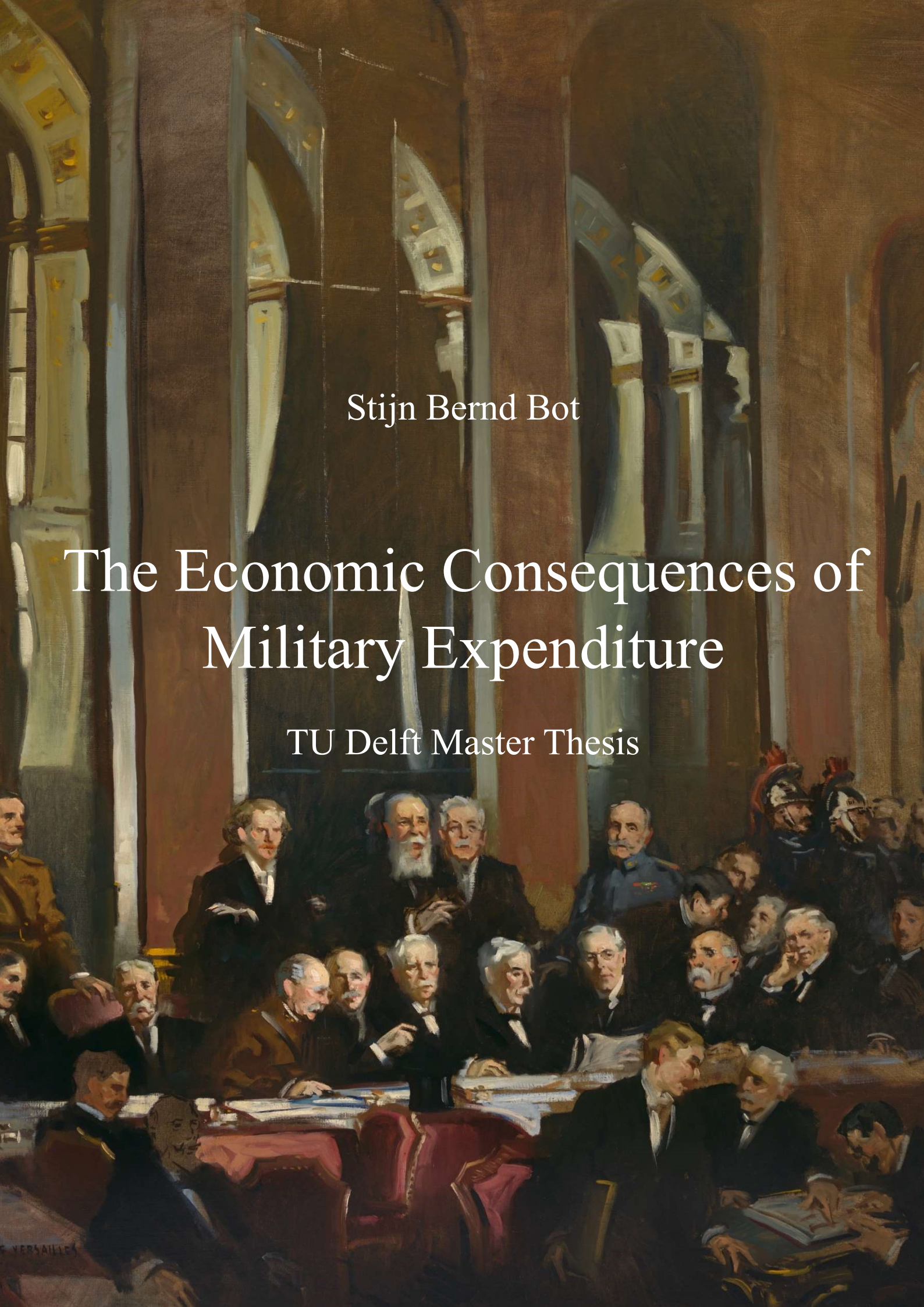

Stijn Bernd Bot

The Economic Consequences of Military Expenditure

TU Delft Master Thesis

The Economic Consequences of Military Expenditure

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Delft University of Technology, Master of Science in Management of Technology

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Front image: Signing of the Treaty of Versailles, 1919 – National Portrait Gallery, Smithsonian Institution; transfer from the Smithsonian American Art Museum; gift of an anonymous donor, 1926 (Restrictions & Rights: CC0)

Foreword

With the freedom given to me by Dr Servaas Storm, I can look back on a period of pleasure, intellectual growth and where I was able to do something where my interests actually lie. That does not mean that it was not a tough period, quite the opposite in fact. The past few months were long days behind my desk, combined with reading, walks and sports. A period of frustration, impatience, and a fight against time, as I soon discovered that an important observation from my research also applies to the progression of my own work, namely that it is non-linear.

Sometimes I forgot the original nature of my research. For me personally, it was more than 'just' research for my master's degree. In that, I am ambitious and strive to actually add something to the existing literature or offer a new insight to people. This is because I am personally convinced that we mostly look at the investment in our armed forces in the wrong way. That we as a society are perhaps sometimes a little too naive or ignorant and strive to live in a makeable world. In my view, we need to learn to accept the randomness and uncertainty that is all around us, while also working to make vital components around us – from infrastructure to economic policy – less fragile. That the invasion of Ukraine by Russian Federation has been the inciting point in this for many people I actually find slightly alarming, as it shows that too often we seem to close our eyes to potential threats and look away for the longer term. On the other hand, this merely sad event also gives me the opportunity to do a research that I doubt would otherwise have been possible at TU Delft.

It is important to me that readers learn the broader definition of the economic consequence of military expenditure. This is not just about the measurable, about numbers and profit. This is about the non-linearity, about asymmetry, rationality, domain thinking and the consequences of war. In this, a number of works are an important source of inspiration for me. In 1919, for instance, the economist philosopher John Maynard Keynes wrote in his work *The Economic Consequences of the Peace* that during the talks surrounding the Treaty of Versailles, politicians were too focused on political interests, but in doing so they forgot the economic importance. Keynes foresaw that the vindictiveness from the political had a destructive effect on the economic and recognised the *nexus*. I also have great admiration for Keynes' courage in withdrawing from the negotiations (of which he was part) and voicing his criticism (*facta, non verba*). The work of writer Nassim Nicholas Taleb, in his five-volume *Incerto* series, is also a major inspiration for me. Many of his concepts are reflected in this research, but are also important for my personal ethics (e.g. you should not adapt ethics to your work, but your work to your ethics). The last writer I draw a lot of inspiration from is the German philosopher Friedrich Nietzsche, who taught me through his work *The Birth of Tragedy* how the known must be balanced with the unknown (i.e. the Apollonian and Dionysian) and we must learn to embrace chance (*Amor fati*).

Although literature received most of my time, for me the most inspiring were the many conversations I had with people. These were the moments that allowed me to slip away from behind my desk. The person who was both my first supervisor and almost weekly interlocutor is Dr Servaas Storm. During one of our first conversations, Storm taught me that "it can be confrontational to get your thoughts down on paper the right way." A statement that I saw passed every day to frustration, but also gave me peace of mind to accept that it is not something unusual. As a supervisor, I could not have wished for anything better. Storm was critical, but also gave me a lot of freedom for creativity and my own intellectual development. His feedback was comprehensive and constructive. But what I enjoyed most were the conversations about anything and everything. From philosophical questions to the best approach for something very specific. Many times I did arrive with a concept from Taleb to the point where I did not dare, because it would make me look like a fan. That time, Storm started with a concept by Taleb. Storm made me feel for the first time that I was actually heard and understood by a lecturer. Lastly, Storm has skin in the game, stands for his own opinion and dares to be critical of academia. A personal ethic that I

have had the pleasure of learning a lot from. I had less close contact with my second supervisor and chair of the committee Dr Ir. Udo Pesch, yet our contact moments were very important for my research. His vision and keen eye made me look critically at points I had not thought of before. In it, he often challenged me to take my writing or thinking about a particular point to the next level.

