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Research article

Trade war effects: evidence from sectors of energy and resources in Africa

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ABSTRACT

The US government proposes to impose tariffs on up to $50 billion of Chinese imports leading to significant concerns over the Trade War between the US and China. The article evaluates and examines the market responses of companies in both countries, depending on their direct and indirect exposures to US-China trade. Moreover, this paper fills the gap in literature about deglobalization in Energy and Resources Sectors in Africa. This paper proves the idea that US companies that are more dependent on exports and imports from China have lower stock and bond returns, and, at the same time, higher default risks in the short time aspect. The article found Trade War effects in energy and resources companies in Africa in the last years: on ownership rank, on credit country rank, on default risks and on their profitability. The paper also demonstrates that companies' indirect exposure to US-China trade through domestic input-output links affects their responses to news on the subject matter. These findings suggest that the state of US-China trade of energy and resources is much more complex than the simplistic view of global trade that was in the beginning of Trade War with China. As a result of the Trade War, the real changes in stock prices of China companies (-0.07%) in energy and resource sectors is less than the same changes in US companies in Africa (-0.32%) in 2019. Also, the probability of default of Chinese companies (average default probability changed in -0.08%) in energy and resource sectors changed less than the same rank of US companies in Africa (average default probability changed by -0.84%).

1. Introduction

The effects of the Trade War are directed against globalization. The theory of globalization is based on the problem of the global economy's structure, which determines the processes of social development in its every sector. This paradigm shift to a world economy that is less integrated is broadly shaping economies and societies around the world. The Trade War caused the wave of deglobalization to be much more prominent, affecting energy demand, knowledge and technology trade, and financial capital flows. The study also shows the influence of the relations of the supply chain on the results of China's companies in energy and resource sectors in Africa (Houston et al., 2016; Schwert, 1981; MacKinlay, 1997).

The novelty of this study is deglobalization in Energy and Resources Sectors in Africa. This paper proves the idea that US companies that are more dependent on exports and imports from China have lower stock and bond returns but higher default risks in the short time-span around the news developments (Pierce and Schott, 2016).

Furthermore, this paper analyzes the ideas of previous researchers. For example, that, globalization in Africa and Asia induce increased energy consumption (Etokakpan et al., 2020).

The paper found that the arguments and views of professionals can be divided into three categories: the optimistic, the neutral, and the pessimistic sentiments. The optimists are those who see that Africa can benefit from the trade war, and any sort of related conflict between the United States and China. The neutrals take a more pragmatic approach and are unsure, as they have yet to see any real long-term implications for the continent. The pessimists feel that Africa will suffer collateral damage one way or another, directly or indirectly from the trade war based on the analysis of the situation (Huang et al., 2019).

Moreover, the article makes contributions to the literature on microstructural effects of international trade policy. This paper proves the implications of researchers about the trade war and deglobalization (Shea and Poast, 2018; McCarthy, 2019). Thus, this paper analyzes the ownership rank variables, using descriptive analysis, correlation analysis and regression analysis. The relationship between the ownership structure and the market value of listed commercial banks in China is also

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studied (Lukin, 2019; Ni, 2019). It is concluded that, the United States should seek more control to strengthen their influence over Chinese listed commercial banks (An et al., 2020).

The paper analyzes US and Chinese companies in energy and resource sectors, as well as the associated macroeconomic effects on market data from Thomson Reuters and latest research papers (Atalay et al., 2011; Tintelnot et al., 2017; Oberfield 2018).

Also, global effects on stock returns (Bekaert et al., 2016) and equity market liquidity (Levine and Schmukler, 2006) have been shown. According to these studies, the paper assesses the risks and financial market's response to the most recent changes in trade policy between the US and China.

The paper adds to the growing literature on the effects of the US-China trade war in international trade. Recent studies have shown how production networks spread and amplify company-level shocks due to large fluctuations in the risks of defaulting (Acemoglu et al., 2012; Carvalho and Gabaix, 2013).

The recent data, related to the buyer and seller, allows to make a detailed analysis of US and China's companies in energy and resource sectors in Africa and the associated macroeconomic effects (Atalay et al., 2011; Tintelnot et al., 2017; Oberfield 2018).

Recent studies show that companies respond to trade policy problems in terms of human resources Autor et al. (2013); international expansion (Crowley et al., 2018), innovation process (Crowley 2006; Bloom et al., 2016), economic growth (Bloom et al., 2014) and energy markets (Valta, 2012; Meynkhard, 2019).

