and non-exporters.

Table 3.7- Overview of all categorical variables

Question / Variable	Frequency		Valid Percentage	
	Non-Exporter	Exporter	Non-Exporter	Exporter
Financial barriers				
How much of an obstacle is access to finance? (k30**)**	**4208**	**541**		
No obstacle	786	140	18.68%	25.88%
Minor obstacle	731	92	17.37%	17.01%
Moderate obstacle	906	94	21.53%	17.38%
Major obstacle	1,031	145	24.50%	26.80%
Very Severe Obstacle	754	70	17.92%	12.94%
Barriers to doing business				
Does this establishment use e-mail to communicate with clients or suppliers? (c22a)	**4288**	**554**		
Yes	2136	432	49.81%	77.98%
No	2152	122	50.19%	22.02%
At the present time does this establishment have its own website? (c22b)	**4276**	**550**		
Yes	1170	272	27.36%	49.45%
No	3106	278	72.64%	50.55%
How much of an obstacle is tax administrations? (j30b)	**4220**	**546**		
No obstacle	767	121	18.18%	22.16%
Minor obstacle	1,011	126	23.96%	23.08%
Moderate obstacle	1,139	125	26.99%	22.89%
Major obstacle	1,014	137	24.03%	25.09%
Very Severe Obstacle	289	37	6.85%	6.78%

Table 3.7 (cont.) - Overview of all categorical variables

Question / Variable	Frequency		Valid Percentage	
	Non-Exporter	Exporter	Non-Exporter	Exporter
How much of an obstacle is business licensing and permits? (j30c)	**4109**	**532**		
No obstacle	1,279	187	31.13%	35.15%
Minor obstacle	1,080	134	26.28%	25.19%
Moderate obstacle	951	87	23.14%	16.35%
Major obstacle	625	103	15.21%	19.36%
Very Severe Obstacle	174	21	4.23%	3.95%
How much of an obstacle is political instability? (j30e)	**4217**	**540**		
No obstacle	747	109	17.71%	20.19%
Minor obstacle	438	57	10.39%	10.56%
Moderate obstacle	580	86	13.75%	15.93%
Major obstacle	1,163	124	27.58%	22.96%
Very Severe Obstacle	1,289	164	30.57%	30.37%
How much of an obstacle is corruption? (j30f)	**4191**	**527**		
No obstacle	765	119	18.25%	22.58%
Minor obstacle	689	83	16.44%	15.75%
Moderate obstacle	843	95	20.11%	18.03%
Major obstacle	1,106	120	26.39%	22.77%
Very Severe Obstacle	788	110	18.80%	20.87%
Labour-market barriers				
How much of an obstacle is labour regulations? (l30a)	**4222**	**549**		
No obstacle	1,643	228	38.92%	41.53%
Minor obstacle	1,353	142	32.05%	25.87%
Moderate obstacle	847	122	20.06%	22.22%
Major obstacle	331	46	7.84%	8.38%
Very Severe Obstacle	48	11	1.14%	2.00%
How much of an obstacle is an inadequately educated workforce? (l30b)	**4175**	**538**		
No obstacle	1,643	214	39.35%	39.78%
Minor obstacle	1,069	110	25.60%	20.45%
Moderate obstacle	700	104	16.77%	19.33%
Major obstacle	551	78	13.20%	14.50%
Very Severe Obstacle	212	32	5.08%	5.95%

Source: Author's calculations from World Bank (2016c), question number in the questionnaire is given in brackets

Across all the categorical variables above it can be seen that a significant number of data points do exist, creating the opportunity for thorough analysis of these variables. Because non-exporting firms (4313 firms) significantly exceed exporting firms (557 firms) in the dataset, this is also reflected in the split of categorical variables. The dataset shows noteworthy parallels in financial and labour-market barriers, where exporting firms' responses are relatively similar to those of non-exporting firms. Responses for the finance indicated that both exporting and non-exporting firms were divided regarding the actual scale of the obstacle, while the majority of both firm sets ascribed a lower obstacle level to labour-market barriers.

Certain significant differences do however also exists, specifically with regard to doing business barriers. Exporting firms had significantly more respondents indicating that they had access to technology in the form of their own website and email when compared to non-exporting firms, as is expected as exports' exposure to international business conditions also brings about technological exposure in a majority of cases. Tax administration and business licensing received mixed responses from both exporters and non-exporters, with a minority indicating that these comprise severe obstacles. Finally a significant proportion of firms identified political instability and corruption as a very severe obstacle, while most firms perceived this as an obstacle.

The following table continues with the overview of descriptive statistics by focussing on continuous variables. Table 3.8 splits these variables into control variables, financial barriers, barriers to doing business and labour-market barriers.

Table 3.8 - Overview of all continuous variables

Question / Variable	Denominator	Frequency	Mean	Std. Deviation
Control variables				
Productivity (d2-adjusted for purchasing power parity /(l1+l6)	Sales per Worker (PPP – US$)	4077	1.83e+07	1.01e+09
Non-Exporter		*3613*	*2.06e +07*	*1.08e+09*
Exporter		*464*	*224347*	*1548005*
Firm size (l1+l6)	Quantity (Number of workers)	4870	52.94	209.38
Non-Exporter		*4313*	*35.97*	*117.36*
Exporter		*557*	*184.35*	*507.49*
Firm Age (Survey year – b5)	Years	4911	14.37	15.57
Non-Exporter		*4208*	*13.70*	*14.86*
Exporter		*545*	*19.83*	*19.50*
Financial barriers				
Working capital financed from internal funds or retained earnings (k3a)	%	4779	83.46	26.54
Non-Exporter		*4234*	*84.71*	*25.57*
Exporter		*545*	*73.68*	*31.48*

Table 3.8 (Cont.) - Overview of all continuous variables

Question / Variable	Denominator	Frequency	Mean	Std. Deviation
Working capital borrowed from banks (k3bc)	%	4779	5.29	16.14
Non-Exporter		*4234*	*4.50*	*14.90*
Exporter		*545*	*11.43*	*22.70*
Working capital borrowed from non-bank financial institutions (k3e)	%	4780	1.12	6.98
Non-Exporter		*4235*	*1.02*	*6.74*
Exporter		*545*	*1.86*	*8.60*
Working capital from purchases on credit or advances from suppliers (k3f)	%	4780	7.46	16.82
Non-Exporter		*4235*	*7.15*	*16.55*
Exporter		*545*	*9.79*	*18.59*
Working capital from purchases on credit or advances from suppliers (k3f)	%	4780	7.46	16.82
Non-Exporter		*4235*	*7.15*	*16.55*
Exporter		*545*	*9.79*	*18.59*
Barriers to doing business				
Material inputs and supplies of foreign origin in last fiscal year (d12b)	%	1836	30.67	37.78
Non-Exporter		*1523*	*27.90*	*36.59*
Exporter		*313*	*44.10*	*40.52*
Labour market barriers				
Total labour cost (including wages, salaries, bonuses, etc.) in last fiscal year (n2a) – Adjusted for purchasing power parity	PPP - US$	3997	1 272 893	2.38e+07
Non-Exporter		*3549*	*808336*	*8581243*
Exporter		*448*	*4953051*	*6.68e+07*

Source: Author's calculations from World Bank (2016c), question number in the questionnaire is given in brackets

The overview of continuous variables outlines the dataset as a whole. Similar to the synopsis of selected categorical variables, the majority of variables in this overview contained a significant amount of data points. Notable exceptions are "Losses due to theft, robbery, vandalism or arson in last fiscal year", as well as "Average number of days to clear customs". Possible justification for this could be that firms intentionally left the variable pertaining to theft, robbery, vandalism or arson blank, as they have not been affected by it or indicated that this was not applicable. Furthermore, the variable relating to the number of days to clear customs has to be taken in

context of the number of exporting firms (557 firms), indicating that a significant amount of these exporting firms did contain data for the variable.

Three control variables, firm size, productivity and firm age are firstly included in the overview. The number of total employees (full-time and seasonal) serve as a proxy of the size of the firm, while productivity is estimated by dividing total sales by the number of employees. Productivity has a mean of approximately 18.3 million in PPP per worker, with non-exporters showing significantly more sales per worker when compared to exporters. Firm size averaged 52.94 workers, in the classification of the World Bank's Enterprise Survey this indicates a moderate sized firm. Exporters on average employed significantly more workers than non-exporters. Finally firm age displays a mean of 14.37 years, while the mean of the exporting firms' age was significantly higher than that of non-exporting firms.

Financial barriers include four variables in the overview which refer to sources of working capital. The majority of working capital on average (83.46%) is sourced from retained earnings, which holds truer for non-exporters (84.71%) than exporters (73.68%). It is interesting to note that the second largest source of working capital on average is sourced from purchases on credit or advances from suppliers (7.46%) rather than a more traditional source such as banks (5.29%), on which exporters rely more in both cases when compared to non-exporters. The final source, non-banking financial institutions, only contribute a small percentage on average (1.12%) to working capital, with a relatively similar split between exporters and non-exporters.

Barriers to doing business contains one continuous variable, namely inputs from foreign origin. Inputs from foreign origin contain a smaller amount of data points (1836) when compared to the total dataset. This could possibly ascribed to the fact that not all firms have access to import channels, while firms which do export might contribute to this number as these firms already have experience with cross-border channels and trade. On average 30.67% of inputs are from foreign origin, with exporters' percentage of foreign inputs nearly double that of non-exporters

Finally labour market barriers are embodied by one continuous variable, the total cost of labour. Average labour costs were estimated at 1.27 million in PPP, where exporting firms' labour costs are significantly higher than those of non-exporters, which could possibly be related to the fact that they employ significantly more workers on average when compared to non-exporters.

Section 3.5 above gave an overview of the World Bank's Enterprise Survey's which form the dataset of this article which will evaluate barriers to export propensity and intensity in African FCS countries. Individual country surveys were available for 14 of the 18 African countries identified as fragile and conflict-affected by the World Bank (2015). Both general and country-specific topics were covered in the surveys, although only general topics contained comparable variables which was conducive for cross-country analysis. Key aspects which lend itself to analysis in the survey include finance, labour and firm performance.

Section 3.6 emphasised the underlying descriptive statistics in the dataset, with a focus on key metrics, as well as selected categorical and continuous variables. A distinction was made between exporters and non-exporters to highlight key differences in the dataset. Of the 5038 firms, the majority were non-exporters (4313 firms) while 557 firms indicated that they were involved in exporting to an extent and 168 firms contained missing values which led to them being excluded. Exporting firms on average employed more employees, were in business for a longer time, had a significantly higher labour cost and private foreign ownership when compared to non-exporting firms. Non exporters on average however had much higher total sales and private

domestic ownership. Next a selected set of categorical and continuous variables were overviewed.

Categorical variables showed a significant number of data points for all variables, with noteworthy similarities for exporters and non-exporters in each of the finance- and labour related sets of variables. Financial variables perception as an obstacle was viewed as evenly spread from “No obstacle” to “Very severe obstacle”, while a lesser percentage of exporters and non-exporters evaluated the labour related variables as a “Very severe obstacle”. Corruption received a relatively even spread of responses, while both exporters and non-exporters highlighted political instability as a tangible obstacle. The marked difference between exporters and non-exporters was technology related, where exporters had proportionally much higher access to technology in the form of email and websites.

Finally selected continuous variables were also overviewed, with four main categories which were highlighted, namely control variables, financial barriers, barriers to doing business and labour related barriers. As with the categorical variables, significant data points were contained for most of the variables, with a notable exception inputs of foreign origin. The dataset displayed proportionally large deviation from the mean, especially for variables measured in purchasing power parity, creating a case for the log transformation of variables.

Against the background of the questionnaire and underlying descriptive statistics, the next section (3.5.3) contains the Heckman two-step analysis as the final element of the empirical analysis. This is done to satisfy the research objective to empirically identify the export barriers to firms in African fragile and conflict-affected countries which affect their export propensity and intensity.

3.5.3 Regression analysis

In the previous sections, the questionnaire which was used to compile the data was outlined, while the data itself was also subjected to a descriptive analysis. Key differences between the firms that engaged in export activity and those that did not were highlighted. This leads to the analysis in Section 3.7, which seeks to identify key barriers to export propensity and intensity. To achieve this, this section outlines the Heckman two-step selection model through which the above is analysed. Furthermore, variables identified for analysis are discussed, followed by the empirical application of the Heckman to the World Bank (2016c) Enterprise Survey data for firms in 14 of the 18 countries identified as fragile and conflict-affected situations. Finally, a discussion of the results highlights key findings.

3.5.3.1 Methodology

The empirical analysis methodology of this article is similar to that used by Arndt *et al.* (2009), Ganotakis and Love (2012) and Matthee and Krugell (2012). All of these studies analysed export propensity (the extensive margin) and export intensity (the intensive margin), while both Arndt et al. (2009) and Matthee and Krugell (2012) reviewed the afore-mentioned with specific reference to firm-level export barriers. This article further builds on this by evaluating the firm-level export barriers which affect export propensity and intensity in African fragile and conflict-affected states.

This article made use of the statistical analysis package STATA 13 to complete the empirical analysis.

The analysis of export propensity and intensity could create the possibility of selection bias in the data. Smits (2003) differentiates between two forms of selection bias. The first instance is where information on the dependent variable for part of the respondents is missing. Secondly, the afore-mentioned is available for all respondents, but the respondents' data is not randomly distributed across the underlying categories of the independent variable under evaluation. The second form of bias could result from the study of export propensity and intensity.

To account for this, Heckman (1979) developed a two-step selection model. Firstly, a selection model is used to study the selection bias in the differences between the dependent variable's different groups. The dependent variable customarily takes the form of a dummy variable. Using the research of Arndt *et al.* (2009) and Matthee and Krugell (2012) as example, this resulted in the dependent variable being a dummy variable of 0 (non-exporter) and 1 (exporter). The first part of Heckman's (1979) analysis is the selection model, which takes the form of a probit analysis and estimates the effect of the independent variables on the dependent variable. Smits (2003) cautions that the selection model has to contain at least one variable which is not related to the dependent variable in the second model (outcome model or substantial model), or risk the problem of multicollinearity.

