



THE GLOBAL FINANCIAL CRISIS AND ITS UNFORESEEN CONSEQUENCES

Banks, trade and geopolitics

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The unforeseen consequences of the financial crisis | Dr. Rebecca Harding,
CEO Coriolis Technologies

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Foreword

Iain Anderson

Non-executive Chairman, Coriolis Technologies



Everywhere we look – everyone is talking about trade. Policymakers, commentators, corporates, ratings agencies, regulators - all of us as citizens - are witnessing the unravelling of the global order for trade. No one has any real sense of what might happen next. This important White Paper from Coriolis identifies the core themes we need to focus on and aims to provide a tangible routemap for the times ahead. I know it is going to create an environment for a better informed global trade debate.

Rebecca Harding

CEO Coriolis Technologies



Ten years on from the financial crisis, the world is on the brink of war. This is not an orthodox war using conventional tools, it is a Trade War. The risks are no less high and the consequences no less severe. The White Paper is a data-based to understand what has been going on and why it matters, for SMEs, for banks and for the world.

The lack of a clear political narrative post financial crisis led to economic nationalism and populist politics. The attendant political risks are evident in the patterns of trade, particularly arms trade and dual use goods trade. Meanwhile the reaction of regulators has been to tighten regulation and compliance regimes, but this has a particularly severe effect on SMEs around the world.

In an information age, data is critical to help banks, politicians and businesses work their way through the current crisis. Coriolis data is one step along that journey.

Executive summary

Lack of political leadership in the immediate aftermath of the financial crisis globally has created a tide of populism which has led to economic nationalism and trade wars. This has two consequences:

First, the risks that the global economy faces come from political rather than economic uncertainty, threatening global trade and economic growth. Combined with the sustained strength of the dollar since the financial crisis, the real aftershock may yet appear in a sovereign debt crisis spread through the trade system.

Second, there are greater risks to banks from the rhetorical and literal weaponisation of trade than from any systemic risks in the financial system. Trade has become an explicit tool of foreign policy and this threatens the multilateral structures that have built global economic and political inter-dependency since the Second World War. Trade is now used coercively to achieve national or domestic objectives predicated on a notion in the UK and the US in particular, that trade has become “unfair.”

Using proprietary Coriolis Technologies data, this White Paper shows that:

- Trade rhetoric is increasingly weaponised and belligerent in tone, leading to a more febrile atmosphere that has the dual effect of strengthening the US dollar and heightening foreign policy tensions, particularly between the US and its trade partners. Social media activity conflating trade with national security, war and “Make America Great Again” has risen by a third by the end of August 2018 compared to the whole of 2017.
- The world has become a riskier place in the last 18 months, not in terms of financial risk, but in terms of geopolitics measured through trade in arms and ammunition and “dual use” goods; that is, goods that can be used for military or civilian purposes. For example, trade in goods related to cyber-crime, cyber-warfare and cyber-security were above their historical averages between 2016 and the middle of 2017, and some countries (such as Australia, Germany, Israel, Russia and Ukraine) remain above their historical averages in these sectors.
- Political risks spread across 9 standard indicators (corruption, internal conflict, external conflict, foreign policy, foreign relations, regime type, level of repression, terror threat, terror impact) have risen since 2016 in 35 of the 50 largest trade finance borrowing countries. Interestingly, the biggest increases in risk are not necessarily in those countries where conflict is most apparent. Rather,

countries like Denmark, Italy, Austria, Poland and Sweden have seen their levels of risk increase, largely because of populist backlashes which have made their way through to policy. While this does not necessarily increase systemic political risk as such, it adds to an environment of uncertainty for banks making trade finance decisions and increases the AML/KYC risks inherent in these transactions.

There are real challenges for commercial and corporate banks ten years on from the financial crisis but they are not necessarily systemic ones:

- **Banks are less connected with their traditional base in small businesses:** they are more regulated in terms of liquidity ratios and in terms of AML and KYC compliance. This, combined with low margins because of low interest rates and loose monetary policy made other assets more attractive and trade finance comparatively low yield and risky. As a result, many banks veered back towards their corporate clients with less of a focus on SMEs.
- **The SME trade finance market is worth \$1.5tn globally but it is increasingly competitive and banks are being disintermediated on smaller projects:** trade finance to small businesses is proportionately expensive because of the liquidity and compliance costs associated with it. The Tech Giants (particularly Amazon, Alibaba, Microsoft, IBM and Google) and logistics companies (like DHL and Maersk) see an opportunity to provide trade finance to smaller clients on a short-term basis. These businesses have tech platforms and liquidity, and critically have lower regulatory hurdles, meaning they can circumvent some of the strictures that have applied to banks since the financial crisis.
- **Banks and payments systems are exposed to sanctions and tariff regimes through the supply chains of their clients:** large corporates are moving their supply chains around to manage the risks of higher costs of tariffs or the imposition of sanctions. This is an additional hurdle for banks which makes trade finance risky.
- **Banks have the potential to stay ahead of the game through Big Data, AI and machine learning:** new technologies have the potential to reduce costs, ease due diligence and provide a more tailored service to smaller clients. However, banks are challenged by legacy systems that make upgrading their systems to compete with non-banks to provide services to SMEs cumbersome and expensive.

The analysis is a wake-up call on many levels:

First, the economic nationalism that has arisen since the financial crisis is fragmenting the global institutions of economics, trade, peace and environmental protection. This is an unforeseen consequence of the financial crisis but has potentially devastating after-effects. The world is perceptibly “more risky”. The political and foreign policy perspectives are self-evident, but the effect on banks is to deconstruct the regulatory frameworks that have been more or less predictable, if complex, and make payment systems such as SWIFT more prone to global sanctions and tariffs.

This will have an impact on the supply of finance, particularly to SMEs, which is already tight and which, increasingly, is supplied through non-bank tech and logistics companies.

Second, trade is being used as a scapegoat for the bigger problems of globalisation. Policy makers after the financial crisis failed to articulate the benefits of trade and the results are clear for all to see. Yet it is not trade itself that creates the inequalities or flat wage growth that have been symptomatic of the post financial crisis era. There is a responsibility now on business and banks to explain that trade is not globalisation and that it has clear advantages for consumers. If banks particularly do not make this case, the risks of a collapse in the multilateral world trade system are high.

Finally, the UK is a microcosm of what has happened globally and since the Brexit referendum, is a divided nation politically, economically and socially. This is untenable and banks should make the case for trade and multilateralism to avoid the severe consequences of a no deal Brexit.