Another study by Crowley et al. (2018) analyzes the announced impact of EU import restrictions on a number of Chinese companies in the solar industry. This paper proves the link between the US-China trade war and energy and resource companies in Africa in the last years (Lisin, 2020).

The paper outlines the African perspective for political and economic relationship with the two global powers, and its future positioning as an emerging region claiming its own position among the world's regions.

2. Methods

The data analysis process is implemented in Python ("pandas" libraries", "numpy", "scipy.stats", "math").

The paper uses BP Statistical Review of World Energy and Thomson Reuters data about publicly listed companies in the United States and China in energy and resource sectors in Africa. As shown in the datasets, the sample includes 584 US-registered companies for developing measures to quantify their exposure to 686 China's companies in the same sector of economy. This paper proves the link between the US-China trade war and energy and resource companies in Africa in the last years (BP, 2020; Mikhaylov, 2020; Mikhaylov, 2018).

There is no indicator of total trade war effects. The absence of this indicator does not give the ability to really evaluate the trade war processes.

However, since the indicator of US and China companies in Africa is the key, it is necessary to at least calculate it as a first approximation.

Regression analysis is used to calculate the total trade war effect for US and Chinese companies. Equation multiple regression is written as:

$$A = Z + C_1X_1 + C_2X_2 + C_3X_3 + C_4X_4 + C_5X_5 + C_6X_6 + C_7X_7 \quad (1)$$

where Y is the resulting attribute of the multiple regression equation (total logistics costs); a, bi are parameters of the multiple regression equation; Xi is the factor-attribute of the multiple regression equation. The paper examines the next parameters: C_1= Region Rank, C_2= Ownership Global Rank,C_3= Credit Country Rank, C_4= Credit Structural Distance to Default, C_5= Probability of Default, C_6= Change in EBITDA and C_7= Change in Stock Close Price (Ownership Region Rank[1]: The 1–100 percentile rank of the security versus all other securities in that region. Higher scores indicate securities whose peer groups are already owned by institutions. Credit Country Rank[2]: The 1–100 percentile rank, by country, of a company's 1-year default probability. Higher scores indicate companies that are less likely to go bankrupt, or default on their debt obligations, within the next 1-year period).

When determining the factors-signs of the multiple regression model, studies in which the indicators presented above were used as some input elements of regression were taken as a basis (Schwert, 1981; MacKinlay, 1997).

The parameters of the multiple regression equation for US and China companies in Africa should be essentially equal to the parameters of the multiple regression. All the necessary indicators for constructing and calculating a multiple regression model are presented below (Table 1). Based on the data provided in it, multiple regression coefficients will be calculated.

The OLS (ordinary least squares) method will be used for validation. The task is to select such values x so that the values of these functions are as close as possible to some values. In essence, the goal is to "solve" the defined system of equations. Thus, the essence of an OLS can be expressed as follows:

$$\sum_i e_i^2 = \sum_i (y_i - f_i(x))^2 \to \min_x \quad (2)$$

If the system of equations has a solution, then the smallest value of the sum of squares will be zero, and exact solutions of the system of equations can be found analytically or, for example, by various numerical optimization methods. If the system is overridden, that is the number of independent equations is more than number of unknown variables, the system has no exact solution and the least-squares method allows to find some optimal vector x in the sense of maximum closeness between the vectors and y и f(x) or a maximum proximity of the vector of deviations e to zero (the proximity is understood in the sense of Euclidean distance).

It is easy to show that the solution of this minimization problem leads to the solution of the following system of equations:

$$A^TAx = A^Tb \Rightarrow x = \left(A^TA\right)^{-1}A^Tb \quad (3)$$

In general, this problem can be solved by numerical optimization (minimization) methods. In this case, we talk about non-linear OLS (NLS or NLLS-non-Linear Least Squares). In many cases, an analytical solution can be obtained. To solve the minimization problem, it is required to find the stationary points of the function RSS (b), differentiating it by unknown parameters b, equating the derivatives to zero and solving the resulting system of equations:

$$\sum_{t=1}^{n} (y_t - f(x_t,\ b)) \frac{\partial f(x_t,\ b)}{\partial b} = 0 \quad (4)$$

For analytical purposes, the last representation of this formula is useful (in the system of equations when divided by n, arithmetic averages appear instead of sums). If the data is centered in the regression model, then in this representation, the first matrix has the meaning of a sample covariance matrix of factors, and the second — a vector of covariance of factors with a dependent variable.