Arndt *et al.* (2009:13) specified the below equation for their selection model;

$$\Pr(X_i > 0) = a_j + a_1 \log(\frac{Y}{L})_{i-1} + a_2 \log L_{i-1} + d'^{K}_{i-1} a_3 + d'^{L}_{i-1} a_4 + C_{i-1} a_5 + excl'_i . a_6 + \varepsilon_i \quad (3.1)$$

Where $\Pr(X_i > 0)$ is the probability to export (export propensity) of firm i

a_j are various industry specific fixed effects

$a_{1,2}$ are scalar coefficients

$a_{3,4,5,6}$ are column vectors of regression coefficients

ε_i is the error term

$\log(\frac{Y}{L})_{i-1}$ is the natural log of labour productivity

$\log L_{i-1}$ indicate the natural log of labour (as proxy of firm size)

d'^{K}_{i-1} are financial constraints

d'^{L}_{i-1} represents labour constraints

C_{i-1} denotes control variables

$excl'_i$ lastly indicates exclusion variables, as required by the Heckman selection model

From the above example of a selection model, Heckman (1979) continues by deriving the selection bias control factor, namely the inverse Mills ratio or λ (lambda). This will then form part of the second part of the Heckman (1979) analysis' outcome model, which is also referred to by

Smits (2003) as the substantial analysis. Continuing with Arndt *et al.*'s (2009:13) study as example, the following outcome model or substantial analysis model was specified;

$$X_i = \beta_j + \beta_1 \log(\frac{Y}{L})_{i-1} + \beta_2 \log L_{i-1} + d'^{K}_{i-1}\beta_3 + d'^{L}_{i-1}\beta_4 + C_{i-1}\beta_5 + \beta_6.mills_i + \mu_i \qquad (3.2)$$

Where X_i is the volume of exports (export intensity) of firm i

β_j are various industry specific fixed effects

$\beta_{1,2,6}$ are scalar coefficients

$\beta_{3,4,5}$ are column vectors of regression coefficients

μ_i is the error term

$\log(\frac{Y}{L})_{i-1}$ is again the natural log of labour productivity

$\log L_{i-1}$ indicate the natural log of labour (as proxy of firm size)

d'^{K}_{i-1} are financial constraints

d'^{L}_{i-1} represents labour constraints

C_{i-1} denotes control variables

$mills_i$ lastly indicates the Mills ratio derived from the Heckman selection mode

After the specification of the model, it is applied for regression analysis and the coefficients are interpreted. An important aspect of the Heckman analysis is the Mills ratio, as evidenced by the above model. Smits (2003) states that this measure represents the unmeasured effects related to the dependent variable. Estrin *et al.* (2008) further indicates that the ratio displays the correlation between the error terms in the selection and outcome models, which is underscored by Matthee and Krugell (2012).

The coefficients for the selection and outcome models require different interpretations, as highlighted in Arndt et al. (2012). For the selection model, it is important to view the coefficients against the context of marginal effects, where a percentage change in the continuous independent variables will increase or decrease the probability for the dependent variable to occur, expressed as a percentage probability. For categorical independent variables in the selection models, the coefficient represents the increase or decrease in the percentage probability of the dependent variable given a change in the independent variable (Arndt *et. al*., 2012).

In the outcome model, the nature of the dependent and independent variables determines how the effect will be interpreted (Benoit, 2011). For the continuous variable, this will depend on whether one of the variables is transformed by a logarithm (Log-level or level-log), if both the dependent variable and independent variable are transformed by logs (log-log) or lastly if both the variables are not transformed by logs (level-level). Contrastingly, categorical variables cannot be transformed by logarithms. For log-level comparisons, the interpretation pertains to the percentage change affected in the dependent variable by a one-unit change in the independent variable and inversely, interpretations for level-log comparisons pertain to the unit change affected in the dependent variable by a one percentage change in the independent variable.

Furthermore, log-log transformed variables can therefore be interpreted as the percentage change affected in the dependent variable by a one percentage change in the independent variable. Finally, for level-level interpretations, the change in the dependent variable is interpreted relative to a one-unit change in the independent variable (Benoit, 2011).

Section 3.5.3.2 now follows, which contains the variables used in the empirical application of the Heckman two-step selection model to analyse the firm-level barriers to export propensity and intensity in African fragile and conflict-affected states.

3.5.3.2 Variables

In Section 3.2.2, the various benefits of trade for the country, firm and the consumer highlight the contribution that trade and specifically exports can hold for a country. Fragile countries, as highlighted by Marano *et al*. (2013) and Malik and Adwallah (2013), contain various barriers to exports within these countries. The identification and removal of barriers to exports will assist firms in contributing more to the economy in which they are placed through increased revenue and foreign exchange, as supported by the literature.

These barriers affect both the likelihood that a firm would export (export propensity) and the subsequent volumes of exports (export intensity), as highlighted by Arndt *et al.* (2009) and Matthee and Krugell (2012). The first of three groupings of barriers identified in the literature is the internal-domestic barriers, internal-foreign barriers, external-domestic barriers and external-foreign barriers (Leonidou, 1995). A second grouping of strategic, operational and logistical, informational and process based grouping was outlined by Morgan and Katsikeas (1997). The knowledge, resources, procedure and exogenous barriers grouping was proposed as the third grouping of barriers by Arteaga-Ortiz and Fernández-Ortiz (2010). The important aspects of these groupings, when reviewing firm-level barriers to exports, would pertain to internal-domestic barriers and internal-foreign barriers, the strategic barriers or the resource barriers.

From these firm-level groupings, the financial and labour barriers have been emphasised by literature (see Bellone et al., 2008; Amjad et al., 2012). The World Bank's (2016c) Enterprise Surveys further contain a variety of firm-evaluated obstacles and as the focus of this article is to identify firm-level barriers to exports, these could be useful when applied to export propensity and intensity. The selection variable required by the Heckman two-step selection model was determined to be foreign ownership. The importance of foreign ownership for export propensity was underscored by Rojec et al. (2004). Finally, control variables, including the productivity, size and age of the firm were included in the article.

The variables used in the article and indicated in Table 3.9 below follow the approach of Arndt *et al.* (2009) and Matthee and Krugell (2012).

Table 3.9 – Variable overview

Question Number	Question Description
Dependent Variable (Selection Model)	
Export propensity: Dummy variable generated from Question d3a (what % of establishment's sales were: national sales?) – 0 = Non-exporter (100% national sales) and 1 = Exporter (<100%)	

Table 3.9 (Cont.) – Variable overview

Question Number	Question Description
Independent variables (Selection Model and Outcome Model) - Size and Productivity (Control variables)	
lnProductivity	Natural logarithm of productivity generated by dividing Question d2 (in last fiscal year, what were this establishment's total annual sales?) by Question l1 (no. permanent, full-time employees of this firm at end of last fiscal year) and question l6 (Seasonal / temporary employees)
lnFirmSize	Natural logarithm of all employees - Question l1 (no. permanent, full-time employees of this firm at end of last fiscal year) and question l6 (Seasonal / temporary employees)
lnFirmAge	Natural logarithm of the age of firms generated by subtracting the year the establishment began operations (b5) from the year the survey was completed in the country
Independent variables (Selection Model only)	
F_Own (b2b)	% owned by Private Foreign Individuals, Companies Or Organisations
Dependent Variable (Outcome Model)	
Export Intensity: Logarithm of Exports (PPP adjusted) – Calculated as Export % (d3b & d3c) of Total annual sales (d2), adjusted for PPP to allow cross country comparison	
Independent variables (Selection Model and Outcome Model) - Financial barriers	
Fin_Obs	Dummy from k30 - How Much Of An Obstacle: Access To Finance, 0 = No Obstacle, 1 = Obstacle
WCap_Retain (k3a)	% Of Working Capital Financed From Internal Funds/Retained Earnings
WCap_Bank (k3bc)	% Of Working Capital Borrowed From Banks
WCap_NonBank (k3e)	% Of Working Capital Borrowed From Non-Bank Financial Institutions
WCap_Credit (k3f)	% Of Working Capital Purchased On Credit/Advances From Suppliers /Customers
Independent variables (Selection Model and Outcome Model) - Doing business barriers	
Email	Dummy from question c22a - Does this establishment use e-mail to communicate with clients or suppliers?
Website	Dummy from question c22b - At the present time does this establishment have its own website?
F_Input (d12b)	% Of Material Inputs And Supplies Of Foreign Origin In Last Fiscal Year
Tax_Obs	Dummy from j30b - How Much Of An Obstacle: Tax Administrations, 0 = No Obstacle, 1 = Obstacle
License_Obs	Dummy from j30c - How Much Of An Obstacle: Business Licensing And Permits, 0 = No Obstacle, 1 = Obstacle
Political_Obs	Dummy from j30e - How Much Of An Obstacle: Political Instability, 0 = No Obstacle, 1 = Obstacle
Corruption_Obs	Dummy from j30f - How Much Of An Obstacle: Corruption, 0 = No Obstacle, 1 = Obstacle
Independent variables (Selection Model and Outcome Model) - Labour barriers	
LabourReg_Obs	Dummy from l30a - How Much Of An Obstacle: Labour Regulations, 0 = No Obstacle, 1 = Obstacle
Uneduc_Obs	Dummy from l30b - How Much Of An Obstacle: Inadequately Educated Workforce, 0 = No Obstacle, 1 = Obstacle
lnLabourCost (ln2aP)	Natural logarithm of labour costs - Question n2a (Total Labour Cost (Incl. Wages, Salaries, Bonuses, etc.) In Last Fiscal Year) adjusted for PPP

Source: Author's summary from World Bank (2016c) survey data

Of the variables highlighted in Table 3.9, eleven are continuous variables (including the dependent variable for the outcome model) and the remaining ten which are used in the analysis are categorical variables (including the selection model's dependent variable). Five of the eleven

variables were transformed with logarithms. The reason why logarithms are used for these five variables (Export Intensity, lnProductivity, lnFirmSize, lnFirmAge and lnLabourCost) is to reduce positive skewness in the data and therefore assisting to achieve a normal distribution in the dataset (Benoit, 2011). Two potentially useful continuous variables were not included in the article, as both contained a significant amount of missing values which would lead to a significant number of observations being discarded. These variables are “losses due to theft, robbery, vandalism or arson in last fiscal year” (i4a) and “average number of days for exported goods to clear customs in last fiscal year” (d4).

The dummy variables were derived for the various categorical variables to include these in the analysis. For both the technological dummies (Email and Website), the “Yes” responses were translated into 1 while the “No” responses were set to 0. For the remaining categorical variables pertaining to various self-evaluated obstacles, all responses of “No Obstacle” were set to 0, while all other responses were set to 1, indicating that it was an obstacle to the firm.

Against the background of the above, the author’s expected outcomes of the independent variables’ association with exports are overviewed. Changes in lnProductivity, lnFirmSize and lnFirmAge are expected to have a positive relationship with both export propensity and intensity. It is postulated that increases in productivity and firm size indicate that firms possibly have more resources which could be used to access the export market, while the experience which accompanies firms that have been in business longer cannot be underestimated in the quest for internationalisation.

For the first set financial variables (Fin_Obs, WCap_NonBank, WCap_Credit), a negative association is expected, with exposure to financial obstacles and increased sourcing of working capital from non-traditional sources such as credit sales and non-bank institutions, possibly pointing to a less sound financial position. Further financial variables (WCap_Retain and WCap_Bank) are expected to have a positive correlation with exporting, as the majority of banks have experience with exports and would be able to assist exporting firms with loans subject to a clear plan for success, while sourcing working capital from retained income points to a possibly sound financial position.

Certain business-related aspects (Email, Website, F_Input – Positive) could possibly have a positive effect on exports, as access to email and a website allow better communication with customers abroad and foreign inputs indicate an existing exposure to the international trade environment. The business related obstacles as evaluated by the firms (Tax_Obs, Lic_Obs, Pol_Obs and Cor_Obs) are expected to have a negative effect on exports. Two of the labour variables (LabReg_Obs and Educ_Obs) are expected to negatively influence exports, as increased labour regulations and an uneducated workforce could restrict firms while lnLabourCost could either be negative (because of increased financial burden) or positive because of the larger labour pool and its associated production.

The selection and outcome models are specified in the next section based on the above variables.

3.5.3.3 Model specification

Corresponding to the methodology in Section 3.5.3.1, models were specified by the author for both export propensity (selection model) and export intensity (outcome model), based on Heckman's (1979) two-step selection model.

Similar to Arndt *et al.* (2009), the following selection model was specified for this article:

$$\Pr(X_i > 0) = a_0 + a_1 \ln(\frac{Y}{L})_i + a_2 \ln L_i + a_3 \ln A_i + d_i'^K a_4 + d_i'^L a_5 + \alpha_6 \ln LC_i + excl_i . a_7 + \varepsilon_i \quad (3.3)$$

Where $\Pr(X_i > 0)$ is the probability to export (export propensity) of firm i

a_0 are fixed effects

$a_{1,2,3,6}$ are scalar coefficients

$a_{3,4,7}$ are column vectors of regression coefficients

$\ln(\frac{Y}{L})_i$ is the natural log of labour productivity (control variable)

$\ln L_i$ indicates the natural log of labour (control variable - as proxy of firm size)

$\ln A_i$ is the natural log of firm age (control variable)

$d_i'^K$ are financial constraints (List)

$d_i'^L$ represents labour constraints (List except labour costs)

$\ln LC_i$ indicates the natural log of labour costs

$excl_i$ denotes the exclusion variables, as required by the Heckman selection model

ε_i lastly indicates the error term

From the above selection model for export propensity, the selection bias control factor, namely the inverse Mills ratio or λ (lambda), is derived. As indicated earlier, this will form as separate variable in the outcome equation (export intensity). The following outcome model or substantial analysis model was specified for export intensity, following the method in Arndt *et al.* (2009);

$$\ln X_i = \beta_0 + \beta_1 \ln(\frac{Y}{L})_i + \beta_2 \ln L_{i-1} + \beta_3 \ln A_i + d_i'^K \beta_4 + d_i'^L \beta_5 + \beta_6 \ln LC_{i-1} + \beta_7 . mills_i + \mu_i \quad (3.4)$$

Where $\ln X_i$ is the natural log of exports (export intensity) of firm i

β_0 are fixed effects

$\beta_{1,2,3,6,7}$ are scalar coefficients

$\beta_{4,5}$ are column vectors of regression coefficients

$\ln(\frac{Y}{L})_i$ is again the natural log of labour productivity (control variable)

$\ln L_i$ indicates the natural log of labour (control variable - as proxy of firm size)

$\ln A_i$ is the natural log of firm age (control variable)

$d_i^{'K}$ are financial constraints

$d_i^{'L}$ represents labour constraints

$\ln LC_i$ indicates the natural log of labour costs

$mills_i$ denotes the Mills ratio derived from the Heckman selection model

μ_i lastly indicates the error term

In Section 3.5.3.4, the model is applied for regression analysis and the coefficients are interpreted as outlined in the methodology.

3.5.3.4 Heckmann two-step analysis

The preceding sections pertaining to the variables selected for this article and the specified selection and outcome models led into the Heckman two-step analysis itself. As with the methodology set out in Section 3.5.3.1, the selection model was first completed to analyse export propensity, with the outcome model identifying aspects that assist or constrain export intensity. This analysis is completed in Stata 13 and Table 3.11 summarises key aspects of the analysis below.