The crisis aftermath

Ten years on from the financial crisis, the world stands on the brink of war. Not war in an orthodox sense, but Trade War. The structures and institutions of multilateralism are being dismantled by economic nationalism and bilateralism while the World Trade Organisation stands on the side-lines like the League of Nations before the First World War: both a contributor to the crisis and a victim of it.

For most analysts, Trade War and a burgeoning mercantilism in trade thinking would have been inconceivable as two years ago¹, still less would its growing popularity have been appreciated. ²Yet the Global Financial Crisis and lack of political leadership in its aftermath are the reason why we are in this position now. Financial institutions appeared to return swiftly to “normal”, post-crisis. National austerity measures to recover the debts incurred from rescuing the banks has restricted expenditure on education, health and housing, tightened welfare, constrained wage growth, and increased unsecured borrowing by households. Mass migration has been conflated with the rise of “lone wolf” terrorism in the public discourse.

The result is populism and the rise of anti-immigration and nationalistic extremes in politics: the palpable sense of inequality and lack of fairness inherent to globalisation apparently justifies the creation of enemies in national politics. A trade deficit with another country becomes “unfair”, and a reason to start a war. Such a war is not fought with boots on the ground, but rather through trade tariffs and sanctions. Its objective is the same: to achieve strategic power and influence through coercion.

The consequences could be no less devastating than a conventional war. There is already evidence in Asia that supply chains across the region are shifting to avoid tariffs; Foreign Direct Investment into Asia particularly, but across the world fell back by 23% between 2016 and 2017 as geopolitical and geo-economic uncertainty began to gather ground, with Canada particularly seeing its inward FDI flows fall by over one third.³ Companies like Harley Davison are talking about relocating to avoid the higher costs of steel after the imposition of a 25% universal tariff by the US on iron and steel and the impact of higher

¹ Harding, R. and Harding, J (2017): *“The Weaponization of Trade: the Great Unbalancing of Politics and Economics.”* London Publishing Partnership, London.

² https://twitter.com/jain_w_anderson/status/1042401833321472002

³ UNCTAD (2018): “World Investment Report, 2018: Investment and New Industrial Policies” http://unctad.org/en/PublicationsLibrary/wir2018_en.pdf

prices on raw material is likely to impact jobs and prices in the US. Trade in the first two quarters of 2018 has not grown at the rate that was expected at the end of 2017.⁴

Trade is not globalisation. However, it is a compelling tool in a nationalist rhetoric. It was not trade itself that created inequality but rather the unforeseen consequences of successive decisions enabled by improved information and communications technology over a thirty year period since the end of the Cold War. Knowledge, intellectual property, people, ideas and capital flowed freely to the places where they could flourish and create wealth. But that wealth did not “trickle down” in the way that theory suggested it should⁵ to create benefits in terms of access to opportunities and resources.

This White Paper is a picture of why trade is now at the epicentre of the Financial Crisis’s aftershocks. It looks at the evolution of trade and how it has changed over the last ten years. Globalisation is the transfer of people, ideas, intellectual property and capital across borders that was enabled by the advance of ICT in the 1990s. Trade is not globalisation therefore, but it is enabled by it. Trade is what businesses do and what allows consumer choice. Its multilateral structures are threatened in the post-crisis era by economic nationalism and the rise of protectionism. The White Paper presents evidence of the fact that the world has become more risky through the figurative and literal weaponisation of trade.

It looks at the way in which banks are challenged by this politicisation of trade and at the other existential challenges like the emergence of new technologies, the rise of regulation and KYC/AML compliance, and increased competition from non-banks that they face. Technology, in particular big data and predictive analytics, give banks the potential for managing these risks and increasing their relevance. They will need to harness these technologies in order to manage both micro (credit, reputational and counterparty) and macro (economic and geopolitical) risks.

The White Paper concludes that the world is in a dangerous place. Arms trade has grown and was significantly above the long term historical moving average in Q1 of 2018; dual use goods trade, particularly in telecommunications and security goods, grew during the height of the perceived escalation of cyber security threats, particularly in Russia, China, Iran and Israel. Unless banks and businesses speak

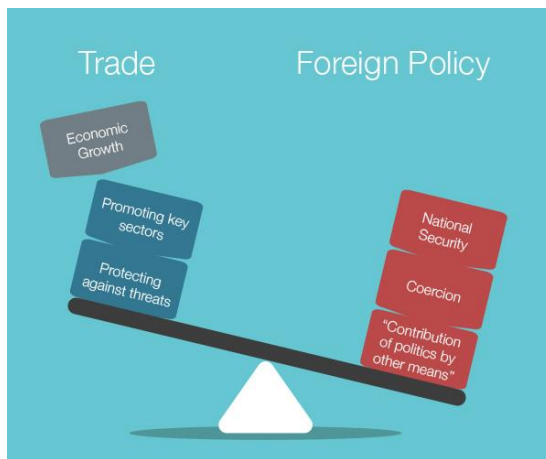
⁴ Strauss, D (2018: “What are the economic consequences of Donald Trump’s Trade Wars?” *Financial Times*, London <https://www.ft.com/content/ec8f616e-9fd9-11e8-85da-eeb7a9ce36e4>

⁵ Philippe Aghion, Patrick Bolton; A Theory of Trickle-Down Growth and Development, *The Review of Economic Studies*, Volume 64, Issue 2, 1 April 1997, Pages 151–172, <https://doi.org/10.2307/2971707>

out about the threats posed by increased bilateralism and economic nationalism, the dangers of miscalculation in international trade relations will increase.

Why trade has been seen as synonymous with globalisation

Trade is not globalisation. Trade is very simply the means by which goods and services flow across borders – it is what businesses do, and it is what enables consumers to have access to things that cannot be produced at home but that can be brought in from abroad. In contrast, globalisation is the process by which capital, people and intellectual property move across borders.⁶ It is not trade itself, but it enables trade.



Perception is everything. Trade is a simpler concept than globalisation. As Stiglitz points out, globalisation has created problems for governments in that it calls into question the role, indeed the very existence of the nation state.⁷ People can see trade, and they can feel the effects of a factory closing if it can no longer compete with cheaper goods coming in from abroad. For a nationalist politician, the leap is easy – blame job losses and stagnant wages on unfair competition from

abroad and immediately there is an enemy.

Figure 1: A summary of trade since the financial crisis explains why trade is blamed

After the crisis, there was a shift by financial institutions to emerging markets, particularly in Asia. These were parts of the world's financial system that had barely been exposed to the collapse of the exotic instruments that had been built on sub-prime lending in the US. Instead, economic growth was maintained and trade growth swiftly recovered and overtook the countries whose governments were mired in the aftermath of bank rescues and recession.