Even before I had started my master thesis and was still, in late 2023, working on my proposal, I came to the conclusion that the complexity of my topic would call for talking to different people in the field – where in particular my knowledge was lacking in the military domain. For this reason, I contacted Lieutenant-general (retired) Mart de Kruif. De Kruif is a former Commander of the Dutch Armed Forces and former commander of the Southern Region during the ISAF mission in Afghanistan where he commanded over 40,000 soldiers. During my research, I visited de Kruif his home twice to speak on and discuss the subject where I was always very warmly received. De Kruif also became part of my thesis committee in an advisory role. I am enormously grateful to de Kruif for his accessibility, hospitality, and helpfulness. I could always count on de Kruif and I was able to learn a lot from him. I will look back on our conversations about a less fragile perspective, the military domain and history with great delight.

De Kruif also helped me get in touch with two other generals. Lieutenant-general (retired) Ton van Loon, who was de Kruif's predecessor from 2007 to 2008 as commander of ISAF South and the first general of the German-Dutch Army Corps. When I met van Loon in a café in The Hague, we talked about my research for over two hours (we had scheduled an hour for it). Van Loon mainly taught me that the boundary of warfare is blurring in today's world (he stressed the importance of hybrid warfare). In addition, through de Kruif, I also met deputy Major-general of the COMMIT (*Commando Materieel en IT*) Ludy Schmidt. With Schmidt, I discussed the role of the armed forces in technological development, but we also philosophised about the relationship and interaction between the different domains. With my first introduction to the military domain, I learned that soldiers have skin in the game, they analyse risks extensively and anticipate. They know how to guard against fragility. I also saw their camaraderie, the sacrifice and pride they carry with them. In doing so, it not only contributed a lot to my research but also to me as a human being. I also spoke with defence economist Professor Dr Robert Beeres. The conversation with Beeres was a crucial step for me in bridging the different domains. Beeres understood both the military and economics and was able to provide critical perspectives from both.

Besides the people I spoke to, I am immensely grateful to the people I love most. They supported me unconditionally, showed interest, were proud, but above all they were there for me. Without them, I could not possibly have achieved this result. Many of my interests, such as the history of World War II and philosophy, originated when I was with my grandfather, Ben Bot, and he told me the stories and shared his own memories with me. Sadly, my grandfather passed away, far too early, in 2014, but during my research I have thought of him a lot and am grateful for what he taught me.

There were a number of moments when I thought about how best to approach the research and how to guard objectivity as closely as possible. In my own judgement, I have been able to ensure this as much as possible, and those parts that have a more subjective undertone will be clear to the reader. However, complete objectivity will be impossible. After all, I am a Dutchman looking at the geopolitical context from a Western perspective. Or, as Karl Popper would put it, I myself am the *unit of analysis*.

With my work, I hope to teach you more about the economic consequences of military expenditure, but also about the world of chance and uncertainty. I hope to give you something for the future. I wish you much reading pleasure.

Stijn Bernd Bot
August 2024

Executive Summary

The invasion of Ukraine by the Russian Federation in February 2022, the end of the unipolar era forcing the United States to shift its focus from Europe towards Asia, as well as the other rising turmoil around the world. These developments have shown many European countries that economic power is insufficient to protect their fundamental values and also demands military ability, which has been substantially reduced after the end of the Cold War. This research answers the following main question: "What are the economic consequences of military expenditure for Germany and the Netherlands?" To answer this question, the study consists of four, quantitative as well as qualitative sub-questions.

The first sub-question provides a deeper fundamental analysis of the changing perspective on military expenditure. It examines recent history, from the beginning of the twentieth century, from the three different domains: political, economic, and military. On the basis of this recent history, the *nexus* between these three domains is shown in a descriptive, rather than explanatory manner. It also shows that history teaches us that alliances are temporary (Germany was the enemy of many countries before 1950) and can make hostilities disappear during crises. For instance, even the United States and the USSR were able to work together during World War II to defeat their common enemy. The final observation from the prepared timeline is that the geopolitical situation, in which Europe finds itself, continues to evolve which means that it should not be analysed from a static point of view.

To determine the economic consequences of military expenditure, economic analysts commonly refer to the fiscal multiplier. Within academia, this Keynesian, theoretical, concept is controversial and disputed by other macroeconomic approaches. Also, the empirical literature does not offer an unequivocal answer concerning the size of the fiscal multiplier. Some researchers argue that it is negative, while others conclude that the fiscal multiplier is positive, or that it changes in size over the business cycle. In this thesis, the fiscal multiplier is estimated using an intuitive and simplified method. The econometric analysis shows that the fiscal multipliers for Belgium, Germany, France, the Netherlands, and the United States vary between -0.179 and 0.672. It is concluded that the fiscal multiplier can be used purely as a theoretical concept, because measurable data is insufficiently able to absorb the short- and longer-term effects on the economy of military expenditure.

The intangible effects of military expenditure are described based on the third sub-question. The thesis considers the evolving nature of warfare in which the term 'hybrid warfare' is increasingly used. It shows that warfare extends deep into the country behind the front lines (e.g. attacks on infrastructure, but also on-line hackers attacking European companies and infrastructure). Therefore, the role of defence needs to be redefined. Climate change also plays a vital role as it can create global unrest and demands a greater role for defence when natural disasters (such as floods) occur. Lastly, this chapter looks at the potential role of defence in technological development and innovation, including which role belongs to the private sector and which to defence.

After an extensive analysis, a *novum modus operandi* is formulated that offers handles for a less fragile perspective on military expenditure and its economic consequences. For this, we need to understand that war is non-linear and asymmetric. A longer-term vision is required and we need to look at the concept of the efficiency of military expenditure differently. For German and Dutch society and policymakers, there are four concrete points in this: (1) accept uncertainty and move away from the idea of living in a makeable world, (2) redefine the role of defence to the modern world, (3) decentralise so that people have skin in the game again and (4) recognise the nexus between the political, economic and military.

This study shows that the economic consequences of military expenditure are (socially) significant. Although the effects of higher military spending may look negative in the shorter term (depending on relative global stability), the longer-term economic consequences turn out to be mostly positive. Indeed,

military expenditure is inherent in building a capable defence that is able to protect the liberal-democratic order of the Western world, but there can also be positive economic and social effects, such as on innovation and in terms of a less fragile society.

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Introduction

The Economic Consequences of Military Expenditure

In today's world, a evolving attitude and perspective of European countries on military expenditure is expected. It is due to increasing turmoil in the geopolitical context that is leaving its mark on the political, economic, and social spheres, among others. Two key factors within this are the war in Ukraine and the changing focus of the United States (U.S.) within the world stage. No longer can Europe blindly rely on the security umbrella of the U.S. with the domestic political challenges, but also the rising power of China shifting the focus of the U.S. towards Asia and labelling Europe as 'less relevant'. This requires a less fragile perspective on military expenditure from a European strategic point of view.

It is an era in which the unipolar world, following the end of the Cold War in 1991, has come to an end. Countries like China and Russia care little for Western norms and values. They prefer a multipolar world, leaning on the traditional concept of power politics and expanding their sphere of influence further and further around the world (e.g. in Africa, but also the situation around Taiwan). For a long time, Europe has been turning away from these power politics, but after Russian President Vladimir Putin announced a special operation on 24 February, 2022, after which the first missiles, even before daylight, reached cities like Mariupol, Odessa and Dnipro, and after which Russian troops crossed the border between Belarus and Ukraine shortly afterwards, it became clear to them, too, that a major change was imminent (Lister, John, & Murphy, 2022). Within five days, the Russians hoped to bring what they saw as the 'Nazi regime' of Ukraine to its knees, but the Ukrainian people proved combative and resilient. With (growing) financial, economic and military support from the West (mainly from the North Atlantic Treaty Organisation (NATO) and the European Union (EU)) sufficient resistance was offered and the war gradually turned into a protracted conflict characterised, on the one hand, by a traditional fight from the trenches as in the Great War (1914-1918) and, on the other hand, by a modern hybrid battle (think of attacks on energy supplies and cyber domain) where nothing and no one is spared.