Table 3.10 –Regression results of Heckman two step selection model

Heckman two step selection model Variables	Selection model (Export propensity)	Outcome model (Export intensity)
Exclusion variable		
F_Own	**0.005 (3.99)*** **	
Control variables		
lnProductivity	**-0.084 (-2.27)** **	**0.967(16.97)*** **
lnFirmSize	**0.304 (5.36)*** **	**1.021 (7.53)*** **
lnFirmAge	**0.091 (1.66)***	**-0.366 (-4.46)*** **
Financial barriers		
Fin_Obs	-0.209 (-1.4)	-0.126 (-0.53)
WCap_Retain	**-0.012 (-3.06)*** **	0.002 (0.39)
WCap_Bank	-0.005 (-1.17)	0.002 (0.31)
WCap_NonBank	-0.009 (-1.3)	-0.006 (-0.51)
WCap_Credit	-0.010 (-2.28)**	0.007 (1.05)
Doing business barriers		
Email	0.288 (2.23)**	0.062 (0.26)

Table 3.10 (Cont.) – Regression results of Heckman two step selection model

Heckman two step selection model		
Variables	**Selection model (Export propensity**	**Outcome model (Export intensity)**
Website	0.205 (1.74)*	-0.157 (-0.86)
F_Input	0.003 (2.03)**	-0.002 (-0.89)
Tax_Obs	-0.052 (-0.33)	-0.146 (-0.62)
License_Obs	-0.188 (-1.41)	-0.154 (-0.72)
Political_Obs	0.184 (1.15)	-0.195 (-0.75)
Corruption_Obs	-0.273 (-1.76)**	0.442 (1.98)**
Labour barriers		
LabourReg_Obs	0.022 (0.18)	0.024 (0.14)
Uneduc_Obs	**0.209 (1.91)****	-0.089 (-0.5)
lnLabourCost	0.019 (0.47)	-0.042 (-0.66)
_cons	**-0.834 (-1.81)****	1.233 (1.29)
Mills Lambda (λ)		-0.488 (-1.01)
Diagnostic analysis		
Wald χ^2 (17)	**965.45*** **	
Censored observations	1059	
Uncensored observations	215	

Source: Author's calculations from World Bank (2016c)

*Note: * indicates significance at the 90% confidence level (alpha=0.10), ** indicates significance at the 95% confidence level (alpha=0.05), *** indicates significance at the 99% confidence level (alpha=0.01)*

3.5.3.4.1 Selection (export propensity) model

The significant results from the Heckman selection model are firstly discussed. These independent variables have displayed a significant association with whether a firm exports or not (export propensity).

Firstly, as required by the Heckman two-step selection model, an exclusion variable forms part of the selection model. This is a variable which is assumed to be in the selection model, but not in the outcome model and assists in compiling the correlation factor (Mills' λ) to identify whether any relationship exists between unobserved effects in the two models. F_Own (or the percentage foreign ownership) was compiled in the survey by asking firms to determine the percentage of their firm which was owned by foreigners. This variable was found to be significant at the 99% confidence interval, with a very small positive coefficient. A 1% increase in foreign ownership would increase the probability of export (or export propensity) by 0.005%.

All three of the control variables were found to be significant. To determine lnProductivity, the total firm sales (d2 in Appendix A) was adjusted for purchasing power parity obtained from the World Bank (2016e – PPP table in Appendix D) and then divided by the total amount of employees (l1 and l6 in Appendix A). Thereafter, the variable was transformed with a natural log to assist in obtaining a normal distribution for the variable. This variable was found to be significant at the

95% confidence interval, with a very small negative coefficient. In this case, a 1% increase in productivity would lead to a 0.084% decrease in export propensity.

The second of the significant control variables is lnFirmSize. A proxy of firm size was created by combining the total amount of permanent, full-time employees and full-time seasonal or temporary employees (l1 and l6 in Appendix A). Thereafter, the variable was transformed with a natural log to assist in obtaining a normal distribution for the variable. This variable was found to be significant at the 99% confidence interval, with a positive coefficient. In this case, a 1% increase in firm size would lead to a 0.304% increase in export propensity.

The final significant control variable is lnFirmAge. To determine the age of the firm, the year the establishment began operations (b5 in Appendix A) was subtracted from the year the survey was compiled in the country. Thereafter, the variable was transformed with a natural log to assist in obtaining a normal distribution for the variable. This variable was found to be significant at the 90% confidence interval, with a small positive coefficient. In this case, a 1% increase in firm age would lead to a 0.091% increase in export propensity.

Two significant financial variables were also found. The first of these is WCap_Retain, which is the percentage of working capital that firms indicated they financed from internal funds or retained earnings (k3a in Appendix A). This variable was found to be significant at the 99% confidence interval, with a small negative coefficient. In this case, a 1% increase in working capital financed from retained earnings would lead to a 0.012% decrease in export propensity.

Secondly, WCap_Credit, the percentage of working capital purchased on credit or from advances from suppliers or customers (k3f in Appendix A) was also found to be significant. This variable was found to be significant at the 95% confidence interval, with a small negative coefficient. In this case, a 1% increase in working capital financed from credit would lead to a 0.010% decrease in export propensity.

Four doing business barriers also indicated significance. Firstly Email, where firms indicated whether they had access to email to communicate with both clients and suppliers (c22a in Appendix A), was found to be significant. This was adapted to a dummy variable where yes was set as 1 and no as 0. This variable was found to be significant at the 95% confidence interval, with a positive coefficient. In this case, a change in whether a firm has access to email would lead to a 0.288% increase in export propensity.

The second doing business barrier indicating significance was Website, where firms indicated whether they had access to their own website (c22b in Appendix A). This was adapted to a dummy variable where yes was set as 1 and no as 0. This variable was found to be significant at the 90% confidence interval, with a positive coefficient. In this case, a change in whether a firm has access to email would lead to a 0.205% increase in export propensity.

Thirdly, F_Input was shown to be significant. For this variable, firms indicated the percentage of material inputs and supplies of foreign origin in the last fiscal year (d12b in Appendix A). This variable was found to be significant at the 95% confidence interval, with a very small positive coefficient. In this case, a 1% increase in foreign inputs would lead to a 0.005% increase in export propensity.

Corruption_Obs was highlighted as the final significant doing business barrier for export propensity. Firms completed a self-evaluation of the extent to which corruption was perceived to

be an obstacle, with responses ranging from “No Obstacle” to “Very Severe Obstacle”. This was adapted to a dummy variable where all responses of “No Obstacle” were set to 0, while all other responses were set to 1, indicating that it was an obstacle to the firm. This variable was found to be significant at the 95% confidence interval, with a negative coefficient. In this case, a change in whether a firm perceived corruption to be an obstacle would lead to a 0.273% decrease in export propensity.

One labour barrier was also found to be significant, namely Uneduc _Obs. Firms completed a self-evaluation of the extent to which an inadequately educated workforce was perceived to be an obstacle, with responses ranging from “No Obstacle” to “Very Severe Obstacle”. This was adapted to a dummy variable where all responses of “No Obstacle” were set to 0, while all other responses were set to 1, indicating that it was an obstacle to the firm. This variable was found to be significant at the 95% confidence interval, with a positive coefficient. In this case, a change in whether a firm perceived an inadequately educated workforce to be an obstacle would lead to a 0.209% increase in export propensity.

A substantial number of aspects were found to affect export propensity (i.e. productivity, firm size, the age of the firm, working capital sourced from retained income as well as credit, access to email and a website, foreign inputs, corruption and an uneducated workforce), as can be seen from the above. The exclusion variable (percentage of foreign ownership) required by the Heckman selection model was found to have a small, positive relationship with export propensity. Furthermore, all three control variables were found to have a significant relationship with export propensity, with productivity interestingly found to have a small negative association with the dependent variable. Furthermore, both firm size and firm age displayed a positive relationship with export propensity. Both financial barriers (working capital sourced from retained earnings and from credit sales) listed above displayed a small negative relationship with export propensity. Three of the four significant doing business barriers displayed a positive relationship with export propensity. These variables refer to access to technology in the form of a website and email, as well as any foreign inputs used by the firm. Corruption on the other hand displayed a negative relationship with the dependent variable. Notably, the one labour barrier which displayed a significant relationship with export propensity, the obstacle presented by an inadequately educated labour force, was found to have a positive relationship.

3.5.3.4.2 Outcome (export intensity) model

According to the methodology outlined in Section 3.5.3.1, the next step is to generate an outcome model, while adding the Mills Lambda (λ) generated in the selection model. The Mills Lambda was found not to be significant, in other words there is not a significant relationship between the unobserved error terms in the selection (export propensity) and outcome (export intensity) models. A possibility of selection bias could have entered into the model and as such the Heckman analysis was used to identify the possible bias. As the Mills ration is not significant (indicating no evident presence of bias), an Ordinary Least Squares (OLS) regression would possibly have attained similar results. All four of the variables which significantly affect export intensity (i.e. productivity, firm size, the age of the firm and corruption) were also found to be significant in explaining export propensity.

The three control variables were again found to be significant in affecting export intensity. lnProductivity was firstly found to be significant at the 99% confidence interval, with a high positive coefficient. In this case, a 1% increase in productivity would lead to a 0.967% increase in export intensity. Secondly, lnFirmSize was found to be significant at the 99% confidence interval, with a positive coefficient. In this case, a 1% increase in firm size would lead to a 1.021% increase in export propensity. Finally, lnFirmAge was found to be significant at the 99% confidence interval, with a negative coefficient. In this case, a 1% increase in firm age would lead to a 0.366% decrease in export propensity.

The only other barrier found to be significant in affecting export intensity is Corruption_Obs. This variable was found to be significant at the 95% confidence interval, with a positive coefficient. In this case, a change in whether a firm perceived corruption to be an obstacle would lead to a 0.442% increase in export intensity.

Of the three control variables, two were found to have a large positive association with export intensity, namely productivity and firm size, with a change in firm size as evidenced above leading to a correspondingly large change in export intensity. In the outcome model, a different control variable (firm age) displayed a negative association with export intensity. Finally, contrary to the author's variable expectations listed in Section 3.5.3.2, firms which indicated corruption as an obstacle displayed a positive relationship with export intensity. However, this could possibly indicate that the perception of corruption as a barrier to exports increases as export volumes (intensity) increases.

3.5.3.5 Discussion of results

The objective of the empirical analysis, as outlined in Chapter 1, was to "empirically determine which firm-level export barriers affect the export propensity and intensity of African fragile and conflict-affected countries."

This objective was analysed by making use of the Heckman two-step selection method, as outlined in Section 3.7.1 and also used by Arndt *et al.* (2009) and Matthee and Krugell (2012) in their respective analyses of export propensity (likelihood of exports) and intensity (volume of exports). Whilst Matthee and Krugell's (2012) study focussed on South Africa, the focus of this article is on all African countries in a fragile and conflict-affected state as determined by the World Bank (2015). The export propensity dummy variable was derived from a World Bank (2016c) survey question determining the percentage of firm sales which were raised domestically for that year (d3a in Appendix A). If a firm indicated a 100% domestic sales percentage, it was classified as a non-exporter and assigned a value of 0, while a percentage of less than 100% indicated that the firm was involved in export activity and therefore assigned a value of 1. For export, intensity the amount of exports was determined by the percentage of sales attributed to exports (d3b and d3c in Appendix A) of the total annual sales (d2 in Appendix A), adjusted by a purchasing power parity factor (see Appendix D) to allow for cross-country comparisons.

The barriers which were analysed for both export propensity and export intensity were financial barriers, labour barriers, selected doing business barriers and control variables. These relate to various groupings of export barriers as highlighted in the literature in Section 3.3.2. The relevant groupings are internal-domestic barriers and internal-foreign barriers (Leonidou, 1995), the strategic barriers (Morgan & Kasikeas, 1997) or the resource barriers (Arteaga-Ortiz &

Fernández-Ortiz, 2010). The variables analysed also correspond to similar studies by Arndt *et al.* (2009) and Matthee and Krugell (2012).

Firstly, export propensity was analysed through the Heckman two-step selection model through a selection (Probit) model. Several variables were found to be significant in affecting export propensity. As part of the Heckman two-step selection model, an exclusion variable is required, which is included in the selection model (export propensity) but not in the outcome model (export intensity). For this analysis, the variable was the percentage foreign ownership, which was found to be significant as well. Evidence of a small positive correlation was displayed between foreign ownership and export propensity. This is as expected and corresponds to Rojec *et al.'s* (2004) findings regarding Slovenian and Estonian manufacturing firms, where foreign ownership was shown to have a positive relationship with export propensity.

All three of the control variables in the analysis were found to be significant. Both firm size and firm age displayed a positive relationship with export propensity, indicating firms which are larger and longer in business would have a higher likelihood to become involved in exporting. This mirrors the author's expected results for the variables. Therefore, it can be important to ensure that longevity and growth are facilitated within the firms. In other words, the African FCS firms correspond to a more incremental approach to becoming involved in exports (Johanson & Vahlne, 1977), rather than the born global phenomenon (where firms immediately become involved in exports and therefore the younger and smaller firms could be involved in exports) (Oviatt & McDougall, 1994). However, productivity was shown to have a small negative relationship with export propensity, indicating that, as firms in African FCS countries become more productive, the chance of being involved in exporting decreases. This is contrary to expectations and could possibly be ascribed to more productive firms being less inclined to export if opportunities exist within the fragile countries themselves.

Regarding the financial barriers' relationship with export propensity, the analysis reflects a small negative relationship between export propensity and the two significant variables (working capital sourced from retained earnings and from credit sales). The negative relationship between working capital sourced from retained earnings and export propensity is unexpected, however this could conceivably point to a focus on applying retained earnings to increase domestic sales in the fragile environment presented in the African firm's country of origin. Working capital sourced from credit sales' negative relationship with export propensity is more expected and could point to liquidity constraints in firms where more working capital is gained from this source, similar to findings by Matthee and Krugell (2012). They found a negative relationship between capital sourced from credit sales and exports for South African firms.

Four doing business barriers displayed significance relative to export propensity, with three of the four exhibiting a positive relationship with the dependent variable. Both access to email and the firm's own website increased the probability of exports taking place. This is as expected, as these technology-related barriers serve as enabling elements which help firms in contacting potential international clients. Within an African context and its limited but growing access to internet, see World Bank's (2016d) development indicators for the percentage of individuals using the internet, especially through mobile sources. If embraced this could serve as a significant advantage to export firms in fragile and conflict-affected states. Foreign inputs also display a positive relationship with export propensity. The international sourcing of inputs indicate experience with the international trade environment and as such would possibly point to African FCS firms being more likely to engage in exports against the background of this experience. Increased corruption

also had a negative effect on export propensity, as corruption could lead to financial and regulatory constraints preventing the firm from gaining access to the export market.