⁶ Baldwin, R. (2016): *"The Great Convergence: Information Technology and the New Globalisation."* Harvard University Press, Cambridge, MA

⁷ Joseph Stiglitz; Globalization and the economic role of the state in the new millennium, *Industrial and Corporate Change*, Volume 12, Issue 1, 1 February 2003, Pages 3–26, <https://doi.org/10.1093/icc/12.1.3>

Money poured into these markets - especially China, but other BRIC nations too (Brazil, Russia and India). Governments in the UK, the US, Japan and Europe actively supported “export led” growth through economic policy measures that made it cheap for companies to borrow, not just in developed economies, but also in emerging ones. Despite calls for a reform of the world’s financial system after the crisis, the moves effectively meant “globalisation as usual” as the world’s trade recovered rapidly driven by “south-south trade” and the need for developed economies to keep pace with the rates of debt-fuelled growth.

The rapid return to normal was not sustainable and flat economic growth in Europe, the Eurozone crisis, deflation and austerity led to a sense that consumers, and not banks or governments, were paying the price for the financial crisis. Real wages in developed economies failed to grow and while analysts were speaking of the emergence of a new middle class in emerging economies, the benefits of globalisation were not visible to many in the developed world.

Austerity and income inequality within and between countries is the story of the post financial crisis era and the resultant populism. As has already been made clear, populism leads inevitably to trade wars: If a country is running a deficit, then closing that deficit through exports becomes a means by which a country can be made “great” or “global” again. The resultant economic nationalism in politics rails against globalism because it does not deliver jobs or wage growth at home. The former global trading partner and economic ally becomes an enemy because it has a surplus with you. The only way of reclaiming power is to protect your domestic economy, and this is precisely where we are now. Economic nationalism gives people certainties where globalisation does not.

Brexit and Trump as well as the rise of the far right, far left and nationalist parties across Europe have to be seen as the consequence of this process.

The figurative and literal weaponisation of trade

All this leads to the Weaponisation of Trade. First, the weaponisation is figurative – belligerent language is used to create tensions and enemies that place the home country as the “victim” of unfair treatment and the counterparty abroad as the aggressor.⁸ This has become explicit in the recent US National

⁸ Harding, R (2018): “The Weaponisation of the Language of Trade” *Financial Times* January 8th 2018

Strategy⁹ and the use of national security as a justification for imposing tariffs unilaterally on iron and steel on all of the US's allies as well as non-aligned countries like China.

For example, the Coriolis looks at rhetorical trade weaponisation through twitter and media feeds. It is evident that the language used to refer to President Trump, to trade policy and by President Trump himself have increased in volume and become more aggressive between 2017 and 2018 but also that trade and the Make America Great Campaign (#MAGA) have been linked in a more aggressive way between those two years. The increase in trade related tweets by themselves associated with #MAGA are already over a third higher than they were in 2017 and we are only just in Q3 of 2018.

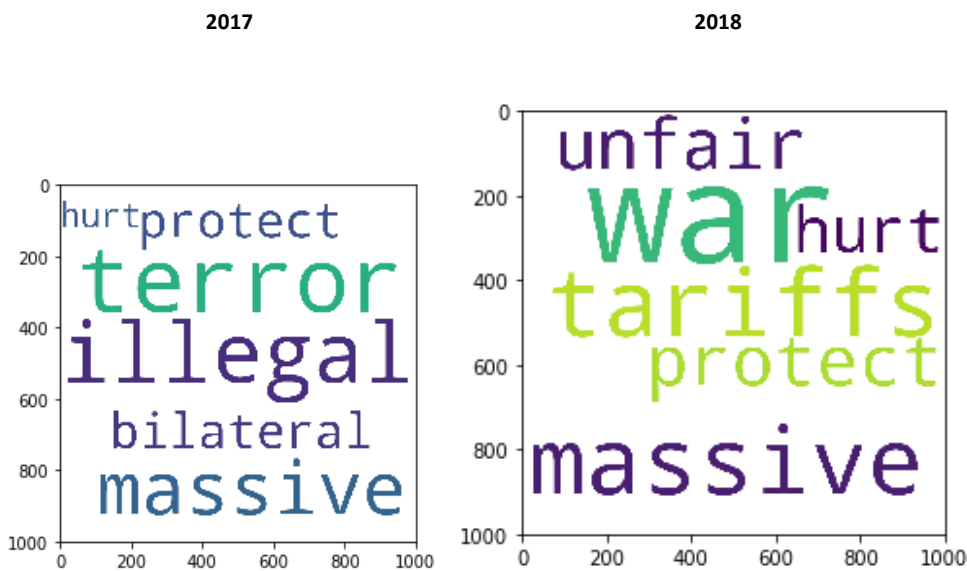


Figure 2: Analysis of Trump trade tweets and media feeds, 2017 and 2018 (images based on number of tweets)

Source: Coriolis Technologies 2018

Similarly, if the use of Make America Great Again (#MAGA) in tweets, is combined with trade tweets and media feeds, the increased militarisation, and frequency, of social media activity is marked (Figure 3).

⁹ This is most evident in the publication of the US's National Security Strategy in 2017 where the "America First Foreign Policy" is laid out and clearly linked with economic as much as military power: <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>

2017

2018

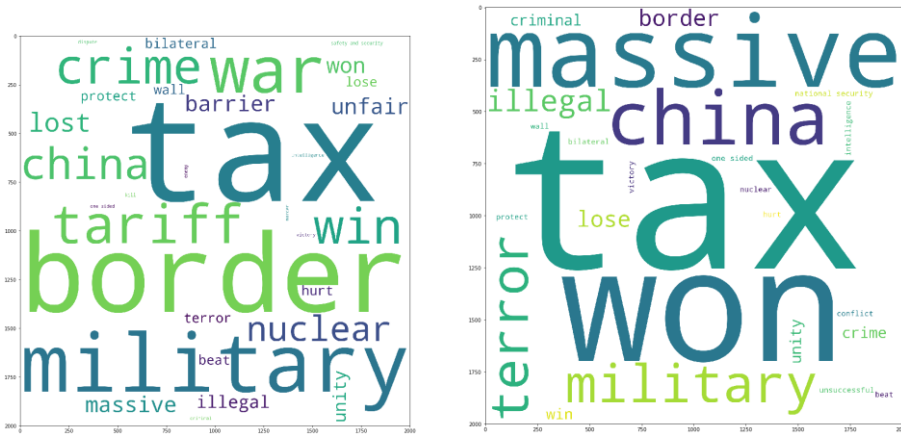


Figure 3: Rhetorical Weaponisation of Trade through social media, 2017 and 2018 compared
Source: Coriolis Technologies, 2018

Second, weaponization is literal as well. Trade in arms globally has sharply increased since July 2017 to be significantly above its historical average in the first quarter of 2018.