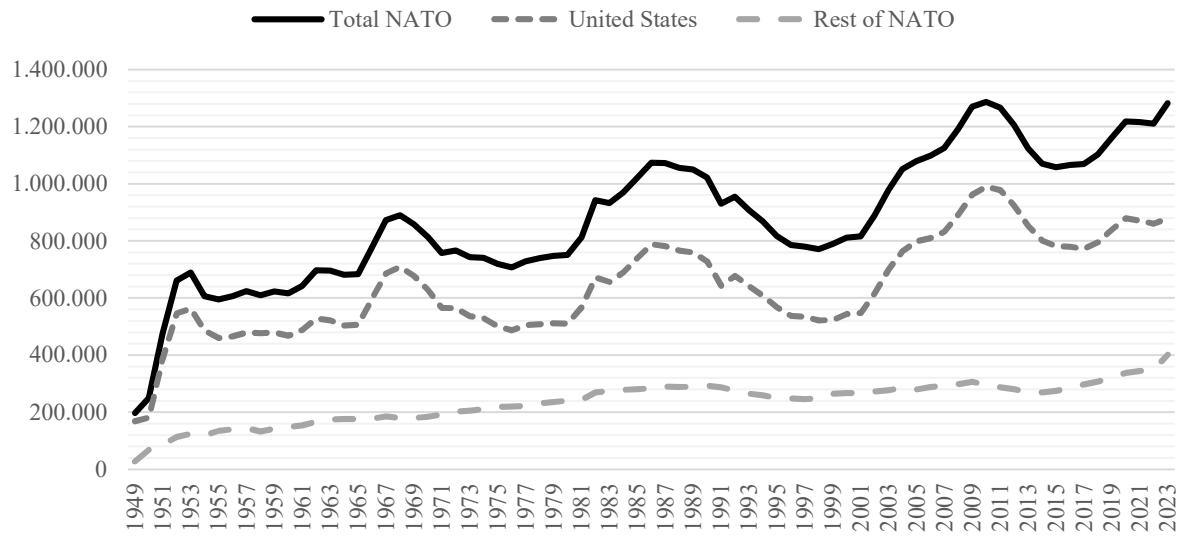

Figure 1: Military expenditure NATO in millions of US$ at current prices and exchange rates (SIPRI, 2024)

If Europe wanted to be part of the new multipolar world order, it could no longer lean purely on economic power. Indeed, military power, for which Europe had hitherto depended on the US, is inherent in the returning power politics. This military power was largely phased out by Europe after the end of the Cold War, culminating around the Eurozone crisis between 2010 and 2014. In Germany only 1.15 per cent of gross domestic product (GDP) was spent on defence in 2014 (SIPRI, 2024). Well below NATO-set norm of two per cent of GDP (Paul Belkin, 2021).[1] This to the great displeasure of the U.S. who had to carry the biggest weight on their shoulders. That the dependence of the Americans within NATO was enormous is also shown in Figure 1. Throughout this time series, the U.S. is responsible for an average of 73.4 per cent (with 66.4 per cent (1999) as the lowest and 85.7 per cent (1949) as the highest value) of spending within NATO. This is while the number of member states has grown from 12 to 32 during this period.[2] After a period of decline, countries besides the U.S. began to invest more in its armed forces again after the annexation of Crimea in 2014. This spending increased even further after 2022, as shown in Figure 1 and Table 1.

Table 1: Overview share of military expenditure U.S. and the rest of NATO – own work (SIPRI, 2024)

Year	Occasion	United States	Rest of NATO	NATO members
1949	Establishment of NATO	85.7%	14.3%	12
1991	The end of the Cold War	69.1%	30.9%	16
2001	Start of the War on Terror	67.2%	32.8%	19
2010	Start of the Eurozone Crisis	77.0%	23.0%	28
2014	Annexation Crimea and the end of the Eurozone Crisis	74.8%	25.2%	28
2022	Russian invasion of Ukraine	71.1%	28.9%	30
2023	One year war in Ukraine	68.7%	31.3%	32

The reduction of military expenditure within Europe had its impact the moment it was needed again. Whereas Germany was in possession of 7,000 tanks den times of the Cold War, this had been scaled down to 200. The Netherlands had even said goodbye to all its tanks. With the new, weakened, capacity of the German defence industry, the Germans were able to deliver only three tanks a month (Colchester, Max; Luhnow, David; Pancevski, Bojan;, 2023). Nor was Europe able to deliver the one million shells promised to Ukraine within a year (NOS, 2024). It reflects the political belief that a traditional war, with tanks as a weapon, would no longer occur on the European continent. Although according to some, the 2008 conflict in Georgia would already have been a harbinger (de Wijk, Het Nieuwe IJzeren Gordijn, 2024) and we would have focused too much on humanitarian missions (Osinga, 2021, pp. 1-15).

It seems characteristic of political action in which importance is recognised only when the problem arises. I attribute this problem to thinking in its own domains and the lack of the nexus between the different domains, either political, economic and military (see Figure 2) that I recognise in this work. The philosophical writer Nassim Nicholas Taleb describes this as *domain dependence* in which one understands a thought in one domain (an area, particular kind or activity) but not in another (Taleb,

[1] A standard that only 9 of the then 30 NATO members met by 2021 (Paul Belkin, 2021).
[2] Officially, Sweden became a NATO member on 7 March 2024 (NATO, 2024), but for convenience, this study mostly uses 2023. As seen later in this study, membership was postponed due to thwarting by some countries within the alliance.

2021). That one had little interest in looking beyond, its own, political domain was, according to economist and philosopher John Maynard Keynes, the case for the participants in the Versailles Treaty talks in 1919. According to Keynes, political interests were placed above economic which, in his view, would increase the likelihood of future unrest, dictatorships and war (Keynes, 2020/1919). From the economic domain, economists Servaas Storm and Ro Naastepad argue that economists "should give up false scientific ("naturalist") pretences and stop claiming that economics is a nonpolitical subject." Otherwise, the real-world relationship will be destroyed (Storm & Naastepad, 2012, p. 234). That "war is a merely continuation of policy by other means" was stated by Prussian general Carl von Clausewitz, in his book *On War* (Von Clausewitz, 2007/1832, p. 28) and was once again proven by Russia who invaded Ukraine for the political purpose of "demilitarisation and denazification" (Kirby, Paul;, 2023). In the past von Clausewitz's framework already allowed for example Marxists, Nazis, and liberals to acquire support (and the authority) for their own strategies and theories (Freedman, 2013).

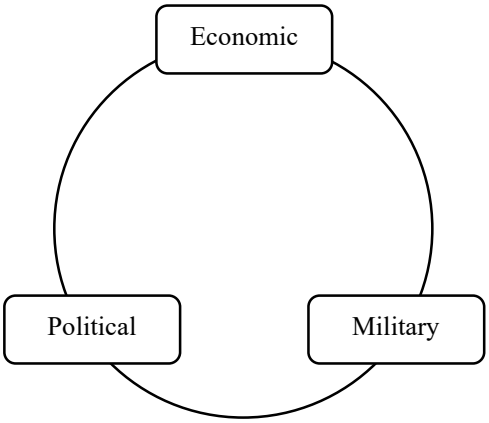

Figure 2: The nexus of the economic, political, and military domain (own work)

The aim of this study is to learn more about the economic consequences of military expenditure from the strategic point of view of the three domains defined above. With this, the economic consequences are not considered from a single domain, or discipline, but mainly reasoned from the coherence (the *nexus*) of the three different domains. This analysis develops a *novum modus operandi* for western European countries, specifically, Germany and the Netherlands. This study answers the following question:

What are the economic consequences of military expenditure in Germany and the Netherlands?

Subsequently, to answer the research question, the following four sub-questions have been drawn up:

1. How did military expenditure evolve from the early twentieth century?
2. What is the fiscal multiplier of military expenditure of Germany and the Netherlands?
3. What are the broader consequences of military expenditure of Germany and the Netherlands?
4. How does a novum modus operandi in terms of military expenditure look for Germany and the Netherlands?