Lastly, one labour barrier, in the form of an inadequately educated labour force displayed a significant relationship with export propensity. This correlation is stated to be positive, in other words where firms in fragile countries indicate a constraint in terms of the inadequate education of their employees, this increases export propensity. This might seem counter intuitive, but it can be viewed against the proliferation of extractive or primary exports as the main type of exports in African fragile and conflict-affected countries as highlighted in Section 3.4.2 from International Trade Centre (2016) data. A possible inference could be made that less educated workers could be employed in the primary or extractive industries which are the main source of exports in these African FCS countries, thereby increasing the likelihood that the firms which employ them could be involved in exports. These results conclude the significant findings of barriers which affect export propensity.

The second element of the Heckman two-step selection model generated the outcome model, which was used to analyse the correlation between export intensity and the various independent variables pertaining to export barriers. As part of the analysis, the inverted Mills ratio (or Lambda) derived in the selection model was included in the outcome model. The ratio was not found to be significant, which means no significant relationship was observed between the unobserved error terms in the selection (export propensity) and outcome (export intensity) models and as such, an OLS regression could possibly have attained similar results. However, four variables were observed to have a significant effect on export intensity.

All three of the control variables, namely firm productivity, age and size were found to be significantly correlated to export intensity. Contrasting to its relation with export propensity, productivity is displayed to be positively related to export intensity, which is more in line with expectations and corresponds to Matthee and Krugell's (2012) findings for South African firms, as well as Arndt *et al.*'s (2009) results for export intensity in German firms. Firm size also displayed a positive correlation to export intensity, again conforming to the author's expectations. However, firm age displayed a negative correlation with export intensity, indicating that *"younger"* firms displayed a tendency toward higher volumes of exports. This could correspond to the born global phenomenon of internationalisation highlighted in Section 3.2.4, where certain firms were created with the express purpose of becoming involved in the international trade sphere, while Matthee and Krugell (2012) report similar findings in their study of Zimbabwean firms. Only one other obstacle was shown to be significant, namely corruption. This variable displayed a positive relationship with export intensity, which is the inverse of the obstacle's correlation with export propensity. Once a firm engages in exports, especially in countries exposed to fragility, corruption could possibly assist larger volumes of goods to be exported. The inverse of the relationship could also hold that, in African fragile countries, larger export volumes could lead to corruption becoming more of a barrier. In the final section, the findings are summarised and areas for future research are identified.

3.6 CONCLUSION, RECOMMENDATIONS AND FUTURE RESEARCH

The role of exports in an economy and the benefits which it holds for a country's economy and its participants are well established. Hoeffler (2012) states that fragile countries contribute a very limited proportion to total global exports. A range of barriers however constrain firms' (the main agents engaging in exports) ability to export. It is therefore key to identify the barriers to exports for firms within the fragile countries in Africa as part of an approach to ensure economic stability in these countries from the bottom upwards.

Against this background, the research question can be developed which states: "Which firm-level export barriers constrain African fragile and conflict-affected countries firms' export propensity and intensity?" To attempt this research question, a set of literature and empirical research objectives was set in Chapter 1. The two research objectives for the literature were firstly to provide an overview of the literature on the benefits of an open economy and international trade and secondly to provide an overview of the literature on export barriers on a country- and firm-level.

In attaining the first objective, a variety of aspects were overviewed. An outline of the development of international trade theory served as introduction to section 3.2.1, which started with the seminal works of Adam Smith and David Ricardo and progressed up to diverse views on trade such as those postulated by Michael Porter and contrastingly Paul Krugman. Thereafter, key advantages of exports for the country were discussed (such as employment creation and foreign exchange), firms (expanded markets and increased production efficiencies) and the consumer (competitive prices and innovation). Exports' role in economic growth and development was also outlined in Section 3.2.1, which is of especial relevance to the African fragile and conflict-affected countries at the heart of this article to ensure that the benefits of exporting are also transmitted via the firms to these countries' economies. Thereafter, the processes of internationalisation (including theories such as incremental internationalisation and the "born global" phenomenon), its motives (reactive and proactive) and triggers (internal and external) were outlined in Section 3.2.2. This was followed by a key aspect of the article in summarising export propensity and intensity with the inclusion of selected firm-level studies on the matter, amongst which two studies evaluated the relationship between export propensity and intensity and firm-level export barriers. By identifying and addressing barriers to exports, both export propensity and intensity could be positively affected.

Aspects from the above led to the second literature objective pertaining to barriers to exports. Firstly, in Section 3.3.1, an overview was provided of a variety of barriers to private investment, entrepreneurship and economic growth contained in the diagnostic framework postulated by Hausmann et al. (2006). This was done as an introduction to the identification of barriers to economic activity. The overview of barriers was then refined in Section 3.3.2 to exports, with examples of barriers pertaining to tariff and non-tariff barriers, as well as physical and cultural distance aspects discussed in the synopsis to outline the multitude of export barriers which exist and the need that therefore exist to analyse these barriers via groupings. Thereafter, three key groupings of export barriers were discussed, namely Leonidou's (1995) internal and external grouping, the strategic, operational & logistical, informational and process based grouping as postulated by Morgan and Kasikeas (1997) and the included knowledge, resources, procedure and exogenous barriers to exports grouping developed by Arteaga-Ortiz and Fernández-Ortiz's

(2010). This was followed by selected recent studies on export barriers, after which the ability to trade in fragility was overviewed with specific reference to African fragile and conflict-affected states in Section 3.4. It is by combining the above-mentioned aspects into analysing firm-level export barriers to both export propensity and intensity (against the background of fragile and conflict-affected African states) that this article seeks to make a contribution.

Against the background of the literature, the research objective for the empirical analysis can be addressed, which aims to "empirically determine which firm-level export barriers affect the export propensity and intensity of African fragile and conflict-affected countries." For the analysis, firm-level data was sourced from the World Bank's (2016c) Enterprise Surveys, where data existed for 14 of the 18 African countries identified as fragile and conflict-affected situations by the World Bank (2015).

The analysis firstly evaluated export propensity, which found a variety of control factors, financial barriers, labour barriers and doing business barriers indicating a significant relationship with the dependent variable. Variables displaying a positive relationship include foreign ownership, firm size, firm age, access to email, access to a website, the use of foreign inputs and an inadequately educated labour force. Contrastingly, firm productivity, working capital sourced from retained earnings, working capital sourced from credit sales and corruption displayed a negative correlation for export propensity.

The second element of the empirical objective required an analysis of barriers affecting export intensity. All three control variables again displayed a significant relationship with export intensity as well. Of the three control variables, two were found to have a positive association with export intensity, namely productivity and firm size. Additionally, the firms which experienced corruption as an obstacle also had a positive relationship with export intensity. The remaining control variable, firm age, was the only variable which displayed a significant relationship with export intensity. As can be seen from the above, export propensity displayed negative relationships with control variables, financial barriers, labour barriers and doing business barriers, while export intensity was mostly associated with control variables.

Certain recommendations could possibly be made based on the above results. The control variables displayed a significant relationship with both export propensity and intensity, though the correlation varies. By evaluating microeconomic aspects which could improve the competitiveness of these firms in the African fragile and conflict-affected countries where they operate, these firms can be assisted in increasing their firm size, age and productivity, which in turn contribute to exports as evidenced by the above analysis. The analysis in Chapter 2 deals with microeconomic competitiveness and as such key learnings could be implemented to assist these firms in improving these aspects. Furthermore, a focus could be placed on SMME development in African FCS countries, which could assist in improving firm size and possibly improve firm age as well.

To address the doing business barriers, it is important to ensure that firms have access to emails and own websites, while also exploring trade channels to make use of foreign inputs, which will all assist in increasing export propensity. In African FCS countries, where the exports were shown to be mostly of a primary or commodity nature (see Section 3.4.2), foreign inputs could further assist with export beneficiation, improving export earnings from processed rather than raw commodities. Also, foreign inputs could assist in exposing African firms involved in exports to other industries, possibly leading to export diversification. The obstacle of corruption fulfils an inverse role with export propensity and intensity, decreasing export propensity but increasing

intensity, which could point to the lack of adequate regulation and law enforcement in fragile countries. Firms could possibly work together to form business lobby groups to ensure that individual firms are not as exposed to corruption in these countries, but rather groupings that adhere to ethical standards.

Furthermore, with reference to financial barriers, a decreased reliance on retained earnings and credit sales for working capital could be advocated for an increased likelihood in becoming involved in exports. Possible incentives to export credit agencies in these countries could provide alternate sources of funding for African exporting firms. To overcome the obstacle of an inadequately educated labour force (which could be especially present in African fragile countries) while taking advantage of the positive correlation with export propensity, firms could possibly position themselves in the primary or extractive industries. However, firms could also develop in-house export administration and other training programmes to improve the education levels and efficacy of the labour force in these countries. Finally, by including foreign ownership in the firm, export propensity could be further increased. To this end, firms in African FCS countries could engage in business ventures with multinational firms to leverage these firms' expertise, contacts and financial backing to assist growth in exports.

By implementing the above recommendations, firms could possibly increase their export levels and through that, take advantage of the relationship between export and development as highlighted in Section 3.2.1. This relationship between exports and development could possibly assist African FCS countries in moving beyond fragility. Furthermore, as can be seen from Cali's (2015) research, this could possibly improve prices of exports, increasing the opportunity cost for individuals to become involved in conflict, whilst possibly also diversifying the African FCS countries' exports away from commodities exposed to the rapacity effect affecting fragility (see Section 3.4.3).

Limitations to the article exist in data availability, especially within an African context which is compounded by the fragile situations in the countries which were analysed.

Various avenues exist for future research. Export volumes could be used rather than value, which could assist in easier comparability and eliminate exchange rate variability. The analysis could also be done for fragile countries outside of Africa. Furthermore, an evaluation could also be done of how exports barriers differ between countries with different reasons for fragility. Finally, a significant study could also evaluate export barriers by compiling panel data and analysing countries which move beyond fragility to see which of the export barriers show improvement.

3.7 LIST OF REFERENCES

African Economic Outlook. 2016. Statistics. http://www.africaneconomicoutlook.org/en/statistics Date of access: 10 March 2016.

Al-Hyari, K., Al-Weshah, G. & Alnsour, M. 2012. Barriers to internationalisation in SMEs: evidence from Jordan. *Marketing intelligence & planning*, 30(2):188-211.

Amjad, R., Ghani, E., Ud Din, M. & Mahmood, T. 2012. Export barriers in Pakistan: results of a firm-level survey. *Lahore journal of economics*, 17(Special Edition):103–134.

Andriamihaja, N., Cinyabuguma, M. & Devarajan, S. 2012. Avoiding the fragility trap in Africa: the case of Guinea Bissau. http://siteresources.worldbank.org/INTDEBTDEPT/Resources/468980-1218567884549/5289593-1224797529767/5506237-1300891972867/DFSG05GuineaBissauFR.pdf Date of access: 5 May 2014.

Ang, J. B., Madsen, J. B. & Robertson, P. E. 2015. Export performance of the Asian miracle economies: the role of innovation and product variety. *Canadian journal of economics*, 48(1): 273-309.

Arezki, R. & Van der Ploeg, F. 2010. Trade policies, institutions and the natural resource curse. *Applied economics letters,* 17:1443–1451.

Arndt, C., Buch, C. & Mattes, A. 2009. Barriers to internationalization: firm level evidence from Germany. *IAW Discussion Papers*, 52:1-26.

Arndt, C., Buch, C. & Mattes, A. 2012. Disentangling barriers to internationalization. *Canadian journal of economics,* 45(1): 41-63.

Artega-Ortiz, J. & Fernández-Ortiz, R. 2010. Why don't we use the same export barrier measurement scale? an empirical analysis in small and medium-sized enterprises. *Journal of small business management,* 48(3):395-420.

Baliamoune-Lutz, M. 2009. Institutions, trade, and social cohesion in fragile states: Implications for policy conditionality and aid allocation. *Journal of policy modelling* 31:877–890

Bellone, F., Musso, P., Nesta, l. & Schiavo, S. 2008. Financial constraints as a barrier to export participation. https://hal-sciencespo.archives-ouvertes.fr/hal-00973112/document Date of access: 12 July 2016.

Benoit, K. 2011. Linear regression models with logarithmic transformations. http://www.kenbenoit.net/courses/ME104/logmodels2.pdf Date of access: 17 March 2016.

Bhagwathi, J. N. 1958. Immiserizing growth: a geometrical note. *Review of economic studies,* 25:201–205.

Bhagwathi, J. N. 1988. Protectionism. Cambridge, MA: MIT Press.

Bidarkota, P. & Crucini, M. J. 2000. Commodity prices and the terms of trade. *Review of international economics,* 8(4):647-666.

Bilkey, W. J. & Tesar, G. 1977. The export behavior of smaller-sized Wisconsin manufacturing firms. *Journal of international business studie*s, 8(1):93-98.

Calì, M. 2015. Trading away from conflict: using trade to increase resilience in fragile states. directions in development. Washington, DC: World Bank.

Calof, J. L. & Beamish, P. W. 1994. The right attitude for international success. *Business quarterly.* 59(1):105-110.

Calof, J. L. & Beamish, P. W. 1995. Adapting to foreign markets: explaining internationalization. *International business review*, 4(2):115-131.

Chadha, A. 2009. Product cycles, innovation, and exports: a study of Indian pharmaceuticals. *World development,* 37(9):1478-1483.

Coase, R. H. 1937. The nature of the firm. *Economica*, 4(16):386-405.

Coviello, N. E. & Munro, H. 1997. Network relationships and the internationalisation process of small software firms. *International business review,* 6(4):361-386.

Czinkota, M. R. 2002. International marketing: 2002 update. Ohio: Thomson.

Dunning, J. H. 1988. The eclectic paradigm of international Production: A restatement and some possible extensions. *Journal of international business studies,* 19(1):1-31.

Eaton, J. & Kortum, S. 2002. Technology, geography, and trade. *Econometrica,* 70(5):1741-1779.

Enterprise Surveys. 2016. Survey methodology. http://www.enterprisesurveys.org/methodology Date of access: 24 February 2016.

Fontagné, L., Orefice, G., Piermartini, R. & Rocha, N. 2015. Product standards and margins of trade: firm-level evidence. *Journal of international economics,* 97:29-44.

Fund for Peace. 2016. Fragile states index 2016. Washington, DC: Fund for Peace.

Ganotakis, P. & Love, J . H. 2012. Export propensity, export intensity and firm performance: the role of the entrepreneurial founding team. *Journal of international business studies,* 43(8):693-718.

Goedhuys, M. & Sleuwaegen, L. 2016. International standards certification, institutional voids and exports from developing country firms. *International business review,* 25:1344-1355.

Hausmann, R., Rodrik, D. & Velasco, A. 2006. Getting the diagnosis right. *Finance and development*, 43(1):12-15.

Hartman, S.W. 2013. The WTO, the Doha round impasse, PTAs, and FTAs / RTAs. *The international trade journal*, 27:411–430.