Figure 4: Trend in global arms and ammunition trade, January 2010-March 2018
(Trend expansion above 12 month rolling moving average, critical t-test = 2.1)
Source: Coriolis Technologies 2018

What is interesting about the countries where trade in arms has grown most is that they are not just the countries where conflict has been rife. For example, Norway, Finland and Sweden have imported arms as a defence against Russian military build-up in the Baltic; this has happened consistently since 2016 suggesting a marked increase in trade in arms and ammunition as the world has become more nervous about potential conflict.

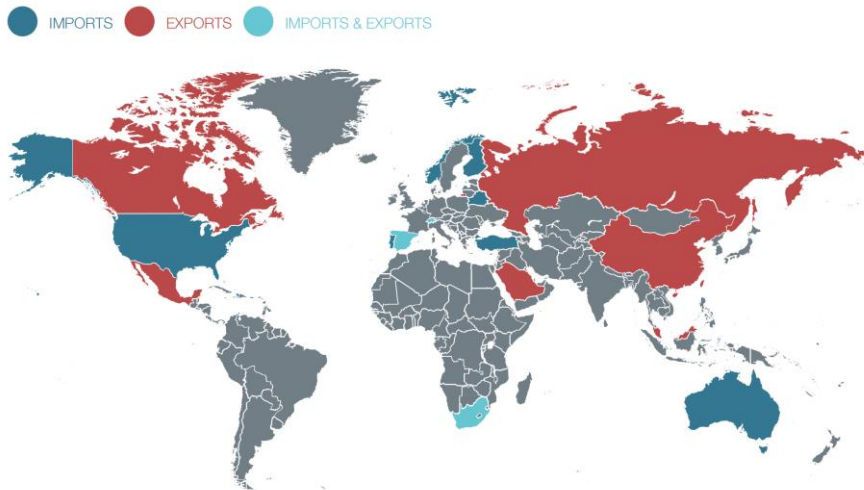


Figure 5: Countries where arms and ammunition trade has been significantly above historical means since Q1 2016.

Source: Coriolis Technologies, 2018

However, arms and ammunition are only a part of the story and it is dual use goods that are key to understanding first, why the US is so sensitive about China's trade, and particularly its intellectual property and second, why there are very real links between trade and national security.

Dual use goods are goods that are classified for use either military or for civilian purposes. For example, a semiconductor can be a component for a mobile phone, or it can be a key component of a cyber-defence system. This means that dual use goods trade is a good measure of the strategic intent of a country – that is, the extent to which it is trading in goods which may be used for military means defensively or in attack.

Dual use goods trade has fallen back significantly over the past year. However, trade in dual use goods was significantly higher than its historical moving average between the 2nd and 3rd quarter of 2016. This was the height of the “fake news” scandal when dual use trade in electronics and telecoms and information security both grew to levels of statistical significance between quarter 2 2015 and the end of 2016 (Figure 6).

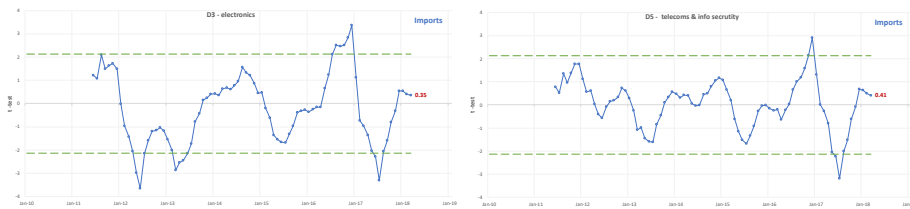


Figure 6: Trends in global dual use goods trade in electronics and telecommunications and security (Trend expansion above 12 month rolling moving average, critical t-test = 2.1)

Source: Coriolis Technologies 2018

The trade in dual use goods is ambiguous; it is perfectly possible that it simply represents growth in demand for particular types of communication equipment. But what is interesting is that the countries where there has been known increased cyber-activity, such as China, Russia, Iran, Israel and Ukraine feature in the list of countries where growth has been significant for a longer period since 2016 (Figure 7).

Of particular interest, is the fact that dual use goods in security-related sectors has grown over the last 9 months in Australia, Turkey, Iran, Russia, China, Sweden, Israel, and Germany. While Turkey, Iran, Israel, and Russia may be clear, the reason for growth in Australia may centre around concerns in the South China Seas, while in Germany may reflect the expansion of its intelligence operations as part of a more general commitment to increasing defence expenditure.

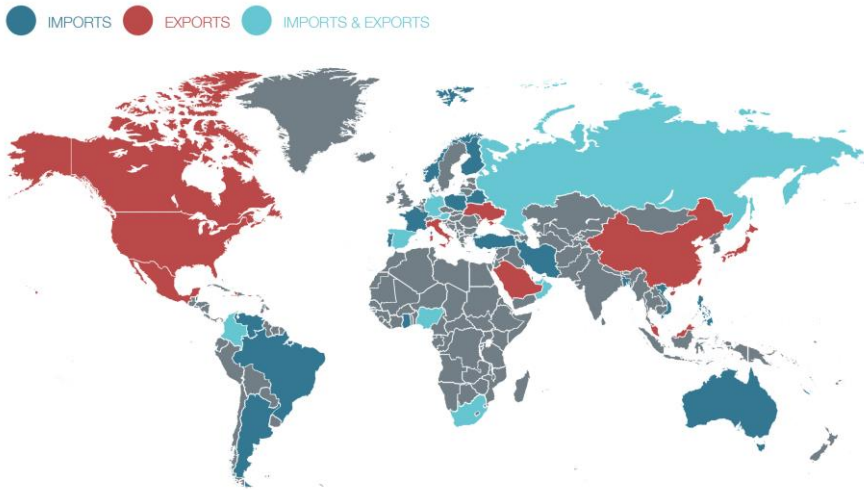


Figure 7: Countries where dual use goods trade in telecommunications and security trade has been significantly above historical means since Q1 2016.