Working towards answering the main and sub-questions is achieved in six chapters. To understand the coherence of these six chapters and their relation to the sub-questions, it is important to further discuss my justification underlying these chapters. Herein, the first chapter acts as a fundamental part of the research and affirms the first sub-question to be answered. This chapter looks at the economic consequences of military expenditure from the beginning of the twentieth century (from the Great War onwards, to be precise) with the domains, political, economic and military being central to it. The aim of this chapter is not to run through the timeline by means of an explanatory method, but rather to apply a descriptive method. This means not describing laws, patterns, tendencies or rhythms, as Karl Popper would say, but instead looking at the complexity of the theme, the often underappreciated nexus of the different domains and the contrasts that are mostly self-evident within the timeline. It is a detailed and relatively large (historically-oriented) chapter for answering the first sub-question, but in my personal opinion, this is an essential first step in making the insights underlying this research visible and accessible to all (readers familiar with this history, I recommend focusing mainly on the introductory and concluding section). Despite the breadth of the chapter, the level of detail in history knows no end (and is impossible to capture in its completeness) and in this I have therefore had to make, deliberate, choices. As a result, a number of issues, which would be essential in the perspective of some, have not been covered, or only marginally. Therein, it is important to see that (once again) the aim of this chapter is not to explain history, but merely to describe components of it and thus the choice of themes should be seen in this particular 'light of day'; an example of this, for instance, is the description of the aftermath of the Great War and World War II, both of which contain contrasting approaches (revenge in the post-Great War peace talks versus reconstruction in the end of World War II).

Although the first chapter focuses on a description of the timeline from a mainly Western perspective, the subject needs to specify itself in order to better answer the main and sub-questions. Despite many ideological similarities within the Western world, there are also (fundamental) differences that cannot be generalised (just look at the different view on power politics between the U.S. and Europe), which means that the economic consequences of military expenditure (and the view on it) cannot be generalised either. The second chapter therefore focuses on a categorisation and selection (from the different domains) of the countries after which the unit of analysis was chosen: Germany and the Netherlands. This second chapter does not answer any of the sub-questions, but contributes to the specification of the first chapter (the foundation) in order to answer the subsequent sub-questions. In doing so, this chapter also provides a comprehensive insight into the data, from military expenditure, for example, which can be used to strengthen later reasoning.

Having laid both the foundation and selected and categorised the countries, the economic consequences of military expenditure can now be explored in more detail. These economic consequences are divided into tangible and intangible parts (or measurable and non-measurable). This first tangible examines the fiscal multiplier of military expenditure – a Keynesian concept that states how much GDP grows or falls with each a change in government spending. By looking at the existing literature on the subject, it allows, on the one hand, to establish a method for independently estimating the size of this fiscal multiplier (including validation) and, on the other hand, to carry out understanding and research on this notion. It turns out that despite the measurable concept of the fiscal multiplier, the answer is not straightforward. Different studies point to different outcomes in terms of the economic consequences of military expenditure. For the independent estimation of the fiscal multiplier, I did not merely focus on Germany and the Netherlands, but also included Belgium, France and the U.S. in this analysis to create comparisons and a broader context.

On the basis of the second sub-question, it can be concluded that this first tangible component proved to be insufficient (since the fiscal multiplier appears to be a purely theoretical concept) for answering the main question and, for that reason, an additional component should be added. This additional component is also the answer to the third sub-question and is described in chapter four. This chapter deals with the non-tangible or non-measurable part with which this chapter can also be labelled as

undisputed in some measure. After all, the value of the non-measurable (i.e. the economic consequence in a broader context) is almost impossible to concretise into an economic value. This also makes it all the more valuable because it shows that the economic consequences of military expenditure are broader than quantitative values. This non-tangible part looks at components such as hybrid warfare, the role of climate, technological development and innovation, as well as the role of the free market, cooperation and dependency.

These second and third sub-questions build on the fundamental first sub-question and together provide an opportunity to arrive at the development of a renewed, less fragile perspective on the economic consequences of military expenditure. In other words, chapter five describes a novum modus operandi. Answering this fourth and also final sub-question first describes the unpredictability, uncertainty, non-linearity and asymmetry of warfare. We then elaborate on the various considerations in which a critique of the current novum modus operandi was made. The final section of this chapter discusses key actions to develop a less fragile perspective on military expenditure.

With the answers to the four sub-questions, the sixth chapter (the conclusion and recommendation) answers the main question and describes the economic consequences of military expenditure for Germany and the Netherlands, and also provides advice for policymakers, among others. Answering the main question also directly shows the value and importance of the sub-questions. In this, the first three sub-questions are mainly intended to answer what the economic consequences amount to and whether they are negative or positive, while answering the fourth sub-question also creates the possibility of making a recommendation, but also offering an extra 'dimension' through which the economic consequences take on a deeper meaning in a world of uncertainty, non-linearity, asymmetry and the unpredictability of events. In totality, this also demonstrates domain thinking and shows the nexus between the domains of the political, economic and military to be one of the key components.

This study aims to develop theory that contributes to the field of knowledge regarding the economic impact of military expenditure, with specific reference to Germany and the Netherlands. The methodology of the study consists of both a qualitative and quantitative part:

Qualitative part: The qualitative part is based on grounded theory with the aim of theory development. The unit of analysis in this part are the countries (Germany and the Netherlands). There are no interviews[3], but data is collected through literature review with the use of several sources such as Web of Science and Google Scholar, but also the open internet. The data of the qualitative part involves articles, documents, newspapers, reports, books, and literature of relevant topics. It is an iterative process of data collection, reduction, display and concluding. Labelling pieces of text is realised with open coding. An essential share of the qualitative part is the realisation of a timeline. The aim of the timeline is to develop a broader, grounded perspective on the evolution of military expenditure in relation to the situation of that time. Throughout almost the entire study, qualitative research will be conducted to answer the main and sub-questions. In contrast, the quantitative part is only a smaller and supporting part of the entire research.

Quantitative part: Within the quantitative part the aim is to estimate the fiscal multiplier on military expenditure. The first step is to collect different studies which determine the fiscal multiplier. In this way a reliable method can be developed,

[3] This study did include several exchanges of views with thinkers and practitioners in these fields, such as Lieutenant-general (retired) Mart de Kruif (advisor to this study), Lieutenant-general (retired) Ton van Loon, Major-general Ludy Schmidt, defence economist Professor Dr Robert Beeres and economist Dr Servaas Storm (supervisor). If an idea is borrowed from any of them, this is mentioned and is in consultation with the person concerned.

and validity can be ensured. The next step is the collection of data. This includes analysing data from Eurostat, OECD (Organisation for Economic Co-operation and Development) and SIPRI (Stockholm International Peace Research Institute). The latter is used for data related to military expenditure while the others are used for economic performance. If data is collected and prepared to determine the fiscal multiplier with respect to military expenditure, it will be analysed via a regression analysis and the use of descriptive statistics. The main purpose of the quantitative part of the study is to lend strength to the development of a novum modus operandi. The quantitative ensures that the subject not only remains abstract, but also becomes more 'tangible'. Besides mainly the section around the fiscal multiplier being quantitative in nature, there are also sections throughout the study where data is used to add strength to various observations or reasoning.

The structure of this study is relatively uncommon. This was deliberately chosen to provide a holistic understanding of the economic consequences of military expenditure. Although the chapters can be read separately, the coherence on which the reasoning is based must be constantly observed. In addition, this study requires a relatively unconventional use of different sources. This is due to a mostly complex, politically sensitive and debatable topic. In doing so, I made conscious choices throughout this study in which type of literature was the best fit. More on this can be found in the epilogue at the end of this study.

1 Strategy in the History

Creating a Timeline Within the Different Domains and on Military Expenditure

Revisiting the perspective on military expenditure requires looking at its past from a broader perspective. That is, from the different domains previously defined (the political, economic, and military). This will deepen the understanding and meaning of military expenditure, but also provide a foundation for examining its (economic) consequences. The intended goal is to create a global timeline that is not explanatory, but descriptive. The interpretation of the timeline is therefore non-committal. *The poverty of historicism* as argued by Karl Popper is recognised in this study. Popper defines historicism as "a mode of approach to the social sciences ... which assumes that the prediction of history is their main goal, which can be achieved by discovering the 'rhythms', or 'patterns', the 'laws' or 'tendencies', that underlie the development of history" (*p.16*).[4] That does not mean, however, that predictions are out of the question. According to Popper, predictions can serve as a means of testing theories (think of economic theories, for example) (*p.12*). That natural laws are hypotheses (from the pro-naturalist doctrine) does not mean that all hypotheses are universal laws, but only one-off statements based on an event (*p.105*). As long as researchers themselves are the *unit of analysis* (i.e. humanity and consequences of actions themselves), full objectivity, influence and rationality as reflected in the natural sciences is almost impossible. It can be captured in an example where the researcher makes a statement about a stock market. When the researcher states that the stock market 'crashes' on day three, a logical consequence is that on day two the traders sell their shares and this prediction indeed comes true (Popper, 1967).