Hartwell, C.A. 2016. Quantifying nontariff barriers in Ukraine: a comprehensive trade cost approach. *Applied economics letters*, 23(1):47-55.

Heckman, J. J. 1979. Sample selection bias as a specification error. *Econometrica,* 47: 153-161.

Heckscher, E. F. 1919. Utrikshandelns verkan pa inkomstfoerdelningen. *Ekonomist tradskrift* (The Effect of Foreign Trade on the Distribution of Income), 21(2):1-32.

Helpman, E. & Krugman, P. R., 1985. Market Structure and Trade. Cambridge, MA: MIT Press.

Hoeffler, A. 2012. Exporting from fragile states: challenges and opportunities. *OECD development co-operation working papers.* 27p.

Hollensen, S. 2007. Global marketing. 4th ed. Harlow: Pearson Education.

Hye, Q. M. A., Wizarat, S & Lay, W. 2013. Trade-led growth hypothesis: an empirical analysis of South Asian countries. *Economic modelling*, 35:654-660.

Ibeh, K. & Kasem, L. 2011. The network perspective and the internationalization of small and medium sized software firms from Syria. *Industrial marketing management*, 40:358-367.

Ibrahim, A. B. 2004. Internationalisation: motive and process. (*In* Dana, L. P., *ed*., Handbook of research on international interpreneurship. Edward Elgar Publishing. P. 129-136).

Imbruno, M. 2016. China and WTO liberalization: Imports, tariffs and non-tariff barriers. *China economic review*, 38:222–237.

International Trade Cente. 2016. Trade map: trade statistics for international business development. http://www.trademap.org/Country_SelProductCountry.aspx Date of access: 10 May 2016.

International Trade Institute of South Africa. 2010. International trade relations. (*In* Study material for the certificate in International Trade. Sandton: TRADSA. p. 8-22).

Jacobs, C. 2012. Identifying export opportunities for South Africa in South America with special reference to measuring trade barriers. Potchefstroom: NWU. (Dissertation – M.Com).

Jaeger, S. J. E. 2008. Internationalization in the face of export barriers: a study of New Zealand's firms. Auckland: Massey University. (Thesis – PhD).

Johanson, J. & Vahlne, J. 1977. The internationalization process of the firm - a model of knowledge development and increasing foreign market commitments. *Journal of international business studies*, 8(1):23-32.

Kiyota, K. 2012. Exports and jobs: the case of Japan, 1975 – 2006. *Contemporary economic policy,* 30(4):566-583.

Krugman, P. R. 1979. Increasing returns, monopolistic competition, and international trade. *Journal of international economics*, 9(4): 469-79.

Krugman, P. R. 1991. Geography and trade. Leuven, Leuven University Press.

Krugman, P. R. 1994. Competitiveness: a dangerous obsession. *Foreign affairs*, 73(2):28-44.

Krugman, P. R. 2009. The increasing returns revolution in trade and geography. *American economic review*, 99(3):561–571.

Lamprecht, J. D. L. 2012. A comparison of the characteristics of inter-nationalising SMEs in South Africa and the BRIC countries. Potchefstroom: NWU. (Dissertation – M.Com)

Leonidou, L. C. 1995. Empirical research on export barriers: review, assessment, and synthesis. *Journal of international marketing*, 3(1):29-43.

Leontief, W. 1954. Domestic production and foreign trade; the American capital position re-examined. *Economia internazionale*, 7:3–32.

Luostarinen, R. & Gabrielsson, M. 2006. Globalization and marketing strategies of born globals in SMOPECs. *Thunderbird international business review*, 48(6):773-801.

Luc, N. N., Christian, E. A. & Paul, N. 2009. Spatial analysis of pro-poor growth in Cameroon: a dual monetary and non-monetary approach. http://siteresources.worldbank.org/INTDEBTDEPT/Resources/468980-1218567884549/5289593-1224797529767/CameroonDFSG02.pdf Date of access: 21 May 2014.

Lu, J. W. & Beamish, P.W. 2001. The internationalization and performance of SMEs. *Strategic management journal,* 22(6/7):565-586.

Malik, A. & Awadallah, B. 2013. The economics of the Arab spring. *World development,* 45:296-313.

Marano, V., Cuervo-Cazurra, A. & Kwok, C. Y. C. 2013. The impact of conflict types and location on trade. *International trade journal,* 27:197-224

Matthee, M. & Krugell, W. F. 2012. Barriers to internationalisation: firm-level evidence from South Africa. *Studia Universitatis Babes-Bolyai Oeconomica,* 57(1):3-20.

Milanzi, M. A. 2012. The impact of barriers on export behavior of a developing country firms: evidence from Tanzania. *International journal of business and management,* 7(3):10-21.

MILL, J.S. 1848. Principles of political economy. (*In* LAUGHLIN, J.L. *ed*. Principles of political economy by John Stuart Mill: abridged, with critical, bibliographical, and explanatory notes, and a sketch of the history of political economy. p. 62-722.).

Mohamed, M. R., Liew, C. & Mzee, S. S. 2012. Export trade and economic growth in Tanzania: a disaggregated approach. *Journal of economics and sustainable development*, 3(12):74-81.

Morgan, R. E., Katsikeas, C. S. 1997. Obstacles to export initiation and expansion. *Omega - international journal of management sciences*, 25(6):677-690.

Narayanan, V. 2015. Export barriers for small and medium-sized enterprises: a literature review based on Leonidou's model. *Entrepreneurial business and economics review,* 3(2):106-123.

Negishi, T. 2014. Developments of international trade theory. 2nd ed. Tokyo, Springer.

Ohlin, B. 1933. Interregional and international trade. Cambridge, MA: Harvard University Press.

Oviatt, B. M., & Mcdougall, P. P. 1994. Toward a theory of international new ventures. *Journal of international business studies*, 25(1):45-64.

Pham, T. T. T. 2015. Does exporting spur firm productivity? *Journal of Southeast Asian economies,* 32(1):84-105.

Porter, M. E. 1990. The competitive advantage of nations. *Harvard business review*, 68(2):73-93.

Ramaswami, S. N. & Yang, Y. 1990. Perceived barriers to exporting and export assistance requirements. (*In* Cavusgil, S. T. & Czinkota, M. R. *eds* International perspectives on trade promotion and assistance. p. 187-206).

Rojec, M., Damijan, J. P. & Macjen, B. 2004. Export propensity of Estonian and Slovenian manufacturing firms. *Eastern European economics,* 42(4):33-54.

Rueda-Cantuche, J. M., Sousa, N., Andreoni, V. & Arto, I. 2013. The single market as an engine for employment through external trade. *Journal of common market studies,* 51(5):931-947

Ricardo, D. 1817. On the principles of political economy and taxation. (*In* Sraffra, P. & Dobb, M. H., *ed.* The works and correspondence of David Ricardo. p. 45-267).

Rose, A. K. 2004. Do we really know that the WTO increases trade? *American economic review,* 94(1):98-114.

Rugman, A. M. 1991. Diamond in the rough. *Business quarterly*, 56(3):61-64.

Saad, W. 2012. Causality between economic growth, export, and external debt servicing: the case of Lebanon. *International journal of economics and finance*, 4(11):134-143.

Sarker, S., Gilbert, J. & Oladi, R. 2008. Adjustment costs and immiserizing growth in LDCs. *Review of development economics,* 12(4):779–791.

Sawada, Y. 2009. The immiserizing growth: an empirical evaluation. *Applied economics,* 41:1613–1620.

Schaling, E. & Kabundi, A. 2014. The exchange rate, the trade balance and the j-curve effect in South Africa. *South African journal of economic and management sciences*, 17(5):601-608.

Smits, J. 2003. Estimating the Heckman two-step procedure to control for selection bias with SPSS. http://home.planet.nl/~smits.jeroen Date accessed: 15 July 2016.

Sothan, S. 2016. Foreign direct investment, exports, and long – run economic growth in Asia: panel cointegration and causality analysis. *International journal of economics and finance*, 8(1):26-37.

Smith, A. 1776. An inquiry into the nature and causes of the wealth of nations. 5th ed. London: Methuen & Co., Ltd.

Stutz, F. P. & Warf, B. 2007. The World Economy: Resources, Trade and Development. 5th ed. Pearson Prentice Hall.

Suárez-Ortega, S. M. 2003. Export Barriers: insights from small and medium-sized firms. *International small business journal,* 21:403-419.

Tang, C .F., Lai, Y. W. & Ozturk, I. 2015. How stable is the export-led growth hypothesis? evidence from Asia's four little dragons. *Economic modelling,* 44:229-235.

Tiwari, A. K. & Ludwig, A. 2014. The export-led growth hypothesis for India: examining causality by a new approach in the time–frequency domain. *Applied economics letters,* 21(18):1297-1301

Todaro, M. P. & Smith, S. C. 2011. Economic Development: 11th ed. Harlow: Pearson Education Limited.

Ulloa, A., Katz, F. & Kekeh, N. 2009. Democratic Republic of the Congo: a study of binding constraints. http://www.hks.harvard.edu/fs/drodrik/Growth%20diagnostics%20papers/DRC_Growth_Diagnostic.pdf Date of access: 20 May 2014.

Van Marrewijk, C. 2012. International economics: theory, application, and policy. 2nd ed. Oxford, Oxford University Press.

Weng-Ting, L. 2012. Family ownership and internationalization processes: internationalization pace, internationalization scope and internationalization rhythm. *European management journal*, 30(1):47-56.

World Bank. 2011a. Republic of Congo: employment and growth study. http://siteresources.worldbank.org/INTDEBTDEPT/Resources/468980-1218567884549/5289593-1224797529767/5506237-1270138945775/DFSG04RepCongoFR.pdf Date of access: 21 May 2014.

World Bank. 2011b. São Tomé and Príncipe: country economic memorandumhttp://siteresources.worldbank.org/INTDEBTDEPT/Resources/468980-1218567884549/5289593-1224797529767/5506237-1270144995464/DFSG03STPFR.pdf . Date of access: 19 May 2014.

World Bank. 2011c. Uganda: Agriculture for Inclusive Growth in Uganda. http://siteresources.worldbank.org/INTDEBTDEPT/Resources/468980-1218567884549/5289593-1224797529767/5506237-1270138945775/DFSG04UgandaFR.pdf Date of access: 20 May 2014. Date of access: 20 May 2014.

World Bank. 2015. Harmonised list of fragile situations 2015. http://siteresources.worldbank.org/EXTLICUS/Resources/511777-1269623894864/FY15FragileSituationList.pdf Date of access: 10 January 2016.

World Bank. 2016c. Full Survey Data. https://www.enterprisesurveys.org/portal/index.aspx#/library?dataset=Enterprise%20Survey Date of access: 29 January 2016.

World Bank. 2016d. World Development Indicators. http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators Date accessed: 9 September 2016.

World Bank. 2016e. PPP conversion factor, GDP (LCU per international $). Date accessed: 5 July 2016. http://data.worldbank.org/indicator/PA.NUS.PPP?end=2015&start=2008 Date accessed: 5 July 2016.

Xuefeng, Q. & Yaşar, M. 2016. Export market diversification and firm productivity: evidence from a large developing country. *World development.* 82:28-47.

Yeh, Y. H. 1999. Tariffs, import quotas, voluntary export restraints and immiserizing growth. *American economist,* 43(1):88-90.

CHAPTER 4 – CONCLUSION

4.1 INTRODUCTION

"Fragile and post-conflict states… suffer from a combination of harsh business environments, unstable and corrupt political regimes, and rent-seeking actors. These barriers prevent private businesses from generating much-needed services, economic growth, and jobs." (Birdsall, as cited in Leo *et al*., 2012:viii).

Birdsall states the above in a preface to Leo *et al.*'s (2012) study for the World Bank on African Fragile States. Countries are identified as fragile through World Bank analysis, with either Country Policy Institutional Assessment scores below a certain threshold, or through the presence of peacekeeping and peace-building forces. Chapter 1 identified aspects as wide ranging as changing demographics, conflict, weak governance and climate change to be among the causal factors of fragility. Furthermore, the chapter alluded to the fact that an increasing proportion of the world's poor population can be found in fragile countries. A disconcerting fact is that the majority of countries identified as fragile are located on the African continent.

Although various forms of aid and peacekeeping solutions are postulated as interventions in fragile states, the fragile countries' economies receive less dedicated analysis. Within these states, governmental functions and associated macroeconomic interventions are inhibited. This creates space for a possible bottom-up intervention in these countries' economies through microeconomic interventions focussed on firms as economic actors.

Firms, as can be seen from preceding chapters, fulfil wide ranging roles from production, efficient utilisation of resources in a competitive environment, innovation and employment, as well as agents of investment and trade in the form of imports and exports. These entities face certain barriers to both their ability to compete efficiently (i.e. their competitiveness) and their ability to export. If these firm-level barriers can be identified and addressed within an African context for its fragile and conflict affected countries, the firms are in a better position to fulfil the above-mentioned roles and use the resulting benefits to assist in rebuilding these countries' economies and counteracting fragility.

Therefore, the research is aimed at a firm-level study of constraints to competitiveness in African FCS countries as well as barriers to exports in these countries.

To attain both aspects of the aim of this study as outlined above, an article format was used as basis of the research. Here, two separate, self-contained articles were compiled with specific research objectives, a literature overview, empirical research and results and recommendations. Chapter 1 outlined the study, providing background information literature pertaining to fragile states, while also outlining the problem statement, research method and objectives. Chapter 2 and 3 consisted of the first and second articles, addressing barriers to competitiveness and exports respectively in these chapters. Below the articles are summarised and it is highlighted how the various article-specific objectives were satisfied.

4.2 OVERVIEW OF RESULTS AND CONCLUSIONS OF THE STUDY

The first article, contained in Chapter 2, was entitled *Evaluating firm-level differences in microeconomic competitiveness within African fragile and conflict-affected countries.* The main research question which was addressed in this article was: "What factors constrain the competitiveness of firms in African fragile and conflict-affected countries?"

To attain this, three objectives were set in this article, namely to:

- give an overview of the literature on microeconomic competitiveness and importance of the micro economy for fragile countries;
- provide an overview of fragile and conflict-affected countries and specifically the state of fragility in Africa; and
- empirically determine which microeconomic competitiveness factors explain the differences between politically constrained firms versus those who are not in fragile and conflict-affected countries.

The first objective was attained firstly with a review of the theory of Porter's (1990) Diamond of National Advantage, along with its four main drivers of factor conditions (i.e. related and supporting industries, strategy, structure and rivalry and demand conditions). The diamond is supplemented by external forces in the form of chance and government intervention. However, the theory evoked debate around competitiveness, where the neoclassical, "semi-competitiveness" and competitiveness schools of thought were overviewed as part of the review of this debate. An investigation of key reports into competitiveness followed and highlighted encompassing themes such as infrastructure, the labour market and finance in competitiveness reports published by the IMD, WEF and World Bank. Thereafter, a discussion around the microeconomic application of the competitiveness concept took place, which also underlined the exposure of the microeconomic environment to political stability. Finally, the significance of the micro economy within FCS countries was underlined, followed by a selection of studies pertaining to microeconomic competitiveness.