Source: Coriolis Technologies, 2018

All of this has created an environment in which trade finance has become more politicised. Coriolis looked at the top 50 trade finance borrowing countries for risks across a range of standard indicators: corruption, internal conflict, external conflict, foreign policy, foreign relations, regime type, level of repression, terror threat, terror impact. The analysis uses a mix of standard metrics from established international organisations such as transparency international which it combines with the arms and dual use good indices above and its social media, news feed and sentiment indicators to create one picture of risk (Figure 8)

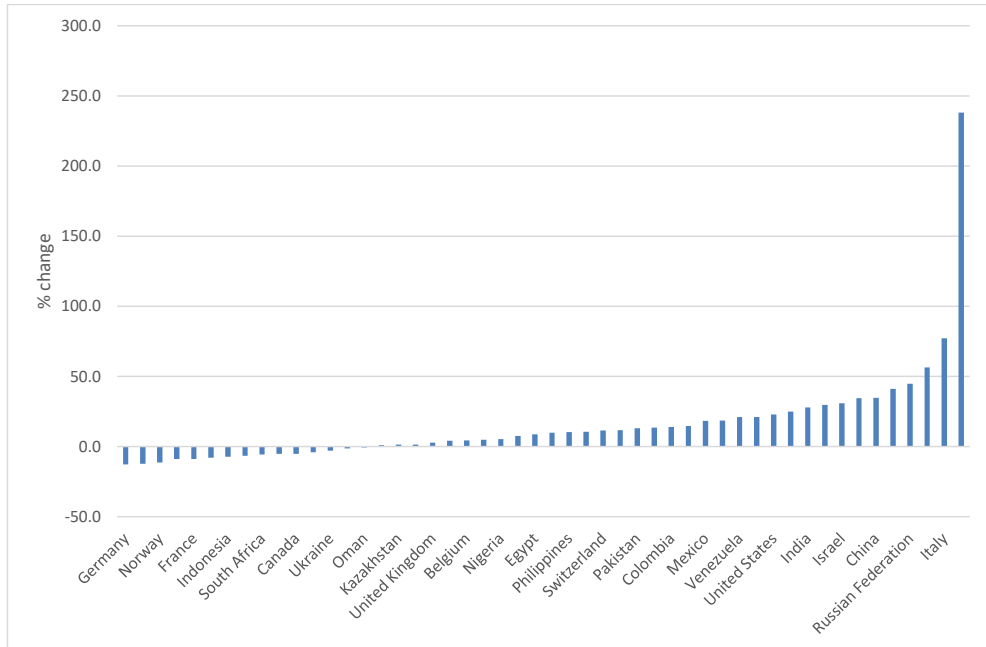


Figure 8: Increased geopolitical risk 2016-2018 (% increase across 9 areas of risk equally weighted)

Source: Coriolis Technologies, 2018

What is fascinating here is that risks are rising in so many countries, and not just the countries where high levels of risk because of internal or external conflict might be expected. Denmark is using policy to counter populist extremism with a clamp down on the freedoms of migrants in the country, which has come under severe criticism¹⁰; internal politics in Austria, Sweden, Italy, Germany and Poland have been driven by the rise of populism in the last 18 months. These are all countries that have seen their arms and/or their dual use goods trade increase over the same period and while this does not make the countries any less sound in trade finance terms, it does heighten uncertainty and the perception of risks.

This suggests three things:

- First, national security concerns, as well as the transfer of sensitive intellectual property, is embedded in the structure of legitimate trade. Because technology, particularly digital technology, has developed so fast since the financial crisis, this has embedded literal trade weaponisation into

¹⁰ <https://www.thelocal.dk/20180910/bbc-cross-examines-danes-on-integration-policy>

otherwise orthodox goods trade. This begins to explain why tariffs and sanctions are being justified on these grounds.

- Second, banks supplying finance to businesses now need to look carefully at the types of goods or services that their clients are exporting or importing. Since 2012 when there were fines to HSBC and Standard Chartered for financing of irregular trade, the trade finance sector has seen a rapid increase in Know Your Client (KYC) and Anti Money Laundering (AML) compliance criteria. This adds to the post financial crisis capital and liquidity requirements and has had a constraining effect on the availability of trade finance, especially for SMEs.
- Third, even in countries where risks of war or direct conflict are low, the risks attached to the political environment, and particularly the influence of populism, have grown. These magnifies the uncertainties that surround the trade finance environment, even in traditionally stable locations.

Why does this matter to banks?

Coriolis Technologies analysis suggests that trade is more than 90% correlated with gross domestic product (GDP). If trade grows, then so does the global economy. The good news is, that after a few years of sluggish trade growth, the International Monetary Fund's calculations suggest that trade volume growth was as high as 4.9% in 2017 and with it, global GDP growth was 3.8%.¹¹ The International Chamber of Commerce (ICC) Banking Commission argues that this means that trade is once again becoming the driver of economic growth and development around the world¹² begging the questions:

1. Why a trade war now?
2. What are the implications of the weaponisation of trade?
3. What does this mean for bank trade finance?

The challenges for commercial banking and trade finance since the financial crisis can be summarized as follows:

- **The trade finance sector has been politicised since the financial crisis:** trade finance used to be the safe, indeed dull, part of banking as a low risk product with low levels of default.¹³ However, things have changed this since the financial crisis: the increase of sanctions and tariffs, brought about by the economic nationalist rhetoric has heightened uncertainty in the sector.
- **Compliance is driving behaviours but it is increasingly difficult to distinguish between weaponised trade and trade for civilian purposes:** The ICC trade finance survey found that 90% of banks found compliance and regulation are stopping them from doing more trade business. Tighter regulatory and compliance conditions mean that banks have tough choices to make about which clients to support¹⁴. Liquidity and AML/KYC requirements since 2014 have tightened the decision-making process. This constrains banks and focuses them on larger rather than smaller

¹¹ International Monetary Fund, World Economic Outlook, April 2018: <https://www.imf.org/external/pubs/ft/weo/2018/01/weodata/index.aspx>

¹² International Chamber of Commerce (2018): "Global trade: securing future growth": <https://iccwbo.org/publication/global-trade-securing-future-growth/>

¹³ ICC Trade Register (2017): <https://cdn.iccwbo.org/content/uploads/sites/3/2018/02/icc-trade-register-report-2017.pdf>

¹⁴ <http://www.theanoadvisors.com/sites/default/files/finance-study.pdf>

clients. More than this, trade in goods which are associated with military or security use is increasingly “hidden” in the goods themselves, making compliance a more difficult process.