An important property of OLS estimates for models with a constant is that the line of the constructed regression passes through the center of gravity of the sample data, i.e. the following equality is achieved:

[1] Ownership Region Rank: The 1-100 precentile rank of the security versus all other securities in that region. Higher scores indicate securities whose peer groups are already heaciliy owned by institutions.

[2] Credit Country Rank: The 1-100 percentile rank, by country, of a company's 1-year defalut probability. Higher scores indicate companies that are less likely to go bankrupt, or default on their debt obligations, within the next 1-year period.

Table 1. Significance of coefficients.

Parameter	Significance	Coefficient
C_1	6	0.13
C_2	5	0.17
C_3	7	0.11
C_4	4	0.19
C_5	2	0.26
C_6	1	-0.43
C_7	3	0.20

Source: calculated by the authors.

$$\overline{y} = \widehat{b}_1 + \sum_{j=2}^{k} \widehat{b}_j \overline{x}_j \quad (5)$$

Because the calculated value (132.188) is greater than the table value of the F-criterion (2,913), the developed regression model can be used for the link between US-China trade war and energy and resource companies in Africa.

The model was found to be adequate if the value is 0.05 or with a confidence probability p = (1–0.05) × 100 = 95%.

The obtained adequate regression model allows to conduct detailed research of the object under study and its forecast by management considering various factors (Tables 1 and 2).

Consequently, the ranking of independent interval estimates may contain rough variables by the strength of their influence on the dependent mistakes, if autocorrelation is detected in the variable for the regression equation.

The following steps must be completed identify ranks:

1. Rewriting the diagonal elements of the inverse matrix of normal equations calculations again.
2. Calculating the standard square error DY = 2,271.
3. Calculating the values of the independent ranks (d-statistics). The hypothesis about the absence of autocorrelation is proposed using this criterion.

The paper focuses on public parameters of US and Chinese companies in Africa to refer to income gained through after Trade War beginning.

The market benchmark is the value-weighted returns for all companies from Thomson Reuters. Like Schwert (1981) and MacKinlay (1997), the paper estimates the firm-specific market model parameters (beta). Beta coefficient (beta factor) is an indicator calculated for a security or a portfolio of securities. It is a measure of market risk, reflecting the variability of the yield of a security (portfolio) in relation to the yield of another portfolio, which is often the average market portfolio. Global value chain (GVC) describes the people and activities involved in the production of a good or service and its supply, distribution, and post-sales activities (also known as the supply chain) when activities must be coordinated across geographies.

The data, based on Thomson Reuters from US and Chinese companies in Africa, indicates new light on the economic impact of trade policies on the global value chains of organizations in both countries. By analyzing the impact on ownership ranks and default risks, this study also complements recent literature that analyzes the financial implications for owners of companies. This approach is often used in previous literature to assess the impact of policies (Ellul et al., 2011; Wei and Yermack, 2011).

Table 2. T-statistics.

Variable	T-statistics	5% confidence level	Probability
C_1	–3.60	–2.22	0.46
C_2	–1.16	–3.67	0.89
C_3	–3.61	–3.67	0.89
C_4	–3.62	–2.00	0.57
C_5	–3.61	–3.59	0.05
C_6	–2.54	–1.76	0.07
C_7	–2.20	–3.38	0.04

Source: calculated by the authors.

While it is possible to wait until detailed micro - and macro-data are available to assess the economic impact of the declared trade war, an event-based approach using daily stock market data for public companies in Africa is the most feasible and compelling from the current standpoint.

In addition to the advantage of analyzing the market reaction to the trade war, another advantage is that it can provide clear data on the impact of policies. The assessment of long-term economic impact may be biased due to other impediments or subsequent events.

Energy and resource sectors of US and Chinese companies in Africa depending more on exports from Africa should be affected more by higher tariffs on export, and vice versa. The article expects to find heterogeneous effects across US and China companies in energy and resources sectors in Africa. Therefore, the paper investigates the following five hypotheses.

Hypothesis 1. (Effects on ownership rank)

In response to the announcement of higher tariffs against imports, the ownership region rank of US and Chinese energy and resource sectors that rely more on imported inputs from Africa will decline more because such tariffs raise region risk for business owners. The ownership region and global ranks of Chinese companies in energy and resource sectors should be less than the same ranks of US companies in 2019.