A review of fragility with a specific focus on African FCS countries informed the second objective, which was investigated within the 18 countries defined as fragile by the World Bank (2015). An over-reliance on primary (and extractive) industries, fluctuating GDP growth rates and a GDP per capita of less than US$ 1000 were some of the characteristics highlighted within these countries. The reason why the majority of countries were identified as fragile was their low CPIA score. Key constraints to competitiveness as identified from the Global Competitiveness Index and the Doing Business Report included resolving insolvency and access to electricity. The highest and lowest rated of the 18 countries which were contained in both the afore-mentioned reports were Côte d' Ivoire and Chad respectively.

Thirdly, the empirical objective focussed on the differentiating microeconomic competitiveness factors between politically constrained and non-constrained firms in African FCS countries. The political environment in FCS countries can have a significant impact on firms and economic development. A characteristic of this environment and resulting governance in FCS countries is

its instability in fragility and conflict, necessitating more self-reliance for firms operating in these countries. As such a "politically constrained" proxy was identified in respect to firms which perceive themselves to be affected by fragility in the political environment. Subsequently differentiating competitiveness factors in Porter's (1990) Diamond of National Advantage were then identified using this proxy for firms constrained by the fragile political environment and those which were not. These were determined through independent samples t-tests and Chi-square tests for independence for continuous and categorical variables.

Politically constrained firms were found to have a higher dependence on credit sales than compared to politically non-constrained firms. These firms also displayed a greater reliance on internal funds for working capital purposes, rather than sourcing the capital from banks. In the analysis it was also underscored that politically non-constrained firms were more significantly affected by obstacles in the form of an inadequately educated workforce, practices of competitors in the informal sector and tax administration. Furthermore, higher sales losses resulting from a higher frequency of power outages affected these firms, whilst also spending significantly more on security related costs relative to politically constrained firms.

The majority of obstacles listed for politically non-constrained firms above correspond to the "Factor Conditions" facet of Porter's (1990) Diamond of National Advantage. These consist of the various factors of production and are key in assisting firms in becoming competitive entities. An observation from the above could be made that politically non-constrained firms struggle to fully utilise their factors of production, thereby constraining firm development. This is contrasted by politically constrained firms which were highlighted in the descriptive statistics as having more fulltime employees, being longer in business and were proportionally more involved in export activities. Thus, these "older", larger (with regard to number of employees) firms with higher exports tend to experience the pressure of the political environment more acutely and could improve their development if the constraint is lessened.

Identifying firm-level export barriers in African fragile and conflict-affected countries constraining their export propensity and –intensity is the title of the second article, which is contained in Chapter 3. This article focussed on answering the research question: "Which firm-level export barriers constrain African fragile and conflict-affected countries firms' export propensity and intensity?"

Similarly to Chapter 2, three objectives were listed to investigate the above research question. These were to:

- provide an overview of the literature on the benefits of an open economy and international trade;
- provide an overview of the literature on export barriers on a country- and firm-level; and
- empirically determine which firm-level export barriers affect the export propensity and intensity of African fragile and conflict-affected countries.

To address the first objective, an introductory section outlined the development of international trade theory. This ranged from works by Smith and Ricardo to diverse views as espoused by Porter and Krugman. Subsequently, benefits of trade were reviewed on a country, firm and consumer level, varying from increased foreign exchange reserves and employment creation to increased productivity and innovation. Thereafter, a section addressed the role of exports in

economic growth and development, which is especially relevant for the African FCS countries in this study to ensure that the benefits of exports are conveyed through firms to their economies. Next, internationalisation process theories (such as “born global” firms and those which engage incremental internationalisation), motives (both proactive and reactive) and its internal and external triggers were outlined. Core themes of export propensity (the inclination whether to export or not) and intensity (volume of exports) were discussed as part of the section, which was further supported by firm-level studies on the matter. Two of the afore-mentioned studies investigated links between firm-level export barriers and these themes, indicating that, if the barriers are addressed, this could affect positive changes in both export propensity and intensity.

The second objective builds on the afore-mentioned with a focus on barriers to exports. As introduction to this section, the diagnostic framework advocated by Hausmann et al. (2006) was discussed as a means for the identification of barriers to economic activity, investment and entrepreneurship. From this, the focus shifted specifically from barriers to exports. To highlight the variety of export barriers and the need for a structured approach to its analysis, wide-ranging constraints such as physical and cultural distance, as well as tariff and non-tariff barriers were discussed. Three sets of export barrier groupings were then discussed in light of the above, starting with the internal and external grouping espoused by Leonidou’s (1995). This was followed by Morgan and Kasikeas’ (1997) strategic, operational & logistical, informational and process based grouping and concluded with Arteaga-Ortiz and Fernández-Ortiz’s (2010) knowledge, resources, procedure and exogenous collection of export barriers. Subsequently, selected contemporary studies pertaining to export barriers were overviewed, followed by a section on African FCS countries’ ability to trade in a state of fragility. This led to the empirical section which investigated the impact of export barriers on both export propensity and intensity, which built on the methodology identified in certain of the contemporary studies alluded to above. It is however differentiated in the objective with a specific focus on African FCS countries.

In attaining the empirical objective, a Heckman two-step selection model was specified to firstly determine firm-level barriers to export propensity and secondly export intensity. Firstly, aspects which showed a positive relationship with export propensity included firm size and age, foreign ownership, access to a website and email, the utilisation of foreign inputs and remarkably also an inadequately educated labour force. However, a negative correlation was found between working capital sourced from retained earnings, working capital sourced from credit sales, corruption and firm productivity and the dependent variable, export propensity.

Secondly, the empirical objective also focussed on barriers to export intensity. The second element of the empirical objective required an analysis of barriers affecting export intensity. Three aspects, firm size, productivity and firms which experience corruption as an obstacle displayed a significant and positive relationship with export intensity. Firm age was the only variable which was found to have a significant and negative relationship with export intensity.

Therefore, it is interesting to note that more significant aspects evaluated for African FCS firms showed a relationship with export propensity relative to export intensity. Certain aspects showing a positive correlation with export propensity had an inverse relationship with export intensity. Larger firms displayed a positive relationship with both aspects, while firm age displayed a positive correlation with export propensity, but a negative correlation with export intensity. Even though this could indicate that these firms do not conform strictly to the “born global phenomenon”, it may be that “younger” firms are more flexible in adapting to the export market and therefore are able

to export more. Access to technology and foreign inputs could also serve as enablers for FCS firms, whilst corruption and sources of working capital further significantly affect exports.

The above two summaries indicate how each article met its distinct objectives. Based on the studies and their results, certain contributions can be highlighted, as well as recommendations made with regard to firms in fragile and conflict-affected African countries, as highlighted in the next section.

4.3 CONTRIBUTIONS AND RECOMMENDATIONS OF THE STUDY

This study focussed on identifying constraints to both the competitiveness of firms and barriers inhibiting the likelihood and volumes of firms' export activities. This was combined with the context of fragile countries specifically on the African continent, which was established as the location of the majority of countries identified as fragile by the World Bank (2015). Eighteen African countries were identified as fragile in the World Bank, namely Burundi, CAR, Chad, Comoros, Côte d' Ivoire, DRC, Eritrea, Guinea-Bissau, Liberia, Libya, Madagascar, Mali, Sierra-Leone, Somalia, South Sudan, Sudan, Togo and Zimbabwe. Of these countries, 14 had comparative firm-level datasets which lent itself towards analysis.

The contribution which both these articles make is firstly to increase the limited literature surrounding fragility, especially within an African context. Secondly, the firm-level aspect contained in both these studies contributes towards a better microeconomic understanding of these countries' economies and inhibiting factors prevalent in the environment where these firms operate. Thirdly, by addressing these inhibiting factors or barriers, these firms can be in a better position to transmit economic benefits to these countries' economies through, amongst others, employment, innovation and exports. This could lead to a bottom-up developmental approach assisting these countries to move out of fragility.

Article one's core theme is summarised in Olsen et al. (2008), where the exposure of the productive (or competitive) firm is emphasised against the background of the political environment. As mentioned in the preceding section, firms were split by politically-affected proxy between those who were affected by the fragile political environment and those who were not. Different recommendations can be made for these sub-sets of firms.

Inhibiting factors affecting politically non-constrained firms pertained especially to resources or factors of production. Based on the previous section, the development of in-house training to improve firms' obstacles around an uneducated workforce and investing in alternative off the grid electricity solutions such as solar power or generators could reap benefits for these entities. This could be complemented by a better understanding of disruptions brought by the informal economy within each country, as politically non-constrained firms were found to garner a higher percentage of sales from their domestic market. High security related costs could be addressed by forming clusters of firms which collaborate on security, whilst incorporating tax-specialists in the firms could help to ensure that the most efficient approaches to tax returns are followed. Politically constrained firms could benefit from negotiating better credit terms with customers to ensure liquidity, while they are best placed to build on the advantage which they hold in exports above their politically non-constrained counterparts. It could point towards the fact that politically

constrained firms face less barriers outside their country of origin, allowing them to be more competitive in exports rather than domestic sales. This focus on exports led to the recommendations for the second article.

Control barriers in the form of firm size, age and productivity showed a significant relationship with export propensity and intensity in the second article. By focussing on microeconomic aspects highlighted in the preceding article, firms' competitiveness could be improved, possibly translating into larger, more productive firms which remain longer in business, allowing a more significant export contribution. A focus on SMME development in African FCS countries could also assist in improving the median firm size and age in their economies.

By decreasing firms' reliance on credit sales and retained earnings, the propensity to export could be increased. Therefore, to overcome these financial barriers, a focus could be placed on incentivising these countries' export credit agencies, which could provide alternate funding sources for these exporting firms. This access to export finance could also open up funds for the development of the firm by using retained earnings in a productive manner. Two alternatives exist in overcoming the obstacle of an inadequately educated workforce, whilst taking advantage of the positive correlation with export propensity. Firms could improve the efficiency and education levels of its employees by developing in-house export-administration and other training programmes (such as internships). Alternatively, firms could also position themselves in the primary or extractive industries which form the majority of African FCS countries' exports, as this could utilise the workforce without requiring significant skills development. However, this second solution is only short-term in nature, as it contains little developmental benefit to the country and firm. Another possibility for these firms could entail the inclusion of foreign ownership in these organisations or joint business ventures to leverage multinational firms' expertise, contacts and financial backing to help grow their exports.

Various doing business barriers also confront exporting firms in African FCS countries. Improving the number of foreign inputs could help these firms transition from exporting primary or commodity goods towards export beneficiation, which is more sought after. This could form a longer-term solution for firms (when coupled with skills development) relative to the earlier mentioned short-term suggestion focussing on primary exports. The exposure to foreign inputs could introduce these firms to other industries, which could possibly lead to the diversification of their exports. Export propensity could be further improved by improving communication with external entities through firms' access to emails and an own website. To address the obstacle of corruption, firm-level co-operation through the formation of business lobby groups could create groupings that adhere to ethical standards rather than exposing individual firms are not corrupted in these FCS countries.

Through the implementation of both these articles' recommendations, the African FCS countries' firms could become more competitive and improve their export propensity and intensity. With improved competitiveness and resulting increased economic activity, as well as more involvement in exports, a bigger focus can be placed on economic development in these countries. Economic development could help overcome the fragility in these countries through focussing the growth provided by these firms' increased production and employment capacities. It could also take advantage of increasing export prices (from beneficiation) to diversify the exports away from commodities which are used to fuel conflict (Cali, 2015). Both Leo et al. (2012) as well as Kolk and Lenfant (2015) advocate the role of these firms in filling institutional gaps and assisting with economic robustness, diversification and the implementation of governance in fragile countries.

4.4 LIMITATIONS

During the compilation of the study, certain limitations came to the fore. Within an African context, data availability remains a challenging aspect. This holds especially in terms of the regularity of compiled surveys of the microeconomic environment and the underlying business conditions. The fragile and / or conflict-affected nature of the countries under scrutiny further exacerbates the limitations surrounding regularly available data.

This led to the fact that certain African FCS countries had to be excluded from the study as no data was available (see Chapter 1). An in-depth qualitative analysis of each country's fragility was also not viable because of the range of countries which were included in the study, leaving scope for further research.

4.5 FUTURE RESEARCH

The two articles which formed the basis of the study separately contain scope for future research. Article one's theme of competitiveness, specifically regarding constraints on a firm level, could be further underscored by the use of panel data. This would be especially beneficial to highlight the barriers to microeconomic competitiveness as African fragile and conflict-affected countries move out of a state of fragility. By virtue of this analysis, the timing of the most beneficial interventions (in the form of a priority list) would be highlighted for establishing and improving a competitive micro economy within fragile countries, assisting the move away from fragility. Additionally, a country-specific study of each of the African FCS micro economies can help identify bespoke policy recommendations and focussed firm-level interventions on country-specific barriers. Furthermore, the association between microeconomic barriers to competitiveness and various causes of fragility could be investigated.

In the second article, with its emphasis on barriers to exports also opens up areas of future research. The study made use of export value to investigate firm-level barriers to exports. However, when analysing African countries' firms export volumes rather than value could eliminate exchange rate variability and ease comparability between firms. For both this and the preceding article, a similar analysis could also be done for fragile countries outside Africa. The opportunity also arises for a study of the different causes of fragility and their associated barriers to firm-level exports. Panel data could also be of value in this analysis as countries move beyond fragility, allowing the investigation of which barriers showed most improvement in the transition.