- **There is a trade finance gap for smaller businesses:** According to the Asia Development Bank and the ICC, there is \$1.6tn of trade finance that should be supplied to SMEs but isn't; the resultant trade finance gap is felt particularly acutely in African and emerging Asian countries. These are countries where financial exclusion is high and the costs of information gathering are high. There are political and economic risks associated with working in less developed countries and, combined with the lack of data which means that making investment decisions is hard, the result has been a decline in the amount of trade finance available, particularly in Africa¹⁵. 60% of all SME applications for finance around the world are argued to be rejected with applications from women entrepreneurs 2.5 times more likely to be rejected. 68% of SMEs won't return to their banks for financing¹⁶.
- **Digitization and open APIs are competitive pre-requisites in the sector but are not currently improving efficiency:** 60% of banks surveyed by the ICC say they are digitizing their processes, but only 9% of those say that digitization is driving efficiencies¹⁷. Technological change is ever-present in the market and as trade itself becomes digital or service-driven, the pressure on banks to adapt increases.
- **The needs of businesses are changing:** while globally there may be a reported trade finance gap, provision of suitable finance is only one aspect of the support that businesses need. Banks need to be trusted and while this has been a perennial difficulty since the financial crisis, businesses increasingly need help with regulations, tariffs, access to markets and supply chains, and access to people¹⁸. Tailored trade finance, such as invoice or receivables finance, open account or working capital, mean that the role of the “trusted advisor” can only be filled by banks if they have access to a wide range of non-bank, contextual data, such as economic and market research as well as risk analysis.
- **Non-banks are competitive in the markets traditionally served by banks:** Google, Amazon, Facebook, Alibaba, Microsoft, IBM and Amazon are bigger competitors to banks than the banks themselves. They can provide the digitized, small ticket finance to SMEs that cannot be provided as easily by banks who have liquidity, regulatory and compliance concerns alongside commercial requirements for efficiency and competitiveness. These companies have logistics data and have

¹⁵ <https://iccwbo.org/publication/global-trade-securing-future-growth/>

¹⁶ <https://iccwbo.org/media-wall/news-speeches/icc-calls-un-action-address-trade-finance-gap/>

¹⁷ <https://iccwbo.org/media-wall/news-speeches/new-icc-survey-shows-pace-trade-finance-digitalisation/>

¹⁸ Santander Trade Barometer, 2017 and 2018: <https://www.santandercb.co.uk/financing/international/trade-barometer>

the technology to deal with smaller transactions. The new Payment Services Directive¹⁹ and Open Banking²⁰ may serve to speed up this process which could transform the nature of traditional trade finance.²¹ As a sign of just how competitive this market is, and how it is linked to political initiatives, Alibaba and Ant Financial joined forces in May 2018 to launch a fund of US\$600m for technology and innovation for those countries in the One Belt One Road ambit²², while Alibaba's electronic trading hub will connect SMEs and allow them to trade across borders without bureaucracy and is now based in Malaysia as well as China²³.

- **Geopolitical risks are high and banks may inadvertently add to the dangers:** no bank would want to fund trade that helped arms fuel illegal activity or increase global geopolitical tensions. Since the financial crisis compliance hurdles have grown, not as a result of reducing financial risk but to militate against the risks inherent to the politicisation of trade. This is a contextual risk, but one which is nevertheless dominating the provision of trade finance in particular.

¹⁹ <https://www.paymentsuk.org.uk/sites/default/files/PSD2%20report%20June%202016.pdf>

²⁰ <https://www.openbanking.org.uk/>

²¹ <https://www.theoadvisors.com/sites/default/files/finance-study.pdf>

²² <https://www.techjuice.pk/alibaba-group-and-ant-financial-lead-us600m-fund-focusing-on-one-belt-one-road-countries/>

²³ <http://www.scmp.com/week-asia/business/article/2118304/alibabas-electronic-trading-hub-help-small-and-medium-sized>

Where are the risks ten years since the Financial Crisis?

The evidence from Coriolis data is that the world has become more risky since the financial crisis and that trade has channelled that risk. These risks have grown in three ways: first, trade has been the conduit for creating both a prospective debt challenge in emerging markets and a dissatisfaction with the process of globalisation. This is not because trade itself is a bad thing. Rather it is because dollar strength combined with loose monetary policy and low rising real wages globally has created high levels of borrowing along with greater inequality between and within countries. This has created deep-seated resentment against globalisation upon which nationalist/populist politicians have capitalised.

Second, the increase in dual use goods and arms trade is visible with clear patterns of significant growth in some of the countries where surpluses or strategic tensions with the US are also high – China, Russia, Turkey and Iran being good examples. Any escalation in strategic tensions between nations creates a sense in the general public of risk and uncertainty and the fact that countries like Norway, Sweden and Finland have visibly been increasing their defences demonstrates these geopolitical tensions.

Finally, the rise in trade in goods that are military or civilian is important because it highlights the effects of globalisation in trade: these goods contain sensitive intellectual property and know how. Yet they have traded freely until the current trade tensions in the period since the Financial Crisis. There is an extent to which this particular clock cannot be turned back: intellectual property is embodied in most high-end manufactured products. Protectionism arguably raises tensions and creates a risk of miscalculation both economically and politically.

The call to action

1. Data as a tool in risk management and commercial banking

One of the many reasons why trade finance fell back by more than 40% globally in the immediate aftermath of the financial crisis was because of the information asymmetries that were constructed around complex financial instruments such that their purpose and use was not clearly understood. The models on which they were based were just that, models and according to Krebsz²⁴ these asymmetries combined with an over-reliance on models to create uncertainties, a lack of standardisation and an over-reliance on credit ratings which were inadequate to manage the real risks building in the market.

As has been made clear throughout, the risks have transferred from the financial and economic spheres to the political sphere. Economics, and trade in particular, is now a weapon of choice for populist politicians seeking to assert power and strategic influence globally. The current brewing trade war is evidence of this.

Data and technology have given banks, particularly in commercial banking, the tools to manage the financial, political, economic and counterparty risks that have been highlighted here:

- **Improvements in information:** Inefficient processes, legacy platforms and systems and costly overheads can be removed or reduced by using robotics to collect data, and machine learning to integrate data, plug data gaps and reduce end-to-end processing time. Ultimately this reduces the cost of financing, promotes financial inclusion and helps banks to manage risks in a cost-effective way.
- **Fraud detection:** better data at granular sector level allows potential anomalies in a commercial proposition to be checked against contextual data and flagged accordingly.
- **Potential for reduction in fines:** better data through Natural Language Processing improves market and client information and eliminates KYC and AML risks.
- **Predictive analytics:** AI automates market intelligence by providing predictive support to decision-making including opportunity identification.