Contrary evidence also shows that past events tend to seem more logically explained in hindsight than they were at the time – this is described as *hindsight bias*. In a study by Baruch Fischhoff *(Hindsight ≠ Foresight: The Effect of Outcome Knowledge on Judgment Under Uncertainty*), a number of experiments showed that judges did not fully appreciate the impact on their perception of the knowledge they took in retrospect about a case. As a result, one overestimates what they know without knowing the outcome and also what others would know without knowing the outcome. This also makes it difficult for judges to judge what might have happened differently. In doing so, we underestimate uncertainty and chance (e.g. that the attack on Pearl Harbor could have been prevented) and everything seems to be explained more logically in hindsight than it actually was (Fischhoff, 1975).

Building on the retrospective explanation of events, it can also be seen as unfair to judge a decision solely based on the outcome. According to Nassim Nicholas Taleb, the quality of a decision can only be considered by looking at the cost of the *alternative history*, or to the cost of history if things had turned out differently. Specifically, this means that the influence of chance on history should not be underestimated, but it should also be explicitly considered whether, from the source of the event, coincidence is involved. The latter is clarified by Taleb with an example. When given the chance to win ten million euros by playing Russian roulette, one chamber of the revolver is loaded with a bullet. In five of the six cases, the player becomes extremely rich, but in one of the cases he will pay for it with his life. By merely looking at the outcome of the decision made earlier, the player will be labelled a hero or foolish – so the alternative history must be observed to judge the outcome. The example continues

[4] Those who believe in historicism and thus predicting the future in which development of human knowledge plays a role assert Popper: "if there is such a thing as increase in human knowledge then we cannot anticipate today what we will not know until tomorrow" [own translation] (Popper, 1967, p. 12).

with that the ten million euros for an accountant is the same as the ten million euros earned by a dentist during his career. To the eye, the merits are the same, but in reality, they can be assessed qualitatively differently. After all, one person has become rich through a risky venture by luck and the other detects a form of consistency and chance plays a lesser role (Taleb, 2009, pp. 31-33).

It should thus be clear that while creating a timeline is more complicated, its effects are also limited due to the above caveats – chance plays a significant role. Thus, by looking at events, interactions, analyses and philosophies (from the early twentieth century to the present) from the strategic point of view and in descriptive ways, it does not use rhythms, patterns, laws or tendencies (as Popper described it) to make a prediction, but provides the foundation for further research into the economic consequences (in a broader sense) of military expenditure. It thus provides a greater understanding regarding the subject and possibility of developing a new perspective.

The fact that the study looks at history from a strategic point of view makes it necessary to go deeper into the concept of strategy. People know more than we can put into words. This becomes clear with a simple, but strong, example from Nassim Nicholas Taleb: the word 'blue' is only required to draft the story, but not to see the colour blue (Taleb, 2021). According to Sir Lawrence Freedman, it was not until the early nineteenth century – reflecting growing confidence in empirical science of the Enlightenment and command under Napoleon – that the word *strategy* came into typical use, but that did not mean that strategy did not already exist. The Greeks and Byzantine had similar words of todays' known *strategy*, for example *stratēgike episteme* would have meant generals' knowledge and *stratēgōn sophia* generals' wisdom, and although there was no generally agreed upon definition it was agreed that it had something to do with a "supreme commander and the linking of military means to the objects of war" (Freedman, 2013, pp. 72-74). The fact that the word strategy is grounded in military literature makes it also meaningful to begin studying the meaning from this field. The Swiss military theorist and member of Napoleon's staff Antoine-Henri de Jomini described strategy as "making war on the map" (Echevarria II, 2017, p. 2). Prussian General Carl von Clausewitz in his famous work *On War* stated that "strategy is the use of the engagement for the purpose of the war" and "he [the commander] will draft the plan of the war, and the aim will determine the series of actions intended to achieve it" (Von Clausewitz, 2007/1832, p. 135). According to Professor John Lewis Gaddis, the concept of strategy is lacking when it is limited to the military domain and preparing for war. In addition, Gaddis points out that strategy does not always concern complex matters, such as governing a large empire, but also simpler tasks such as finding food or securing shelter. When strategy is viewed from this broader perspective of "aligning resources across time, space and scale" then strategy can unfold into *grand strategy* (Gaddis, 2022, p. 33). Jordan et al. (2016) defines *grand strategy* as: "the co-ordination of the state's resources towards the attainment of the policy objective(s)." A translation of such a grand strategy can go beyond national borders by forming alliances such as the North Atlantic Treaty Organization (NATO), which uses diplomatic, economic, military and informal resources, and which manifested itself in times of the Cold War to a grand strategy of containment (Echevarria II, 2017). In the interest of the research, emphasis will be placed here on the grand strategy from an economic, political, and military perspective in which this interaction and dependency plays a significant role. Just as war has a polymorphous character, this is also the case for strategy, it is multidimensional and concerns society, cultural, economic, logistics, doctrine and space and time (Jordan, et al., 2016). Due to the multidimensional and polymorphous character of strategy this research will not stick to one definition but use the word in the broader sense as expressed above.

Even though the term strategy is grounded in the military domain, it can, as stated before, be drawn more broadly. Strategy was also prescribed for the governing body, although it was not mentioned as a strategy at the time (at the beginning of the sixteenth century), it meets the definition described earlier. In his book *Il Principe,* the Florentine writer Niccolò Machiavelli managed to describe the importance of strategy for a *principe* (a monarch, but also more general a leader) when the concept was not yet recognised. In one of the better-known parts, Machiavelli used a comparison to the animal kingdom. In

this passage, Machiavelli questions whether a monarch should keep his word. According to the two ways in which one can fight, according to the first one should function as a human being when one must follow the laws, but when violence is necessary one should function as an animal (like a centaur Chiron – half man half horse). According to Machiavelli, the human form is often not possible (one of Machiavelli's principles is that people are bad) and one must therefore locate oneself within the animal. The choice is between a fox and a lion. To avoid traps one must choose the cunning of a fox, but a fox is not enough against wolves and must then take the form of a lion (Machiavelli, 2019/1532, p. 154). Strategy also plays a significant role in business and innovation. In a more traditional view of innovation or business, strategy is considered "as plan ahead for what new things it wants to do" – from product development to organisational processes (Newell, Morton, Marabelli, & Galliers, 2020). Henry Mintzberg also recognised the importance of strategy in business, defined as "a pattern in a stream of decisions", and compared intended with realised strategy – resulting in a distinction between *deliberate* and *emergent* strategy as shown in Figure 3 (Mintzberg & Waters, 1985). According to William H. Starbuck (2017), the fact that the intended strategy does not materialise in many cases is also since it makes the organisation less flexible due to the formalisation and long-term predictions that are adhered to. The pitfall for companies often lies in the fact that they are too focused on their core strategy and when obstacles arise, they appear unable to switch from their current vision to a new one (Starbuck, 2017). The rigidity of organisations or entities where strategy plays a role may have to do with the underlying ideology that forms the planning theory. Planning and forming a strategy has a fundamental connection with a collection of ideas that come together to form political issues relating to the organisation of a state or the economy (Shepherd, Inch, & Marshall, 2020).

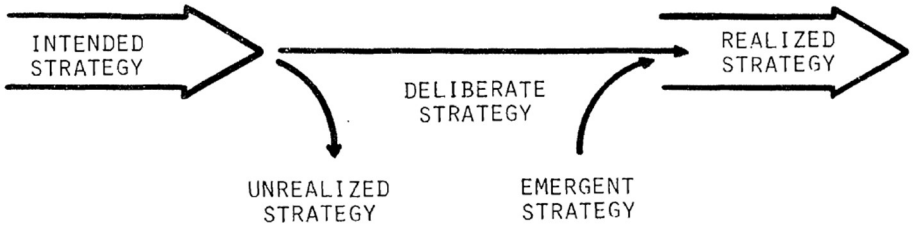

Figure 3: Types of strategies (Mintzberg & Waters, 1985)

In conclusion, it can be said that strategy is an expression of an underlying ideology. Although it cannot be captured in one definition and applies to almost every aspect in life, the word can be summarised as aligning means to achieve an end. In this research, strategy helps to determine how it is applied in the past and current situation, whether the intended strategy is achieved and what is needed to attain forthcoming aspirations. In short, the term strategy (and grand strategy) plays an important (underlying) role throughout the research.