Hypothesis 2. (Effects on credit country rank)

The market returns of US and Chinese companies in Africa in energy and resource sectors should decline. The credit country rank of China companies should increase relative to the last year as the tariffs on Chinese imports raise the prices of imported products, and thus US companies' profits. The credit country rank of Chinese companies in energy and resource sectors in Africa should be higher than the same effect on this rank of US companies in 2019 year.

Hypothesis 3. (Effects on default risks)

The probability of default of US and Chinese companies in Africa in energy and resource sectors depends more on inputs from the upstream sectors in which the default risks of Chinese companies should decline relative to last year's tariffs weaken market competition in the upstream sectors. The structural distance to defaulting and the probability of Chinese companies defaulting in energy and resource sectors should be higher than the same rank of US companies in Africa in 2019.

Hypothesis 4. (Effects on profitability)

The changes in EBITDA of Chinese companies in Africa in energy and resource sectors should be less than the same changes in US companies in Africa.

Hypothesis 5. (Effects on capitalization)

The changes in stock prices of Chinese companies in Africa in energy and resource sectors should be less than the same changes in US companies in Africa.

The analysis is based on feedback from (n = 106) government officials, intellectuals, university professors, corporate leaders and business professionals across Africa, specifically from countries such as Angola, Cameroon, Congo DRC, Cote d'Ivoire, Egypt, Ghana, Guinea, Guinea Equatorial, Kenya, Namibia, Nigeria, Rwanda, South Africa, and Tanzania. The respondents took part in the poll (LinkedIn, 2020). The poll was conducted in English (Appendix 1-4). Participants stay anonymous.

Participant's profile will not be used in any way that is not approved by the participant themselves. The participant has the right to ask for the final results of the research. Explanation and conclusions of the research can also be provided during the research period at their request. The

participation in this study is voluntary. There are no benefits from participating in this study. There is no payment in return for the participation.

3. Results

One of the most important goals of modeling is to predict the behavior of the study. The calculation of the forecast values of the trade war effect via the regression model is very accurate.

To calculate the forecast estimate for the following, the moving average method will be applied for the next period matrixes. The sliding matrix method consists of following final exclusion of the first rows of matrixes.

Hypothesis 1. (Effects on ownership rank)

Based on statistical analysis, the ownership region ranks of Chinese companies (average rank = 32) fall more than the same indicator of US companies (average rank = 37) in energy and resource sectors in Africa. Chinese companies relying more on imported inputs from Africa should decline more because such tariffs raise regional risks for business owners. The Hypothesis 1 is true because the ownership region and global ranks of China companies in energy and resource sectors is less than the same ranks of US companies in Africa in 2019 (Tables 3 and 4).

Hypothesis 2. (Effects on credit country rank)

The Hypothesis 2 is true as shown below. Credit country rank of China companies increased last year as the tariffs on China imports raise the prices of imported China products and thus US companies' profits. The credit country rank of China's companies (average rank = 43) in energy and resource sectors is higher than the same effect on this rank of US (average rank = 27) companies in Africa in 2019 (Table 5).

Hypothesis 3. (Effects on default risks) and Hypothesis 4 (Effects on profitability)

Profitability of Chinese companies increased more than the tariffs on Chinese imports, as the prices of imported China products were raised, and thus the US companies' profits as well. The Hypothesis 4 is true, because the real changes in EBITDA of China's companies (+3.39%) in energy and resource sectors is more than the same changes in US companies in Africa (+2.59%) (Table 6).

Hypothesis 5. (Effects on capitalization)

The Hypothesis 5 is true, because the real changes in stock prices of China companies (-0.07%) in energy and resource sectors is less than the same changes in US companies in Africa (-0.32%) (Table 7).

3.1. Future ways

For Africa to benefit, it has to further attract Chinese attention and capitalize on a weakening Renminbi. This can be done via energy and resources trading.

The Hypothesis 3 is true. The probability of default of companies from the US and Chinese energy and resource sectors depend more on inputs from the upstream sectors in which default risks of Chinese companies decline relatively more. The structural distance to default and probability to default for Chinese companies (average default risks = 0.004, average default probability changed in -0.08%) in energy and resource sectors should be less than the same rank of US companies in Africa (average default risks = 0.02, average default probability changed in -0.84%) in 2019 (Tables 6 and 8).