²⁴ Krebsz, M (2011): *“Securitisation and structured finance post credit crunch.”* John Wiley and Sons, London

Digitisation, itself a feature of the post-financial crisis era, artificial intelligence and big data mean that models no longer need to make assumptions about how the world looks – they can instead be based on real time data that *is* how the world looks. Predictive analytics and What If analysis based on machine learning allow analytics to assess the probabilities of outcomes in a timely and relevant way to the risks at hand.

We are some way from making this standard practice. The tools needed include a combination of macroeconomic data and real time updates to it, news and social media feeds, company level data and analytics to assess the scale of micro reputational, counterparty and credit risks alongside a real time assessment of geopolitical and economic risks. Yet as the boundaries between these risks blur through the trade system, this is the only way in which banks will be able to make informed decisions quickly on the basis of comprehensive and relevant data.

2. Politics and the need to make a case for trade

The dangers of the political situation we are in are self-evident when viewed alongside the data presented here.

Yet the globalists have not told their story well. It was not the ordinary retail banks who created the problems for people or for businesses. Their job was, and still is, to look after people's money. It was the fault of the investment houses, insurance companies and asset managers both within and outside banks that created products that were hard to understand but apparently easy to unravel. The result is that globalisation has become synonymous with greed and complexity, and not with trade which is really what has been enabled by it. Trade itself has become a political and foreign policy weapon since the crisis and yet, it is trade that enables us to eat, work, take leisure and holiday time, access the best possible medicines and the best possible research to improve our lives in the future.

This is the story that now needs telling and needs telling urgently. Why? For one, very simple economic reason. While the threat of trade wars remains real, currencies in emerging markets depreciate relative to the dollar. The post-crisis growth in these economies was fuelled by dollar denominated debt and the

dollar's strength, combined with tighter controls on exports to the US in particular, means that this debt becomes unserviceable. It will be triggered by and spread quickly through the trading system as supply chains shift to divert trade away from countries exposed to tariffs. If this is the aftershock, then it will be just as severe and affect small businesses and individuals who also have high levels of borrowing. It is the responsibility of big business, and banks, to tell this story before it's too late.

Postscript: Where is the UK in all of this?

The global financial crisis has left an indelible scar on the UK. The scar is not necessarily an economic one, it is a social and political one which has left the country devoid of a public debate about what we are as a nation and a society. Our politics and our social discourse have fragmented into extremes as a result of the populism that was triggered by negative or flat real wage growth and a growing sense of inequality of opportunity. The consequence of this populism was the rise of UKIP and Euroscepticism. The Brexit vote has left the country with no middle ground and with dissatisfaction on both sides of the Brexit debate as the government attempts to reconcile the extremes.

Expect this debate to become more accentuated. UK economic performance over the last ten years has been less than spectacular. The UK's growth quarterly growth rates have been less than 0.9% since Q4 2013. Although employment is high, this is at the expense of productivity and productive investment, which have remained stubbornly low despite low interest rates and quantitative easing to ensure that banks could lend to businesses. SMEs in particular have stayed out of the borrowing market, while big corporates have increasingly preferred to fund their growth via the markets. Export values, although higher in the last year because of weak sterling, are only marginally higher than they were ten years ago (\$557bn compared to \$514bn, and most of this is accounted for by the strength of the dollar).

There is little doubt that banks are in a better place: they have the liquidity to withstand the pressures of another downturn and are disciplined by leverage ratios and regulatory supervision that is more powerful than it was before the crisis. Toxic shadow banking, which contributed to the financial crisis, is not regarded as a threat to financial stability and savings are protected through the Financial Services compensation scheme. Regulatory oversight now gives the Bank of England the tools to make sure that banks are not "too big to fail" although this has not been tested in fact. The government's reviews to make banking more competitive have created a swathe of challenger banks and digital solutions, both from high street names and FinTechs and, partially as a result of all of this, Accenture surveys suggest that more people trust banks than at any time since 2012, but that still remains low at only 40% of the population.

As monetary policy slowly returns to normal, banking profitability has improved. However, low interest rates and loose monetary policy after the crisis did not create a return to borrowing for productive investment in businesses and there is evidence from the BoE that much of the consumer borrowing is amongst individuals with high credit scores who are just reshuffling their debts around rather than paying them off. This isn't a trust in banks issue - it is a systemic issue. While uncertainty remains about the global

economic and political climate borrowing remains captured in this non-productive space and that is a challenge for banks and for UK productivity.

People may well trust their banks more, and this may be because they are using digital platforms to access the products that they need. But they are also borrowing more - and although the poorest communities have the lowest disposable income relative to expenditure, it is those with good credit scores who are borrowing the most: people are moving their debts around and not paying them off.

While people remain indebted, their mistrust of the system remains. This makes it harder for the government to bring together a nation that has been so severely divided by the political, economic and social contradictions since the financial crisis. The challenge now is for businesses, financial institutions and government alike to articulate clearly the benefits of trade while setting out a clear agenda for the amelioration of the negative side effects of globalisation such as inequality, mass migration and even conflict. Unless this is done, the UK will remain a confused and divided nation.

Appendix: About Coriolis Technologies Methodology

Coriolis Technologies provides data and analytics to help providers of trade finance understand the reputational, trade, geopolitical and counterparty risks, as well as their market opportunities. Our approach is based on more than ten years of research and development to develop data and intelligence that are timely and material for the sector.

Trade data: the current state of play

The increasing interest in trade since 2010, first as a post-crisis route to economic growth and second as a means of understanding the geopolitical condition of the world, has spawned a vast amount of data about world trade. But there are three key issues with current data which make any strategic or policy decisions difficult:

1. There are differences in country reporting. Because of tariffs on imports, for example, it is likely that data is better than for imports since it is in a country's interests to report these well. Exports are less well reported and some countries do not report trade flows at all. Kenya has not reported any trade data since 2013 with international organizations like the United Nations, for example; Japan says it imports 21% more from China than China says it exports to Japan. The accepted methodology for dealing with this has been variously developed between the OECD and the World Bank.²⁵ In other words, understanding a country's exports in relation to another country's imports will yield a divergent, but potentially more reliable picture of the trade flow itself.
2. Countries will report in different sector codes, in different currencies and at different times. This means that international databases need to be used. Although less timely than country databases, any database that is looking to understand trade flows on a global basis needs to take this data from international sources which provide data on a uniform basis by sector, present the data in a single currency and have taken into account the lags in reporting. The OECD, Eurostat, World Trade Organisation, World International Trade Statistics, Trade Map and the United Nations Comtrade datasets meet these requirements.
3. Trade in services data is inadequate as it presently stands²⁶. Yet trade in services represents 48% of trade in the UK, and at least 20% of trade elsewhere. Capturing services trade, especially as