1.1 A Glance Ahead

The timeline helps the reader gain a broader perspective of military expenditure and its economic consequences, but most importantly it helps the reader understand the nexus between the political, economic, and military (mostly from a strategic point of view). To best extract the main lines from the text, it is of added value to also discuss the conclusions first. In this chapter, a timeline has been developed of which a number of important events in history, from the early twentieth century onwards,

have been worked through in a descriptive method.[5] So not in a retrospective explanatory manner (hindsight bias) in which the aim is to find 'rhythms', 'patterns', 'laws', or 'tendencies' as described by Karl Popper (1967). Within this chapter, strategic thinking is at the centre and the foundation for further research has been laid. From this chapter, the following key points can be identified:

[1] *The interaction of different domains, is more important than the domains in themselves* (after all, the military domain, for example, loses its value if it no longer serves to protect a nation's political ideology or economy).

[2] *Alliances or enemies are part of the spirit of the times and therefore change over time* (where Germany was once the Allies' main enemy, it is now one of the main partners).

[3] *Fundamental disparities can fall into oblivion when a higher common purpose arises* (despite the fundamental differences between the Soviet Union and U.S., they still worked together to defeat Nazi Germany).

[4] *The world order is constantly shifting* ("Something that exists in motion is never stable" (Seneca, 2023, p. 154)).

1.2 From Destruction to Reconstruction

In the twentieth century, the world experienced two world wars. World War I (also called the Great War) from 1914 to 1918 and World War II from 1939 to 1945. This section mostly looks at what happened after these wars. Events following the Great War were different from events following World War II, but in both cases politics had an essential role and led to economic and, according to some, even new military conflicts.

1.2.1 The Treaty of Versailles

British economist John Maynard Keynes was part of the British delegation during the peace talks, which eventually became the Treaty of Versailles. During the talks, Keynes developed great dissatisfaction with the character of the talks. Where, according to him, there was too little consideration for the longer term. It eventually made Keynes decide to resign and return to the United Kingdom (U.K.). Keynes (1919) wrote his dissatisfaction in *The Economic Consequences of the Peace*. The work emphasised that the treaty could create unrest in the future – which many (later, in the 1930s) interpreted as a prediction of the rise of fascism and Nazi Germany (Kirshner, 2019).[6] To better understand his vision, it is important to first look more deeply at the origin of the peace talks.[7]

The Great War had been going on for quite some time (since 1914) and cost many lives. In 1917, there were first signs in Germany that they should take the initiative to bring the war to an end. Some

[5] To create the clearest possible narrative, many sources were consulted. Although these sources have been referred to with care, different sources have been used interchangeably in some paragraphs. In that case, the sources used are usually listed at the end of a paragraph.

[6] Such a far-reaching conclusion cannot be supported in this study as it is of both explanatory nature and from a progressive insight perspective (*hindsight bias*). Nevertheless, Keynes did show the world in 1919 with his work *The Economic Consequences of the Peace* that the Treaty of Versailles could result in turmoil.

[7] The description of the end of the Great War is based on the work (an article) of Hans Andriessen (2022) who is a First World War connoisseur and has written several books on the Great War in his career (Andriessen, 2022).

politicians no longer believed in victory. However, it was not the Germans who eventually took the initiative for a possible peace, but U.S. President Woodrow Wilson. After several attempts, most of the Allies and the Germans (despite growing domestic criticism) still appeared to believe in victory. In January 1917, Wilson pleaded in the U.S. Congress for a *peace without victor* in which there would be no victors, but also no culprits. Wilson's plea met with much criticism as a *peace without victor* would mean that U.S. war loans to the Allies would be lost. In addition, the submarine war also claimed American casualties through attacks on English ships that Americans were crossing. The Americans finally decided in February 1917 to cut diplomatic ties with Germany and join the Allies the following month. In addition to the earlier criticisms, Wilson believed that it was through involvement that he could exert more influence to bring the war to an end. In early 1918, Wilson came up with his famous *Fourteen Points Speech* that was received with great enthusiasm at home, but which both the Allies and the Germans were less excited about. Wilson did not give up and later added four more points: the *Four Principles* and then the *Four Points*. After an offensive from the Germans, the Allies felt that, on the one hand, the threat and, on the other, their dependence on America was growing, which made them increasingly open to the U.S. president's initiative. In September, Wilson added another five points (the *Five Particulars*) to his plan. These latest additions made the plan more appealing to the Germans. The second point of the *Five Particulars* in fact meant that the participants would be absolutely equal in the peace talks.

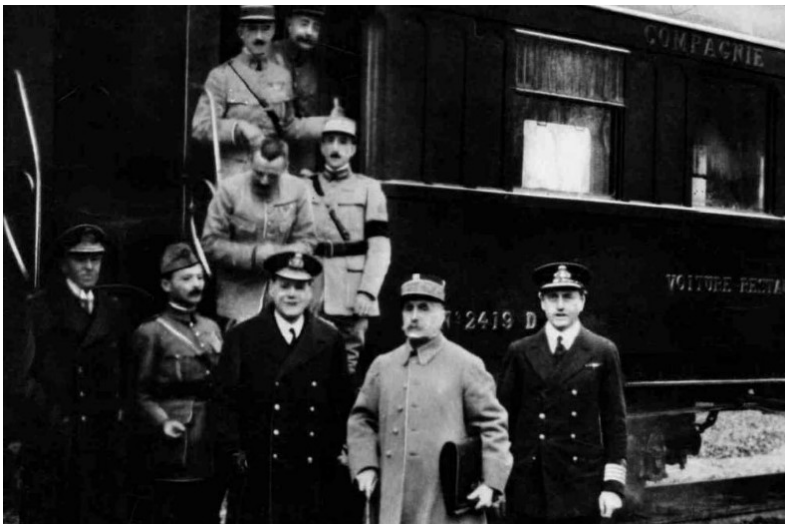

Figure 4: The Armistice of 1918 – general Foch second from right (photo: Association wagon de l'Armistice)

The German offensive did not bring the desired result which in itself had a major impact on German morale and caused domestic unrest. It made the Germans meanwhile want to go ahead with Wilson's proposal; much to the dismay of the Allies. French Prime Minister Georges Clemenceau even stated that "God even needed only 10 points" – President Wilson's counter now stood at twenty-seven. Clemenceau immediately rejected armistice negotiations. British Prime Minister David Lloyd George recognised that American dependence had become so great that theirs was the debt to them and, thereby, feared being left out of the peace talks. David Lloyd questioned the feasibility but did go along with Wilson's plan after making two demands (the British prime minister demanded a clause on reparations and the free sea). The British demands were also sent to Germany after which they agreed. As time went on, criticism from England, France and Italy grew of Wilson's 'weak' stance. This criticism moved Wilson to abandon more and more of his intended *peace without victors*. In the meantime, unrest in Germany continued to grow, and the Allies had the momentum in their hands. In November 1918, a German delegation (under

Erzberger) travelled to Compiègne in France. Erzberger asked about an Allied proposal for an armistice to which French Marshal Foch (Figure 4) merely listed the demands (in French) for a complete capitulation. There was no more talk of negotiations or Wilson's initial approach (to the German's great surprise) and, with growing domestic criticism, they signed the armistice on 11 November at 11 am 1918 with the assumption that peace talks would proceed through Wilson's initial Fourteen Points (Andriessen, 2022).