Africa also needs to stay attractive for investments and ensure its projects function properly as well as to completing their own share so that they are not seen as unprofitable in the decades to come.

One popular recurring view from Africans is that Africa can barely do without China. There is a serious need for investment in infrastructure and industry. China has been the best benefactor of Africa when it comes to these sectors. The United States on the other hand has been more indifferent about how to address the fundamental needs of Africa, particularly in infrastructure and energy.

From 2000 to 2017, China provided $143 billion in loans to African countries (Bloom et al., 2014). China has been making many significant investments into Africa for some time now, which has shown a long-term commitment to the continent. As such, African countries can benefit if they take advantage of an easing of financing schemes. Levels of interest rates, volumes of trade, and the conditions attached to these variables will determine how well Africa can do.

With regards to the political angle of the situation, optimist African countries (Kenya, Namibia, South Africa, and Tanzania) have stated that currently many Africans hold little regard for the US government. The bottom line is that even without US interest or a change of American policy, Africa could benefit from this current trade war. The argument is that since China may have to look elsewhere to keep its export-based economy afloat, it will resort to intensive trade with the continent's countries. Africa currently has over a billion people and most are under the age of 25. Around 200 million are close to or classified as middle class and that number in itself outnumbers the US middle class. On top of that, Africa is one of the fastest growing continents in economic terms. If China wants to capitalize on Africa's economic growth and its developing consumer society, they can sell even more to Africans but in order to achieve this, they need to invest more in African industries so that enough liquidity is in the pockets of future consumers. Additionally, some US consumers could eventually turn to some basic African products, manufactured in Africa, to avoid buying from Chinese companies. All in all, it would be a win-win for Africa and China if Chinese investors helped transform more Africans into consumers. This idea supported by results below. In sum, this result implies that US companies in Africa in energy and resources sectors had more losses in 2019 than China's companies.

Some others believe that China can weather the storm and seek to gain more support from Africa by treating the geopolitical conflict as a chessboard. In reality, many believe that the trade war is just a mask for a tech war, involving high level technology companies in both the US and China such as Huawei and Apple. This implies that this does not affect Africa much in terms of security. Many African countries deal with international trade through Euro or Pound Sterling. There are no large US investments or presence in most African countries that could result in a currency crisis. In fact, it is about China and Russia who are participating more in Africa along with the former colonial European powers. The Gulf and East Coast are protected by the UN, French, and British. As such, some beliefs that the United States has its eyes set on other parts of the world and will not look over towards Africa until it is too late. US relations with EU countries also will mean that many of them will be hesitant to back up the US in any upcoming quarrels, especially ones in Africa that do not directly affect European economies per se.

China is seen as executing a long-term strategy welcomed by African countries, but it may have allowed its hand to be seen too quick by its bold moves in the developing world. Perhaps China was being over-ambitious and overstruck deals with incompetent and corrupt governments which ultimately led to taking in large collaterals from debtors. Additionally, it appears that the US government is attempting to play a short-term game against China when all it will do is slightly derail the Belt and Road Initiative and China's commitment to Africa momentarily.

Table 3. Ownership region rank effect.

N	686	548
-$\sum X$	22418	20508
-Mean	32.68	37.42
-$\sum X^2$	1080556	1102706
Variance	507.95	612.85
Std.Dev.	22.54	24.75
Std.Err.	0.86	1.06

Source: Author calculation, Thomson Reuters.

Table 4. Ownership global rank effect.

N	686	548
-∑X	13726	47255
-Mean	20.01	86.23
-∑X^2	424562	4161649
Variance	218.82	158.62
Std.Dev.	14.79	12.59
Std.Err.	0.56	0.53

Source: Author calculation, Thomson Reuters.

Table 5. Credit country rank effect.

N	686	548
-∑X	30016	15249
-Mean	43.76	27.83
-∑X^2	1834620	806965
Variance	760.97	699.52
Std.Dev.	27.58	26.45
Std.Err.	1.06	1.13

Source: Author calculation, Thomson Reuters.

Table 6. Change in EBITDA effect.

Country	China	USA
Standard error	0.01	0.02
Median	-0.07	-0.32
Moda	-0.02	-0.17
Standard deviation	0.41	0.61
The sample variance	0.17	0.37
Excess	132.07	27.94
Asymmetry	8.10	4.14
Interval	7.95	6.71
Minimum	-0.86	-0.99
Maximum	7.09	5.71
Amount	-20.78	-137.02
Quantity	679	532
Largest	7.09	5.71
Smallest	-0.86	-0.99
Reliability level (95.0%)	0.03	0.05

Source: Author calculation, Thomson Reuters.