²⁵ See for example, <https://www.oecd.org/trade/its/2539563.pdf>; <https://data.worldbank.org/data-catalog/trade-in-services>

²⁶ In the UK it is compiled from survey data and matched with balance of payments statistics: <https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/methodologies/uktrade>. A guideline document from the IMF highlights the divergence in service sector coding in line with Balance of Payments statistics: <https://www.imf.org/external/np/sta/itserv/methdev.htm>. The UN (<https://unstats.un.org/unsd/tradeserv/msitsintro.htm>), the WTO

The Coriolis method differs slightly for goods in that it uses machine learning from trends in the data to weight the mirrored trade flows on a multi-dimensional basis and take into account the historical accuracy of country data as well as the current difference between the reported flows. This learning, or AI, is also used to fill unexplained zeros in the database reliably. It includes services but because of the inconsistency in how this data is reported at source, the results are excluded here. The approach for goods yields similarly a result of around 12% divergence between publicly available data and data based on mirroring with the future advantage that there are no human assumptions in the modelling.

This first phase yields results for imports and exports for the EU28 and G20 as shown in Figure A_1. The chart shows the weighted Total Trade Divergence calculation based on the proportion of total trade accounted for by imports and exports. It therefore is a benchmark calculation for the difference between a country's reported trade surplus/deficit and the actual trade surplus or deficit once the missing trade flows are accounted for.

Interestingly, the biggest divergences are in Malta and Cyprus, with Saudi Arabia, Luxembourg and the UAE also with significant divergence from the average of 12%. All of the countries in the top eight have either high levels of commodity trade or big trade finance centres. The divergence matters, not least because it gives an indication of how much trade a country has not reported in a current month or year.

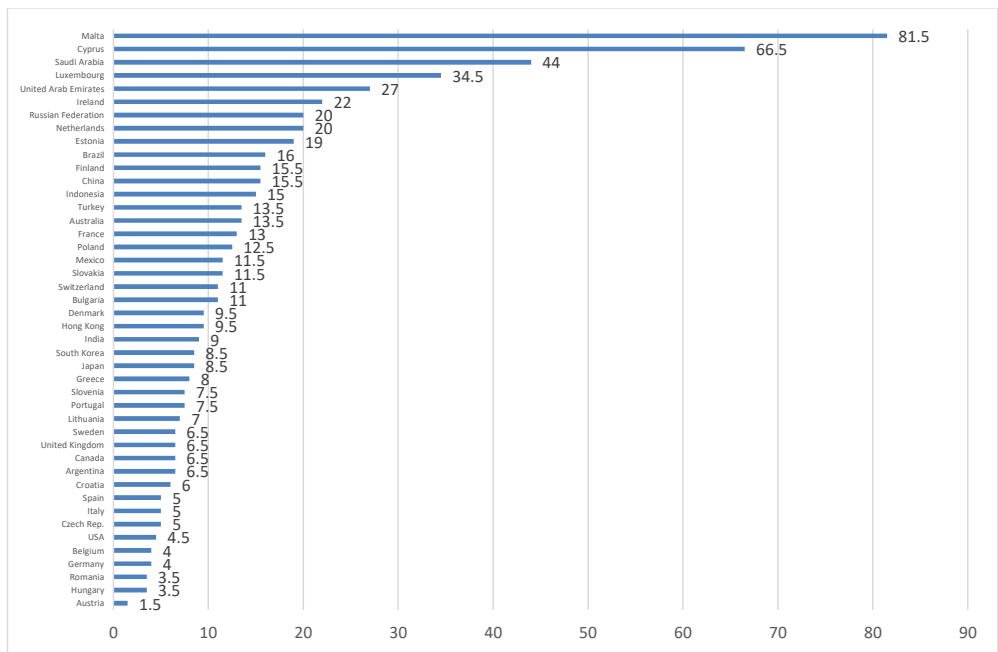


Figure A_1: Total trade divergence (reported to actual) for G20 + EU28, 2017

Commented [DC1]:

Step two: The second major step that has to be taken with trade data is that it needs to be more timely and integrated with tariff, regulatory and company level data. This is done partially by Eurostat, the OECD and the World Bank for tariffs and goods trade, and by Trade Map for tariffs, companies and goods trade. However, no platform provides the analysis in a timely format (i.e. with non-lagged data) and the data is not readily accessible. Trade policy analytics platforms exist, that have data formats that allow economic tools, such as Revealed Comparative Advantage or Industry Concentration Ratios to be developed³⁰ but these are reliant on the data that goes into them, which has the inconsistencies and lack of timeliness highlighted above.

The solution is to integrate customs and excise data with the monthly and annual data that has been constructed in stage 1. Customs and excise data is real time and as a result brings the monthly data up to the current moment. Tariff and regulatory data is available through all the major trade data suppliers. Combining the data allows AI techniques to project trade flows accurately. Because the Customs and Excise level data is company level as well as aggregated, it is possible first to assess the consequences of changes in tariff or regulatory regimes and second to estimate trade finance transactions flows.

Step three: Next is to make the data material integrate the trade data with company level data. This takes the flows from an abstracted level to the level of practical decision-making for banks. The robotic data collection and AI techniques provided connect an individual company with a market opportunity abroad by matching sector codes to trade flows and, more importantly, to potential supply chains or buyers in the target market. This offers supply chain protection and versatility, and makes it easier to move supply chains which is increasingly critical in the mercantilist, protectionist world we are moving too. In so doing, it also allows banks to offer effective advice on counterparties and risk matched against their risk appetite. Reputational risk is measured using a combination of survey, social media and news feeds in real time.

Step Four: The process takes the company, the opportunity and the supply chain and assesses the economic and political risks. The process is the only quantification of geopolitical risk in the world using dual use goods trade and arms trade matched with news monitoring as proxies for pending geopolitical or political conflict.

³⁰ See for example: <http://www.tradesift.com/> or www.trademap.com . The WITS and World Bank databases also have technical analysis like this.

Contacts

Our team is listed below and if there is anyone you would like to speak to, or if you would like to know more about the work we do or the content in this report please email admin@coriolistechnologies.com or for inquiries about data, please contact support@coriolistechnologies.com.

Janos Brezniczky (Developer)

Pieter Claasen, Senior Developer

Dr. Rebecca Harding, CEO

Jack Harding, Head of Political Risk Research

Jintao Long (Developer)

Dr. Tetyana Loskutova, Senior Data Scientist

Dr. Markus Krebs, COO, Chief Risk Officer

Glenn Masters, COO, Business Development

Dr. Gary van Vuuren, Head of Quants