ANNEXURES

ADDENDUM A – APPLICABLE VARIABLES

Question Number	Question Description
SECTION A - BACKGROUND / CONTROL INFORMATION	
a10	Are the establishment's financial statements separate from other establishments
a11	If HQ, are financial statements independent from the rest of Establishment?
a4b	Industry Screener Sector (Main business/ activity)
a5	Sector Match Between Screener Information And Sample Frame
a6a	Sampling Size (Firm Size)
a6b	Screener Size (Firm Size)
a7	Establishment is part of a larger firm?
a7a	Number of establishments that form the firm
a9	Establishment's Financial Statements Prepared Separately from HQ Statements
SECTION B - GENERAL INFO	
b1	What is this firm‘s current legal status?
b1x	Other legal status
b2a	% owned by Private Domestic Individuals, Companies Or Organizations
b2b	% owned by Private Foreign Individuals, Companies Or Organizations
b2c	% owned by Government/State
b2d	% owned by Other
b3	What percentage of this firm does the largest owner or owners own?
b5	Year Establishment Began Operations
b6	Number of full-time employees at start-up
b6a	Was this establishment formally registered when it began operations?
b6b	In What Year Was This Establishment Formally Registered?
b7	How many years of experience working in this sector does the Top Manager have?
b8	Does Establishment Have An Internationally-Recognized Quality Certification?
SECTION C - INFRASTRUCTURE & SERVICES	
c10	Generator Shared Or Owned Over The Course Of Last Fiscal Year?
c11	% Electricity From Generator Owned/Shared By The Establishment In Last Fiscal Year
c12	Over the last 2 years, did this Establishment submit an application for a water connection?
c13	Approx. how many days did it take to obtain the water connection?
c14	Was an informal gift or payment expected or requested for the water connection?
c16	Frequency Of Incidents Of Water Shortages In A Typical Month In Last Fiscal Year
c17	Average Length Of Water Shortages (Affecting Production) In Last Fiscal Year (Hours)
c22a	Does this Establishment use e-mail to communicate with clients or suppliers?
c22b	At the present time does this establishment have its own website?
c3	Application To Obtain An electrical connection Submitted Over The Last 2 Years?
c30a	How much of an obstacle is electricity to the current operations of this firm?
c4	Approx. how many days did it take to obtain the electrical connection?
c5	Was an informal gift or payment expected or requested for the electrical connection?

c6	Over last FY, Did This Establishment Experience Power Outages?
c7	Number Of Power Outages Experienced In A Typical Month In Last Fiscal Year
c9a	Losses as a percentage of total annual sales due to power outages in last fiscal year
Question Number	Question Description
c9b	Total annual losses that resulted from power outages
SECTION D - SALES & SUPPLIES	
d1a2	Madagascar specific variable containing ISIC code to identify firm sector
d12a	% Of Material Inputs And Supplies Of Domestic Origin In Last Fiscal Year
d12b	% Of Material Inputs And Supplies Of Foreign Origin In Last Fiscal Year
d13	Were Any Of These Material Inputs And Supplies Imported Directly? (last fiscal year)
d14	Avg. num. of Days For Imported Goods To Clear Customs In Last Fiscal Year
d2	In last fiscal year, what were this establishment's total annual sales?
d30a	How Much Of An Obstacle Is: Transportation Of Goods, Supplies, And Inputs?
d30b	How Much Of An Obstacle: Customs And Trade Regulations?
d3a	What % of establishment's sales were: national sales?
d3b	What % of establishment's sales were: indirect exports? (using a third party)
d3c	What % of establishment's sales were: direct exports?
d4	In last FY, avg. num. of days for exported goods to clear customs?
d6	Losses due to theft as % of the value of the products directly exported
d7	In last FY, Direct Export Losses Due To Breakage Or Spoilage As % Of value of products
SECTION E - DEGREE OF COMPETITION	
e11	Does this establishment compete against unregistered or informal firms?
e30	How Much Of An Obstacle: Practices of competitors in informal sector?
e6	Does this Establishment use technology licensed from a foreign-owned company?
SECTION G - LAND	
g2	In the last 2 years, did this Establishment submit an application for construction permit?
g3	Approx. how many days did it take to obtain the construction-related permit?
g30a	How Much Of An Obstacle: Access To Land?
g4	Was an informal gift or payment expected or requested for a construction permit?
SECTION H - INNOVATION	
h30	How Much Of An Obstacle: Courts
h7a	The Court System Is Fair, Impartial And Uncorrupted
SECTION I - CRIME	
i1	In last FY, Did This Establishment Pay For Security?
i2a	Percentage Of Total Annual Sales Paid For Security In Last Fiscal Year
i2b	In last fiscal year, what is the total annual cost of security?
i3	In last fiscal year did this Establishment experience losses as a result of theft or robbery?
i4a	Losses Due To Theft, Robbery, Vandalism Or Arson In Last Fiscal Year (% Of Sales)
i4b	Value Of Losses Due To Theft, Robbery, Vandalism Or Arson In Last Fiscal Year
SECTION J - BUSINESS GOVERNMENT RELATIONS	
j10	Over the last two years, did this Establishment submit an application for an import license?
j11	Approx. how many days did it take to obtain this import license?
j12	When You Applied For An Import License, Was An Informal Gift/payment Requested?
j13	In the last two years, did this Establishment submit an application for an operating license?

j14	Approx. how many days did it take to obtain this operating license?
j15	When You Applied For Operating License Was An Informal Gift/payment Requested?
j2	What % of senior management time was spent in dealing with government regulations?
Question Number	Question Description
j3	Over the last year, was this establishment visited or inspected by tax officials?
j30a	How Much Of An Obstacle: Tax Rates
j30b	How Much Of An Obstacle: Tax Administrations
j30c	How Much Of An Obstacle: Business Licensing And Permits
j30e	How Much Of An Obstacle: Political Instability
j30f	How Much Of An Obstacle: Corruption
j4	Over the last year, how many times was this establishment inspected by tax officials?
j5	In any of the inspections was a gift or informal payment expected or requested?
j6	% Of Contract Value Avg. Firm Pays In Informal Gifts To Government To Secure Contract?
j6a	In the last year, has this establishment secured or attempted to secure a government contract?
j7a	% of total annual sales paid in informal payment or gifts to public officials
j7b	Estimated tot. annual value paid in informal payment or gifts to public officials
SECTION K - FINANCE	
k13	Did the financing of this most recent loan or line of credit require collateral?
k16	In Last Fiscal Year, Did Establishment Apply For New Loans/Lines Of Credit?
k17	Main Reason For Not Applying For New Loans Or New Lines Of Credit in last fiscal year
k21	Financial Statements Checked & Certified By External Auditor In Last Fiscal Year?
k2c	% of the establishment total annual sales paid after delivery (sold on credit) in in last fiscal year
k30	How Much Of An Obstacle: Access To Finance
k3a	% Of Working Capital Financed From Internal Funds/Retained Earnings
k3bc	% Of Working Capital Borrowed From Banks
k3e	% Of Working Capital Borrowed From Non-Bank Financial Institutions
k3f	% Of Working Capital Purchased On Credit/Advances From Suppliers /Customers
k3hd	% Of Working Capital Financed By Other (Money Lenders, Friends, Relatives, etc.)
k4	Did This Establishment Purchase Any Fixed Assets In Last Fiscal Year?
k5a	% of fixed assets funded by internal funds\ retained earnings in last fiscal year
k5bc	% Of Fixed Assets Funded By Bank Borrowing (private and state-owned banks)
k5e	% Of Fixed Assets Funded By Borrowing From Non-Bank Financial Institutions
k5f	Last FY, % Fixed Assets Funded By: Credit From Suppliers/Advances From Customers
k5i	Last FY, % Fixed Assets Funded By: Owners' Contributions Or Issued New Equity
k6	Does This Establishment Have A Checking And\Or Saving Account?
k7	At This Time, Does This Establishment Have An Overdraft Facility?
k8	Does this establishment have a line of credit or loan from a financial inst.?
SECTION L - LABOUR	
l1	no. permanent, full-time employees of this firm at end of last fiscal year
l10	In last FY, did this est. have formal training for its perm., full-time employees?
l2	no. permanent, full-time employees of this firm at end of 3 fiscal years ago
l30a	How Much Of An Obstacle: Labour Regulations?
l30b	How Much Of An Obstacle: Inadequately Educated Workforce?
l6	Full-time seasonal or temporary workers employed last fiscal year

l8	Average length full-time seasonal or temporary employment last fiscal year, in months
SECTION M - BUSINESS ENVIRONMENT	
m1a	Element of the business environment representing the biggest obstacle for this establishment
Question Number	Question Description
SECTION N - PERFORMANCE	
n2a	Total Labour Cost (Incl. Wages, Salaries, Bonuses, etc.) In Last Fiscal Year
n2b	Total Annual Costs Of Electricity In Last Fiscal Year
n2e	Cost Of Raw Materials And Intermediate Goods Used In Production In Last Fiscal Year
n3	What were the establishment's total annual sales three fiscal years ago?

ADDENDUM B

Table B.1 – Individual independent samples t-tests

Two-sample t test with unequal variances
c11, by(Political)

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	1633	41.02143	0.9459796	38.22741	39.16597	42.87689
1	432	45.09722	2.025491	42.09904	41.11615	49.07829
combined	2065	41.87409	0.8602937	39.0937	40.18696	43.56123
diff		-4.07579	2.235507		-8.4657	0.314124

diff = mean(0) - mean(1) t = -1.8232
Ho: diff = 0 Welch's degrees of freedom = 632.497

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.0344 Pr(|T| > |t|) = 0.0687 Pr(T > t) = 0.9656

Two-sample t test with unequal variances
c16, by(Political)

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	415	5.922892	0.4647866	9.468424	5.009256	6.836528
1	79	5.582278	0.8231492	7.316311	3.943514	7.221043
combined	494	5.868421	0.4117939	9.152577	5.059333	6.677509
diff		0.340613	0.9453049		-1.52898	2.210201

diff = mean(0) - mean(1) t = 0.3603
Ho: diff = 0 Welch's degrees of freedom = 134.476

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.6404 Pr(|T| > |t|) = 0.7192 Pr(T > t) = 0.3596

Two-sample t test with unequal variances
c7, by(Political)

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	2400	10.86292	0.2799597	13.71517	10.31393	11.4119
1	651	9.519201	0.4745005	12.10674	8.587462	10.45094
combined	3051	10.5762	0.2425528	13.39761	10.10062	11.05179
diff		1.343715	0.5509339		0.262763	2.424668

diff = mean(0) - mean(1) t = 2.4390
Ho: diff = 0 Welch's degrees of freedom = 1145.2

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.9926 Pr(|T| > |t|) = 0.0149 Pr(T > t) = 0.0074

Table B.1 (Cont.) – Individual independent samples t-tests

Two-sample t test with unequal variances
c9bP, by(Political)

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	236	35522.56	13748.49	211208.3	8436.518	62608.6
1	36	4833.128	2586.862	15521.17	-418.48	10084.74
combined	272	31460.72	11946.99	197034.8	7940.01	54981.44
diff		30689.43	13989.74		3136.687	58242.18

diff = mean(0) - mean(1) t = 2.1937
Ho: diff = 0 Welch's degrees of freedom = 250.054

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.9854 Pr(|T| > |t|) = 0.0292 Pr(T > t) = 0.0146

Two-sample t test with unequal variances
k3a, by(Political)

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	3655	82.72585	0.4430768	26.78692	81.85715	83.59456
1	1031	86.02134	0.7606222	24.42296	84.52879	87.51388
combined	4686	83.45092	0.38446	26.31796	82.6972	84.20464
diff		-3.29548	0.8802632		-5.02193	-1.56903

diff = mean(0) - mean(1) t = -3.7437
Ho: diff = 0 Welch's degrees of freedom = 1790.93

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.0001 Pr(|T| > |t|) = 0.0002 Pr(T > t) = 0.9999

Two-sample t test with unequal variances
k3bc, by(Political)

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	3652	5.590909	0.2724607	16.46529	5.056719	6.125099
1	1025	4.309268	0.4477575	14.33524	3.430641	5.187895
combined	4677	5.310028	0.2343961	16.03002	4.850501	5.769555
diff		1.281641	0.524139		0.253676	2.309606

diff = mean(0) - mean(1) t = 2.4452
Ho: diff = 0 Welch's degrees of freedom = 1853.03

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.9927 Pr(|T| > |t|) = 0.0146 Pr(T > t) = 0.0073

Table B.1 (Cont.) – Individual independent samples t-tests

Two-sample t test with unequal variances
b7, by(Political)

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	3612	14.41417	0.5749963	34.55723	13.28682	15.54152
1	1017	14.14553	0.3265405	10.41352	13.50476	14.7863
combined	4629	14.35515	0.4543532	30.91272	13.4644	15.2459
diff		0.268649	0.6612484		-1.02771	1.565012

diff = mean(0) - mean(1) t = 0.4063
Ho: diff = 0 Welch's degrees of freedom = 4613.45

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.6577 Pr(|T| > |t|) = 0.6846 Pr(T > t) = 0.3423

Two-sample t test with unequal variances
j11, by(Political)

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	775	11.26452	0.8284642	23.06347	9.638213	12.89082
1	190	10.47368	1.354627	18.67225	7.801554	13.14581
combined	965	11.10881	0.7165974	22.2607	9.702537	12.51508
diff		0.790832	1.587881		-2.33226	3.913928

diff = mean(0) - mean(1) t = 0.4980
Ho: diff = 0 Welch's degrees of freedom = 346.597

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.6906 Pr(|T| > |t|) = 0.6188 Pr(T > t) = 0.3094

Two-sample t test with unequal variances
d3a, by(Political)

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	3650	94.87507	0.2989147	18.059	94.28901	95.46112
1	984	91.76321	0.7796537	24.45678	90.23323	93.29319
combined	4634	94.21429	0.2883846	19.63134	93.64891	94.77966
diff		3.111857	0.8349909		1.473764	4.749951

diff = mean(0) - mean(1) t = 3.7268
Ho: diff = 0 Welch's degrees of freedom = 1286.34

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.9999 Pr(|T| > |t|) = 0.0002 Pr(T > t) = 0.0001

Table B.1 (Cont.) – Individual independent samples t-tests

Two-sample t test with unequal variances

k2c, by(Political)

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	3397	25.07507	0.5238197	30.5302	24.04803	26.1021
1	982	27.40428	1.060465	33.23166	25.32324	29.48532
combined	4379	25.5974	0.470995	31.16763	24.67401	26.52079
diff		-2.32921	1.182782		-4.6493	-0.00912

diff = mean(0) - mean(1) t = -1.9693

Ho: diff = 0 Welch's degrees of freedom = 1493.45

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0

Pr(T < t) = 0.0246 Pr(|T| > |t|) = 0.0491 Pr(T > t) = 0.9754

Two-sample t test with equal variances

d12a, by(Political)

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	1308	69.02294	1.04078	37.64115	66.98115	71.06472
1	406	67.45567	1.911285	38.51133	63.69839	71.21294
combined	1714	68.65169	0.914087	37.84364	66.85885	70.44454
diff		1.567271	2.150259		-2.650141	5.784683

diff = mean(0) - mean(1) t = 0.7289

Ho: diff = 0 degrees of freedom = 1712

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0

Pr(T < t) = 0.7669 Pr(|T| > |t|) = 0.4662 Pr(T > t) = 0.2331

Two-sample t test with equal variances

d12b, by(Political)