With a broader understanding regarding the creation of the Treaty of Versailles, the criticisms expressed by Keynes (1919) can be examined in more depth.[8] In his work – consisting out of seven chapters – Keynes discusses Europe before the war (*Chapter II*), the conference (*Chapter III*), the treaty itself (*Chapter IV*), recovery (*Chapter V*), Europe after the treaty (*Chapter VI*) and possible remedies (*Chapter VII*). According to Keynes, French Prime Minister Clemenceau felt superior to the Germans. On this, Keynes wrote that Clemenceau "felt about France what Pericles felt of Athens" (*p.18*). Clemenceau took a hard line towards the Germans. In Keynes's view Clemenceau's principles for peace could be expressed simply. For instance, according to Clemenceau, the Germans would only be sensitive (and even understand nothing else) than intimidation and that negotiations should be conducted without mercy to prevent them from taking advantage of you ("you must dictate to him" – *p.18*). Keynes observed that the glory of one nation often comes at the expense of surrounding nations; England once again destroyed a trading rival and France won a victory in the power struggle between Germany and France. With such a vision Keynes was convinced that France (with the help of the U.S. and U.K.) had won only this round in the power struggle, but that it would be a perpetual one. However, in France's view, Wilson's ideological Fourteen Points speech equality would be nothing more than an acceleration in Germany's recovery with which revenge was shackled. A *Carthaginian Peace* seemed inevitable. In doing so, it seemed that France's goal was to go back in time and undo what had been done to them in 1870 and the (industrial) progress Germany had made since that period.[9] Clemenceau's vision, according to Keynes, was one of "an old man" who lived in the past and not the future. Who looked at the issue as a conflict between Germany and France, but did not consider the importance of total European civilisation.

In an extensive analysis of various demands of the treaty, Keynes goes into numbers (such as reparations). According to the French, damage to French coal mines would limit production and should be compensated by the Germans. Keynes stated that the compensation would be equivalent to 130,700,000 tonnes of coal in 1918, but by correcting this for consumption at the mines themselves approximately 118,000,000 tonnes. Compensation in some years would amount to an estimated value of 40,000,000 tonnes. As a result, only 78,000,000 tonnes would remain for Germany while their consumption before the war was equivalent to 139,000,000 tonnes (*p.45*). The point Keynes makes in this is to criticise the fact that the person who was harmed makes an estimate for reparations and not an independent party. In this too, the treaty falls short, as terms such as: "all damage done to the civilian population of the Allies and to their property by the aggression of Germany by land, by sea, and from the air" (*p.57*) do not provide clear guidelines, but are fodder for discussion for lawyers. Despite Keynes' repeated strong view that actions of the Allies were politically driven, he mentions that the focus on recovering the costs of war was one of the most politically unwise actions of Lloyd George and Wilson. Instead of focusing on the territorial and political, Keynes said they should focus on food, coal and transport. Aspects that prevailed during the peace talks. Keynes states that: "Those who controlled the Conference may bow before the gusts of popular opinion, but they will never lead us out of our troubles"

[8] This section will only refer to Keynes' work, *The Economic Consequences of the Peace*. Page numbers therefore refer to pages from the book.

[9] During the Franco-Prussian War, this was the basis for German unification on the one hand and the end of French hegemony in Europe on the other. With a resin peace treaty, Germany annexed parts of France, suppressed the French and humiliated them (Britannica, 2021).

(*p.128*) and understands the position in which the statesmen find themselves in which they satisfy their constituencies.

In Keynes' view there are four aspects that are important to discuss when one wants to transform the original approach into an effective one. Keynes (1) argues that the treaty needs to be revised, and by this he mainly refers to the magnitude of reparations, coal and iron issues and the tariffs set. According to Keynes, it is a wrong if the next generations in Germany are discriminated against, starved, and excluded based on the actions of their ancestors. If that is the goal, none of the propositions put forward by Keynes are realistic. (2) Keynes emphasises the settlement of debt between allies to ensure that prosperity in Europe can grow. Keynes also sees the importance of reviving industry and thinks that (3) international loans are an important component (it is his second financial observation). Finally, Keynes writes about the potential (4) relationship with Russia and central Europe. On this, Keynes writes that: "The blockade of Russia, lately proclaimed by the Allies, is therefore a foolish and short-sighted proceeding; we are blockading not so much of Russia as ourselves" (*p.145*). Keynes argues that despite the lack of moral solidarity that economic relations between Russia and Germany, for example, are essential and prevent the Allies from disadvantaging themselves (Keynes, 2020/1919).

1.2.2 The Second World War, Capitulation of the Axis, and Reconstruction of Europe

Germany was battered by the Treaty of Versailles and the Great Depression of 1929. It offered an opportunity for Adolf Hitler and his party the NSDAP (*Nationalsozialistische Deutsche Arbeiterpartei*) to win the trust of German society by reviving their lost pride (in which Hitler and his propaganda chief Joseph Goebels mainly blamed the Jews). Hitler came to power in 1933 (and appointed himself *Führer* in 1934), determined to fight for the (in his eyes) German pure race – the Aryans – and offer them more *Lebensraum* (living space). Unlike the Great War, World War II should be viewed from a broader geopolitical perspective. The Treaty of Versailles tells the story of the victor, that of the Allies, but the fact remains that historians do not agree on who was the instigator of the conflict (BBC, 2014). In this, the course of the Second World War can be described more clearly. The run-up to it, during the conflict and the aftermath of World War II shows different strategies changing over time, but also laid a foundation for later conflicts or allies. Thus, to look at post-conflict reconstruction (mainly from a Western perspective), the fundamentals need to be set out.

The outbreak of World War II occurred with the German invasion of Poland, in which Germany crossed the border on 1 September 1939 (Hall, 2013). France and U.K. guaranteed Poland's sovereignty and for that reason declared war on Germany two days later. It was the military escalation of an ascending conflict that until then had been mainly politically expressed and thus tried to be resolved politically. In 1938, Germany already occupied Austria and annexed Czechoslovakia, which, due to the U.S. and Soviet Union's focus on their internal politics and France and U.K. damaged by the Great War, were eventually 'sacrificed', so to speak, by signing the Munich Agreement.[10] While the West thought it had found a political solution with Nazi Germany, the Soviet Union was also looking for a guarantee of security. They concluded, just over a week before the invasion of Poland, the German-Soviet Treaty of Non Aggression (also known as the Molotov-Ribbentrop Pact) with Germany on 23 August 1939. A treaty that revealed a secret clause entitling the Soviet Union to the eastern half of Poland, as well as the annexation of the Baltic states. This removed an initial threat to Hitler from the east – it meant he only had to focus on the western front (for now) (Roache & Waxman, 2019).

[10] The Munich Agreement was signed by Germany, Italy, the U.K. and France. A treaty that, according to Putin – he said in 2015 – was the reason for the Soviet Union to sign the Molotov-Ribbentrop Pact in order to avoid a direct confrontation with Germany (Roache & Waxman, 2019).

Even though the Allies had already declared war on Germany in 1939, further military action by both sides failed to materialise, leading the Western media to call it a "phony war" (History, 2024). It was not until April 1940 that Germany invaded both Norway and occupied Denmark and May – of the same year – that the Germans invaded Belgium and the Netherlands using a tactic that came to be known as the "blitzkrieg" or lightning war. A month later, German units parried across the streets of Paris after which a newly-formed government led by – a hero from the Great War – Marshal Philippe Petain called for an armistice and was signed in the same period (see Figure 5) (History, 2024).[11]

Figure 5:The signing of the armistice between Germany and France
(Source: Bundesarchiv, Bild 146-1982-089-18 / CC-BY-SA 3.0) (1940)

Despite the previously concluded pact between Germany and the Soviet Union, it proved unable to hold. After Hungary, Romania and Bulgaria joined the Axis[12] in early 1941, it soon after captured Yugoslavia and Greece. The conquest of the Balkans proved to be a first step towards Germany's ultimate goal: the Soviet Union. The place that would eventually provide the ultimate Lebensraum for the German people (History, 2024). The operation was launched on June 22, 1941, under code name *Unternehmen Barbarossa* (Operation Barbarossa). Besides the fact that Russian soil would provide more Lebensraum for the Germans, natural resources were also one of the motivations for the operation. With the taking of the territory, Germany would be able to use much more oil (Binns, 2022).

Europe was in shambles and the British and Russians were not able to counter German aggression. Although it would take until December 1941 until the Americans would actively contribute to the war after the attack on Pearl Harbor, the Americans were already supporting the fight through the Lend-Lease Act. Not only did America send the British, but also the Soviet Union equipment in the fight against Nazi Germany. It was the only way to support Europe in their fight until then, as Franklin Delano Roosevelt had promised in his election campaign, not to send "their boys" to this war (National Archives, 2022). Eventually, through the Lend-Lease Act, during the period from 1941 to 1945, America supplied

[11] The agreement between Germany and France were made at the same place where Germany signed the armistice in the First World War. The very thing Hitler saw as a disgrace for his country. It was a sign of honour. Hitler was in the same place as French general Foch at the time. Having concluded the agreement, not much later the Compiègne wagon was destroyed to prevent it from ever being used against Germany again (Boer, 2020).
[12] The Axis power is the coalition, consisting of Germany, Italy and Japan, which fought against the Allied powers in World War II.