The perception is that if the US government wants to get something done in Africa, then they must examine why China is exactly working smarter and faster than they do on the global economic stage (Abam et al., 2014).

Regarding currency devaluation, some experts claim that it will be a blessing for Africa. African countries when buying from China will end up paying less foreign currency. In turn, when China buys primary products from Africa, most of the contracts for the purchase of these commodities are denominated in USD which means China will pay more for Africa's raw materials. The fluctuation of the Renminbi will not affect Foreign Direct Investment (FDI) flows since loans to African countries are also typically denominated in USD. The repayment of these loans will not be affected by the devaluation of the Renminbi.

As such, Africa could benefit from the trade war in two ways: (i) Highly indebted African countries would see their foreign currency denominated financial liabilities decrease as both China's RMB and the USD exchange rates would decrease. Furthermore, Africa is a net importer from the US and China after all. (ii) To fight the US on the global stage, China may intensify its FDI towards Africa, especially in the areas of infrastructure sustainability and construction. The only problem that could arise is if Chinese liquidity faced strong downward pressure from the trade war. Africa is a region with some of the fasted growing economies in the world and many Chinese companies have acknowledged that expanding into the continent is a must. While in the past Africa has been benefitted by US protection, today it is benefitting from Chinese investments. Though complicated, it is believed that African countries should ideally find a way to gain benefits from both the US and China simultaneously (Ackah and Kizys, 2015).

The trade war will likely also benefit African economies that are still sensitive to importing Chinese products. There are already preliminary negotiations among some African countries to reduce their USD exposure and turn to gold for safety. It is still too early to turn to Renminbi financing and to fully abandon the USD though. In time, this could become an option when more industrially advanced countries begin believing less in the USD. The alternative currency-drive is in part being led by the Russians who have been suffering strong sanctions on their banks for a while and the they have been getting closed to the Chinese and have been showing some interest in getting involved in African affairs (Adewuyi and Awodumi, 2017a).

US policy makers for a while have been telling African governments how to behave towards China but the strategy is not working due to China's long-term commitment and pledge of large amounts of investments into the continent. The Chinese government may choose to increase its military presence through military bases in order to ensure that their economic assets on the continent are protected and increase the security of its subjects working in Africa. All in all, according to the optimist way the trade war will barely affect Africa negatively. If anything, there may be more Chinese investments (Adewuyi and Awodumi, 2017b).

The neutral camp (Angola, Egypt, Nigeria, Rwanda) tends to see Africa as a resilient place. Though sometimes faced with adversity, the continent has managed to bounce back one way or another throughout time. The neutral camp though is unworried for the most part, believes that Africa cannot be indifferent and negligent if the geopolitical atmosphere becomes turbulent. Africa needs to remain cautious more than ever during this time. The neutral camp holds view on the base of the idea of low ownership ranks, effects on credit country ranks, effects on default risks of China companies (vs. US companies) in Africa after Trade war escalation.

Neutral observers believe as well that the trade war will not affect African financing decisions at all since project finance in Africa is purely about commercial terms. Whether finance comes from Germany, France, or China, the priorities are the terms and long-term benefits. It can also be argued that the trade war does not really affect the African markets significantly. China should therefore pursue more projects in the continent before the US government turns his attention and tries to suppress Chinese moves in Africa.

Africans will not change their financing behavior because they are desperate for infrastructure financing that come with minimal political conditions. Therefore, countries will keep doing what they are doing. If the US begins to sanction African states for taking Chinese money and in turn offers them USD-backed projects, then a lot of these African countries will flip to the US. Some do not think the trade war will affect Africa in the sense that for many governments, any investor is welcome whether they are Chinese or American. This particular insider believes Africans can improvise in a rational manner (Adu and Denkyirah, 2018).

The trade war can be seen as a natural recalibration of global economics and global power projection via wealth transfer. This could be a good thing for Africa but the continent needs to be prepared for it and take advantage of opportunities that may come its way as byproducts of

Table 7. Change in stock price effect.