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	1309	30.80061	1.038105	37.55873	28.76408	32.83714
1	406	32.54433	1.911285	38.51133	28.78706	36.30161
combined	1715	31.21341	0.912341	37.78237	29.42399	33.00283
diff		-1.74372	2.146503		-5.953767	2.46632

diff = mean(0) - mean(1) t = -0.8124

Ho: diff = 0 degrees of freedom = 1713

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0

Pr(T < t) = 0.2084 Pr(|T| > |t|) = 0.4167 Pr(T > t) = 0.7916

Table B.1 (Cont.) – Individual independent samples t-tests

Two-sample t test with unequal variances **i2aFull, by(Political)**						
Group	**Obs**	**Mean**	**Std. Err.**	**Std. Dev.**	**[95% Conf.Interval]**	
0	1813	4.464233	0.160746	6.844446	4.148967	4.7795
1	524	3.424509	0.261682	5.990163	2.910433	3.938585
combined	2337	4.231107	0.138084	6.675307	3.960328	4.501886
diff		1.039724	0.30711		0.4370357	1.642412
diff = mean(0) - mean(1)					t = 3.3855	
Ho: diff = 0					Welch's degrees of freedom = 954.542	
Ha: diff < 0		Ha: diff != 0			Ha: diff > 0	
Pr(T < t) = 0.9996		Pr(|T| > |t|) = 0.0007			Pr(T > t) = 0.0004	
Two-sample t test with unequal variances **n2eP by(Political)**						
Group	**Obs**	**Mean**	**Std. Err.**	**Std. Dev.**	**[95% Conf.Interval]**	
0	1247	3809299	1550156	54700000	768093.9	6850503
1	369	2601953	598142.2	11500000	1425748	3778159
combined	1616	3533611	1203904	48400000	1172233	5894990
diff		1207345	1661553		-2051816	4466507
diff = mean(0) - mean(1)					t = 0.7266	
Ho: diff = 0					Welch's degrees of freedom = 1530.69	
Ha: diff < 0		Ha: diff != 0			Ha: diff > 0	
Pr(T < t) = 0.7662		Pr(|T| > |t|) = 0.4676			Pr(T > t) = 0.2338	

Source: Author's calculations from World Bank (2016c)

ADDENDUM C

Table C.1 – Individual Chi-square test for independence and cross tabulations

Chi-square test for independence - Political & j30b cross tabulation							
	Political / j30b	No obstacle	Minor obstacle	Moderate obstacle	Major obstacle	Very Severe Obstacle	Total
frequency	0	591	883	984	918	285	3,661
row %		16.14	24.12	26.88	25.08	7.78	100
column %		72.16	77.32	79.29	80.24	84.82	78.19
frequency	1	228	259	257	226	51	1,021
row %		22.33	25.37	25.17	22.14	5	100
column %		27.84	22.68	20.71	19.76	15.18	21.81
frequency	Total	819	1,142	1,241	1,144	336	4,682
row %		17.49	24.39	26.51	24.43	7.18	100
column %		100	100	100	100	100	100
Pearson chi2(4) = 30.3441 Pr = 0.000							
Cramér's V = 0.0805							
Chi-square test for independence - Political & j30c cross tabulation							
	Political / j30c	No obstacle	Minor obstacle	Moderate obstacle	Major obstacle	Very Severe Obstacle	Total
frequency	0	1068	956	797	585	162	3,568
row %		29.93	26.79	22.34	16.4	4.54	100
column %		77.06	79.2	77.23	80.25	80.6	78.33
frequency	1	318	251	235	144	39	987
row %		32.22	25.43	23.81	14.59	3.95	100
column %		22.94	20.8	22.77	19.75	19.4	21.67
frequency	Total	1386	1,207	1,032	729	201	4,555
row %		30.43	26.5	22.66	16	4.41	100
column %		100	100	100	100	100	100
Pearson chi2(4) = 4.7931 Pr = 0.309							
Cramér's V = 0.0324							
Chi-square test for independence - Political & l30b cross tabulation							
	Political / l30b	No obstacle	Minor obstacle	Moderate obstacle	Major obstacle	Very Severe Obstacle	Total
frequency	0	1339	949	642	490	196	3,616
row %		37.03	26.24	17.75	13.55	5.42	100
column %		75.01	81.53	80.35	77.41	78.71	78.1
frequency	1	446	215	157	143	53	1,014
row %		43.98	21.2	15.48	14.1	5.23	100
column %		24.99	18.47	19.65	22.59	21.29	21.9
frequency	Total	1785	1,164	799	633	249	4,630
row %		38.55	25.14	17.26	13.67	5.38	100
column %		100	100	100	100	100	100
Pearson chi2(4) = 20.5387 Pr = 0.000							
Cramér's V = 0.0666							

Table C.1 (Cont.) – Individual Chi-square test for independence and cross tabulations

Chi-square test for independence - Political & d30a cross tabulation							
	Political / d30a	No obstacle	Minor obstacle	Moderate obstacle	Major obstacle	Very Severe Obstacle	Total
frequency	0	886	920	821	752	244	3,623
row %		24.45	25.39	22.66	20.76	6.73	100
column %		75.6	79.17	80.41	79.83	78.71	78.64
frequency	1	286	242	200	190	66	984
row %		29.07	24.59	20.33	19.31	6.71	100
column %		24.4	20.83	19.59	20.17	21.29	21.36
frequency	Total	1172	1,162	1,021	942	310	4,607
row %		25.44	25.22	22.16	20.45	6.73	100
column %		100	100	100	100	100	100
Pearson chi2(4) = 9.3596 Pr = 0.053							
Cramér's V = 0.0451							
Chi-square test for independence - Political & e30 cross tabulation							
	Political / e30	No obstacle	Minor obstacle	Moderate obstacle	Major obstacle	Very Severe Obstacle	Total
frequency	0	747	729	735	785	579	3,575
row %		20.9	20.39	20.56	21.96	16.2	100
column %		75.38	78.05	78.36	81.69	83.43	79.13
frequency	1	244	205	203	176	115	943
row %		25.87	21.74	21.53	18.66	12.2	100
column %		24.62	21.95	21.64	18.31	16.57	20.87
frequency	Total	991	934	938	961	694	4,518
row %		21.93	20.67	20.76	21.27	15.36	100
column %		100	100	100	100	100	100
Pearson chi2(4) = 21.0096 Pr = 0.000							
Cramér's V = 0.0682							
Chi-square test for independence - Political & g30a cross tabulation							
	Political / g30a	No obstacle	Minor obstacle	Moderate obstacle	Major obstacle	Very Severe Obstacle	Total
frequency	0	1065	846	703	713	313	3,640
row %		29.26	23.24	19.31	19.59	8.6	100
column %		76.07	79.14	78.29	80.56	79.44	78.35
frequency	1	335	223	195	172	81	1,006
row %		33.3	22.17	19.38	17.1	8.05	100
column %		23.93	20.86	21.71	19.44	20.56	21.65
frequency	Total	1400	1,069	898	885	394	4,646
row %		30.13	23.01	19.33	19.05	8.48	100
column %		100	100	100	100	100	100
Pearson chi2(4) = 7.5156 Pr = 0.111							
Cramér's V = 0.0402							

Table C.1 (Cont.) – Individual Chi-square test for independence and cross tabulations

Chi-square test for independence - Political & l30a cross tabulation							
	Political / l30a	No obstacle	Minor obstacle	Moderate obstacle	Major obstacle	Very Severe Obstacle	Total
frequency	0	1372	1178	766	304	49	3,669
row %		37.39	32.11	20.88	8.29	1.34	100
column %		76.95	78.64	78.64	80.64	87.5	78.26
frequency	1	411	320	208	73	7	1,019
row %		40.33	31.4	20.41	7.16	0.69	100
column %		23.05	21.36	21.36	19.36	12.5	21.74
frequency	Total	1783	1,498	974	377	56	4,688
row %		38.03	31.95	20.78	8.04	1.19	100
column %		100	100	100	100	100	100
Pearson chi2(4) = 6.0744 Pr = 0.194							
Cramér's V = 0.0360							

Chi-square test for independence - Political & j6a cross tabulation				
	Political / j6a	No	Yes	Total
frequency	0	2887	608	3,495
row %		82.6	17.4	100
column %		78.47	80.42	78.8
frequency	1	792	148	940
row %		84.26	15.74	100
column %		21.53	19.58	21.2
frequency	Total	3,679	756	4,435
row %		82.95	17.05	100
column %		100	100	100
Pearson chi2(1) = 1.4290 Pr = 0.232				
Cramér's V = -0.0180				

Source: Author's calculations from World Bank (2016c)

APPENDIX D

Country Name	Indicator Name	2007	2008	2009	2010	2011	2012	2013	2014	2015
Burundi	PPP conversion factor, GDP (LCU per international $)	262.312	318.986	342.692	380.210	425.768	482.519	537.276	572.485	587.979
Central African Republic	PPP conversion factor, GDP (LCU per international $)	233.889	245.542	252.177	254.140	255.862	260.757	269.638	304.316	303.740
Chad	PPP conversion factor, GDP (LCU per international $)	234.169	249.527	223.975	235.414	250.443	248.611	234.493	232.193	211.285
Congo, Dem. Rep.	PPP conversion factor, GDP (LCU per international $)	267.041	313.197	416.070	482.600	521.870	550.829	545.950	541.413	539.491
Cote d'Ivoire	PPP conversion factor, GDP (LCU per international $)	203.657	216.722	220.134	229.192	228.228	233.328	235.405	233.732	236.641
Eritrea	PPP conversion factor, GDP (LCU per international $)	3.312	3.771	4.846	5.342	5.932				
Liberia	PPP conversion factor, GDP (LCU per international $)	0.340	0.358	0.458	0.478	0.517	0.528	0.536	0.542	0.545
Madagascar	PPP conversion factor, GDP (LCU per international $)	513.719	549.648	591.125	635.351	673.730	697.863	722.337	782.285	827.857
Mali	PPP conversion factor, GDP (LCU per international $)	207.980	208.264	203.642	199.641	210.193	192.500	182.335	180.919	181.298
Sierra Leone	PPP conversion factor, GDP (LCU per international $)	1010.300	1089.873	1166.454	1350.433	1553.139	1708.919	1791.130	1776.011	2214.905
South Sudan	PPP conversion factor, GDP (LCU per international $)		0.983	0.807	0.970	1.465	1.531	1.703	1.623	1.615
Sudan	PPP conversion factor, GDP (LCU per international $)	0.756	0.847	0.874	1.032	1.224	1.533	2.062	2.635	3.004
Togo	PPP conversion factor, GDP (LCU per international $)	179.773	202.022	204.219	204.130	215.060	224.383	216.900	221.416	222.017
Zimbabwe	PPP conversion factor, GDP (LCU per international $)	0.281	0.280	0.484	0.495	0.504	0.507	0.519	0.518	0.496

Source: World Bank (2016e)

APPENDIX E

Heckman selection model - two-step estimates (regression model with sample selection)						
					Number of obs =	1274
					Censored obs =	1059
					Uncensored obs =	215
					Wald chi2(17) =	965.45
					Prob > chi2 =	0
	Coef.	Std. Err.	z	P>z	[90% Conf.	Interval]
Outcome model						
lnExportsP						
lnProductivity	0.9668957	0.0569601	16.97	0	0.8732046	1.060587
lnFirmSize	1.020571	0.1356208	7.53	0	0.7974948	1.243648
Fin_Obst	-0.1259365	0.2379828	-0.53	0.597	-0.5173833	0.26551
k3a	0.0023513	0.0059539	0.39	0.693	-0.0074421	0.012145
k3bc	0.0017391	0.0056674	0.31	0.759	-0.007583	0.011061
k3e	-0.0062671	0.012365	-0.51	0.612	-0.0266057	0.014072
k3f	0.0066953	0.0063473	1.05	0.292	-0.0037452	0.017136
Email	0.0617446	0.2367494	0.26	0.794	-0.3276734	0.451163
Website	-0.1572893	0.1828456	-0.86	0.39	-0.4580436	0.143465
d12b	-0.0019759	0.0022091	-0.89	0.371	-0.0056095	0.001658
Tax_Obs	-0.1455821	0.2333648	-0.62	0.533	-0.529433	0.238269
License_Obs	-0.1537995	0.2125212	-0.72	0.469	-0.5033658	0.195767
Political_Obs	-0.1948644	0.2583667	-0.75	0.451	-0.6198397	0.230111
Corruption_Obs	0.4423597	0.2238956	1.98	0.048	0.0740843	0.810635
LabourReg_Obs	0.0236106	0.1747819	0.14	0.893	-0.26388	0.311101
Uneduc_Obs	-0.0891836	0.1796555	-0.50	0.62	-0.3846906	0.206323
lnn2aP	-0.0424418	0.0647508	-0.66	0.512	-0.1489473	0.064064
lnFirmAge	-0.3655126	0.0818963	-4.46	0	-0.50022	-0.23081
_cons	1.233492	0.9590744	1.29	0.198	-0.3440455	2.811029
Selection model						
Exporters						
b2b	0.0054364	0.0013634	3.99	0	0.0031939	0.007679
lnProductivity	-0.0841242	0.0369999	-2.27	0.023	-0.1449836	-0.02326
lnFirmSize	0.3038604	0.0567179	5.36	0	0.2105678	0.397153
Fin_Obst	-0.2094021	0.1499486	-1.40	0.163	-0.4560457	0.037241
k3a	-0.0116332	0.0038043	-3.06	0.002	-0.0178907	-0.00538
k3bc	-0.0051594	0.0043997	-1.17	0.241	-0.0123963	0.002078
k3e	-0.0090326	0.0069391	-1.30	0.193	-0.0204464	0.002381
k3f	-0.0103077	0.0045198	-2.28	0.023	-0.0177421	-0.00287

Email	0.2878266	0.1293416	2.23	0.026	0.0750785	0.500575
Website	0.2048931	0.1174436	1.74	0.081	0.0117156	0.398071
d12b	0.0026169	0.0012879	2.03	0.042	0.0004985	0.004735
Tax_Obs	-0.051856	0.1557725	-0.33	0.739	-0.3080789	0.204367
License_Obs	-0.1875586	0.1328618	-1.41	0.158	-0.4060969	0.03098
Political_Obs	0.1837001	0.1597422	1.15	0.25	-0.0790524	0.446453
Corruption_Obs	-0.2727028	0.1546481	-1.76	0.078	-0.5270762	-0.01833
LabourReg_Obs	0.0221475	0.1222592	0.18	0.856	-0.178951	0.223246
Uneduc_Obs	0.2090605	0.1092828	1.91	0.056	0.0293063	0.388815
lnn2aP	0.0193926	0.0410951	0.47	0.637	-0.0482028	0.086988
lnFirmAge	0.0912282	0.0548731	1.66	0.096	0.00097	0.181487
_cons	-0.8344292	0.4610794	-1.81	0.07	-1.592837	-0.07602
mills						
lambda	-0.4883933	0.4815206	-1.01	0.31	-1.280424	0.303638
rho	-0.46242					
sigma	1.0561616					

Source: Author's calculations from World Bank (2016c)