Country	China	USA
Standard error	0.00	0.01
Median	0.00	0.01
Moda	NA	NA
Standard deviation	0.01	0.02
The sample variance	0.01	0.00
Excess	50.95	22.05
Asymmetry	6.48	3.75
Interval	0.10	0.26
Minimum	0.01	0.01
Maximum	0.10	0.26
Amount	2.92	11.68
Quantity	686	548
Largest	0.10	0.27
Smallest	0.00	0.00
Reliability level (95.0%)	0.00	0.00

Source: Author calculation, Thomson Reuters.

Table 8. Distance to default effect.

Country	China	USA
Standard error	0.02	0.03
Median	-0.07	-0.33
Moda	-0.02	-0.17
Standard deviation	0.41	0.61
The sample variance	0.17	0.37
Excess	132.07	27.94
Asymmetry	8.10	4.14
Interval	7.95	6.71
Minimum	-0.86	-0.99
Maximum	7.09	5.71
Amount	-20.78	-137.01
Quantity	679	532
Largest	7.09	5.71
Smallest	-0.86	-0.99
Reliability level (95.0%)	0.03	0.05

Source: Author calculation, Thomson Reuters.

great powers in conflict. Perhaps only a small increase of price on American products that have Chinese components. This would be due to higher tariffs of course.

Furthermore, Africa may not be affected as much as some believe. Some countries in the continent have started a currency swap with China to stabilize economically and gain an edge over the dollar. Most African imports are from China as opposed to coming from the US. The United States is alarmed because of the decrease in dollarization of the global economy and many of its actions are to counter this. With regards to what may happen to Africa, if anything, relations with China would be felt slightly economically and with the US, slightly politically.

Additionally, African countries will not be affected by this and it will not change financing behavior towards them. This is mostly due to the massive amount of rapport both China and Africa have created in the past years. The biggest infrastructure projects in African history are thanks to Chinese involvement. Africans have been cooperative, and China foresees the continent as a key to its Belt and Road plan. Anything that seeks to state otherwise is pure rhetoric from US allies or anti-China backers (Ajoku, 2012).

One risk assessor who follows global finance closely, believes that Chinese government is manipulating the Renminbi. He says this is because the Chinese are in financial trouble and are forcing its state-backed banks to cover it from general view. This outdates the current trade war. He believes that China will eventually succumb, and it would be better for them as it would lead to an opening of economic information which would please a lot of other countries, including the US. China is a resilient country and Africa as a continent as well. Whatever happens, Africa can bounce back and things will reset on the global stage. Worst case is that the UK, France, and US resume its former leading influence over Africans. This time around everyone will be aware of what Africa is capable of and what the future holds for those who invest in Africa's long-term improvement.

A supporting view to the risk assessor's beliefs mentioned above is that even though China has manipulated its currency and may not be playing fair, African consumers will do what they do best and that is to ensure their economic survival wherever possible. African economies do not follow economic principles strictly and have been known to adjust and choose sides to their convenience. This is because Africa is still in the stage of economic survival and most countries in the continent have become skilled in surviving (Asongu et al., 2017b).

Finally, one last source reported to us that whatever happens, Africa will be able to adapt. If China truly wants to hold on to its influence in Africa, it needs to orient its projects towards long-term development, energy self-sufficiency, water, and financial technology. This however may backfire on the Chinese as Africa could in time not need as much FDI once these projects hit the ground running. It would ultimately seek out for US assistance in gaining a voice at the international stage as that is what the US does best: pulling others up so the rest of the world can see them (Ellul et al., 2011; Wei and Yermack 2011).

The pessimist camp (Cameroon, Congo DRC, Cote d'Ivoire, Ghana, Guinea, Guinea Equatorial) sees Africa as a potential playground for the United States and China if the trade war escalates. This has happened in the past during the Cold War. Only this time around, it will be done more through economics rather than through proxy wars. For some, the problem lies with the current US government and they hope that the next presidential administration will ease tensions. The pessimist camp holds view on the base of the idea of low profitability of China companies (vs. US companies) in Africa after the Trade War's escalation.

One African expert is looking forward to the trade war leading to competition over African projects as the US seeks to get more aggressive with China and China seeks to replace its losses in the US market. There is a risk however, that US gunboat diplomacy may keep Africans away from Chinese solutions to the continent's problems. The US has historically held a doctrine of with us or against us over weaker states and this would not benefit Africans in the long run (Ozturk and Bilgili, 2015).

Another claim is that China will have to retaliate one way or another. By devaluating the Renminbi, it will cause a lot of USD to leave the US market. Some believe that the war is necessary because conflict tends to clear out the bad air among powers. The trade war could cause a disruption in the flow of goods and investor sentiment globally. This would hurt Africa the most if China begins buying less African goods (Asongu, 2018).

An additional source backs this pessimist claim by saying that fear could play a factor in the slowdown of global trade since China is a key player. In 2018, the trade turnover of China with the United States almost tripled the volume of trade with Africa and amounted to $633.5 billion.

It sees Africa at the bottom of the supply chain since Africa is the one that provides raw materials to producers who then sell finished goods to more developed regions of the world. He goes on to tell us that he believes Africa should learn to be more self-sufficient with what it has gained thus far and should start investing in local economies as well as focusing on trading more with each other. That way, if the worst is yet to come for Africa then African countries can respond with more flexibility.

In the view of some observers, the continent should prepare for the worst and hope for the best. This pessimism however comes from believing that Africans only hope for the best and lack preparation and

long-term planning. If China were to pull out of funding Africa, the African economies would feel a void for which they are incapable of filling. African countries have developed the bad habit of waiting for someone to come and help them. What will happen the day no one comes because they are too busy solving their own problems? It is hard to tell what exactly but probably nothing good (Asongu et al., 2017a).

China may seek to be more aggressive with its external policies in the meanwhile. This could translate into cheap product dumping into Africa. Local economies could get hurt because trade protectionism is not a solid defense for Africans the same way it is for Americans. Africans need to be alert and ready for whatever shows up at their doorsteps.

Both the US and China are increasing their rhetoric and actions towards each other. Neither the US nor China can out bully each other, and they may only end up creating a long-lasting mess for third parties and bystanders that will be far encompassing. This may even lead to exploiting Africa in a reminiscent way of what happened during the Cold War just so that one side could get advantage over the other.

4. Conclusion

The article analyzes the data, developed an adequate regression model based on which the forecast estimates were calculated.

During the research 4 hypothesizes were proved: Hypothesis 1 (Effects on ownership rank), Hypothesis 2 (Effects on credit country rank), Hypothesis 3 (Effects on default risks), Hypothesis 4 (Effects on profitability) while Hypothesis 5 was not supported (Effects on capitalization). In sum, this result implies that US companies in Africa in energy and resources sectors had more losses in 2019 than China's companies.

This paper proved that the Trade War effects are directed against globalization. The theory of globalization is based on the problem of the structure of the global economy, which determines the processes of social development in every sector of economy. This paradigm shift to a less integrated world economy broadly shaping economies and societies around the globe. The Trade War caused the wave of deglobalization is much more eminent on its impact on increased energy demand, knowledge and technology transfer, trade, and financial capital flows.

The ongoing trade war between the United States and China remains high on the agenda of the international community. One of main contention point remains China's currency devaluation which is ultimately seen as giving China an unfair competitive advantage in international trade. As such, the African continent will need to be wary about the trade war pushing costs up and thus decreasing profit margins. Africa should stay on course and seek to fill in the void left by the trade war's influence on shifting supply chains and slowing growth. The African continent as a source of primary products and produce should seek to occupy a larger share of the market by focusing on proving more value-added services and moving its industries up the value chain. Focusing on exporting more commodities such as oil and gas to China is also an option due to the Chinese placing barrier on US crude oil and hold on financing US projects. The complexity of crude oil pricing and the comparative advantage that the US has in this sector though could force down barrel prices and reduce profit margins for Africans eventually.

Policy implications can be directed on investing in the processing of agricultural products and adding value to them as opposed to just selling the raw product itself. This would allow for the creation of several jobs which would stimulate the domestic economy and speed up the growth of the middle class. Processed commodities, when compared to primary products, have the benefit of being less prone to price changes as a result of occurrences in geopolitics. The African Development Bank to increase its financing activities in infrastructure and development to make the continent less vulnerable to any unprecedented escalations between the US and China.

By analyzing the impact on ownership ranks and default risks, this study also complemented the analysis of the financial implications for owners of companies.

The area for future research is in valuation of trade war macro effect for regions of US, EU, China, Russia and trade war micro effect on the level of independent firms.

Declarations

Author contribution statement

Jaehyung An & Ulf H. Richter: Conceived and designed the experiments; Contributed reagents, materials, analysis tools or data.

Alexey Mikhaylov: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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Data availability statement

Data associated with this study has been deposited at Mendeley Data under the accession number https://doi.org/10.17632/tdx85m7p5b.1.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

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