400,000 jeeps and trucks, 14,000 aircraft and 4.5 million tonnes of food, among other things (U.S. Embassy & Consulates in Russia, 2020).

With America (through the attack on Pearl Harbor) also involved in the fight and the strength of the Russians and British growing, the tipping point in the fight against the Axis was coming into view. In June 1942, the U.S. won an important battle with the U.S. Pacific Fleet against Japan, which until then had mostly been victorious, and the Soviet Union launched a major counteroffensive in November 1942 in the Battle of Stalingrad – a battle that many describe as one of the bloodiest. After the German army was surrounded by the Russians, German Marshal General Paulus and his army surrendered (against Hitler's order to continue fighting to the death) in January 1943 due to shortages of supplies and conditions. On 6 June 1944, D-Day, a large-scale invasion on the beaches of Normandy, France, began involving over 156,000 American, British, and Canadian soldiers. The Germans had to fight on two fronts; D-Day allowed the Russians to advance more quickly in the east. 30 April 1945, Hitler committed suicide and on 8 May 1945 Germany formally surrendered. On the other side of the world, the fight continued against the Japanese leading to sizeable losses on both sides. The Americans had a decisive weapon; developed under the top-secret project codenamed *The Manhattan Project*. It was the world's introduction to an unprecedented destructive weapon: the atomic bomb. One bomb was dropped on Nagasaki and the other on Hiroshima after which Japan surrendered aboard the USS Missouri in Tokyo Bay in August. It was an action taken by Harry S. Truman after consultations with Stalin and Churchill during the Potsdam Conference, July-August 1945. During that consultation, they agreed to divide Germany into four. Namely a British, American, French, and Soviet part (this included Berlin, the capital) (History, 2024).

The contrast in post-war settlement after World War II, compared to the settlement after World War I, is remarkable. Kershaw (2015) raised the question of how such a destructive war as World War II could create so much prosperity and relative peace within Western Europe in such a short time (after only a decade). Although we do not aim, as stated before, to find an explanation for the path of history, it is valuable to offer insight into the contrast vis-à-vis the Treaty of Versailles, that followed the Great War and the difference with the strategy that was followed after World War II. Europe was in ruins after World War II. The U.K. was virtually bankrupt from waging war, France had been largely looted and Germany had been destroyed. There was, as it were, a power vacuum in Europe (and also its former imperialist empire, such as the various Asian and African colonies). It was from the west that the U.S. was the driving force of the Allies (from military to an economic perspective) and the Soviet Union from the east that became the biggest players on the world stage as a result of liberation – a position envisaged for both already during conferences (such as the Potsdam Conference earlier). Not only did military victories give them space, but the advent of nuclear weapons made them a technological (and therefore) military superpower (Kershaw, 2015).

Just as no other countries could take on Nazi Germany during the war, there were no countries other than the U.S. and Soviet Union capable of rebuilding Europe after the war. During the Potsdam Conference, the Big Three had already agreed on the 'redesign' of Europe. That conference also mainly looked at how to deal with Germany. One of the bigger issues discussed here was possible reparations to be paid by the aggressor (Germany) to the victims. Although these were desired by the Soviet Union and had even been agreed at an earlier conference in Yalta (in which the Soviet Union would be entitled to half of the payments), Truman and Byrnes urged them to avoid repeating the Treaty of Versailles (and also understood the Risk of Germany joining the communist bloc). The starting point was therefore no longer revenge, but reconstruction and recovery (Office of the Historian, sd). Moreover, this did not mean that no hard demands were made. Germany had to cede part of its land to Poland and Poland was allowed to send all ethnic Germans from this part of the country, Germany was no longer allowed to have an army, and denazification (from education to politics) was a major goal – in addition, many Germans and collaborators were humiliated or even murdered by the population (Kershaw, 2015) (MacMillan, 2009).

A major advancement in terms of rebuilding Europe appeared to be the announcement of the *Marshall Plan* (or European Recovery Plan as it was properly called) in June 1947 (Kershaw, 2015). According to Kershaw (2015) the plan was meant for reconstruction and initially the Soviet Union could also utilise the plan, but the Soviets were logically reluctant for fear of spheres of influence in the communist area (additionally, it can be questioned whether the U.S. Congress had approved it). In March 1948, the Economic Cooperation Act passed Congress resulting in a twelve billion U.S. dollar fund for the reconstruction of Western Europe (Office of the Historian, sd). The plan was of significant importance for Europe.[13] It was primarily aimed to boost industry with which the economy would grow as well. The U.S. itself also had an interest in this as many of the materials purchased would be from the U.S. industry. Next to that, it would strengthen the spheres of influence of the Western world. However, the communist movement was also making inroads within Europe. Certainly Germany, which had mostly been seen as a danger by surrounding countries in the previous period, was still seen as a potential risk for communism (Kershaw, 2015). In 1951 (on the initiative of French politician Robert Schuman) the European Coal and Steel Community (ECSC) was established, of which West Germany was an immediate member. In 1955, West Germany joined NATO, partially regaining its sovereignty and also building up military status under surveillance. In 1963, German Chancellor Konrad Adenauer and French President Charles de Gaulle concluded the Elysée Treaty that would bring their politics more in line. It ended the enmity between the two countries (Duitsland Instituut, sd).

In this period, Keynesian economics was widely accepted. As a result governments used a countercyclical fiscal policy which means that in times of turmoil (or to be more precise, recession), it is up to the government stimulate the economy by investing – increasing government expenditure instead of consolidation (Jahan, Mahmud, & Papageorgiou, 2014) (Sanches, 2013). On the initiative of Keynes (who was advisor to British Treasury at the time) and Harry Dexter White (U.S. chief international economist at the Treasury Department), in view of the post-World War II period, a new monetary system called the *Bretton Woods System* was established in July 1944. The Bretton Woods System would remain in place until 1971 and had as its main purposes exchange rate stability, preventing competitive devaluations and stimulating economic growth. Things that many believe were lacking in the interwar period and which the Great Depression mostly worsened – which some believe in turn influenced the rise of Nazism. The Bretton Woods System had a focus on economic cooperation, making it extremely innovative (Ghizoni, 2013).

Aside from the policy of Keynesian economics in which the government plays a more central role (in times of recession) it is not merely this followed policy (or philosophy) that prevented the government from allowing the market to fully take its course. The war had not only caused a lot of damage, but also caused resources to be used differently. The government had a highly active role in this according to Sanches (2013). From rationing to reallocating resources to meet the needs of the battle. For instance, during the war, the Federal Reserve provided stable interest rates to guarantee investments and stabilised inflation due to the large investments in military spending. It was therefore not surprising that many economists thought the economy would go into recession after the war and unemployment would rise (it was also an experience of the Great War and Great Depression). It also fitted into the Keynesian view in which fiscal stimulus was the most effective means of stimulating the economy and with a war ending, that stimulus would be greatly reduced (Sanches, 2013). So it was not without reason that Truman signed the Employment Act in February 1946, which gave the government the task of reshaping their economy. An industry that worked for its economy and not for purposes of war. The many hundreds of thousands of militaries who came home also had to re-enter the economy and find work (Steelman, 2013).

The narrative of both the aftermath of the Great War and World War II raises a fundamental and essential issue that needs to be discussed in more detail: the role of the government. The previous description

[13] Economic historians are not unanimous on the impact of the Marshall Plan and there are different views. Nevertheless, the Marshall Plan shows a humanitarian effort (Office of the Historian, sd).

primarily reflects the success of Keynes' philosophy on which many governments interference at that time is based on. According to economists like Milton Friedman (1962), the role of government should be minimal because: "since the end of World War II display still a different relation between economic and political freedom. Collectivist economic planning has indeed interfered with individual freedom" (Friedman, 2020/1962, p. 15). The native Austrian economist and political philosopher Friedrich August Hayek observed that the scale of World War II ensured that everyone was involved, right down to the pacifists (who mostly worked in the domestic fields), and that the government would manage, plan and control everything; "As in war, so in peace" was the thinking after the war ended. Definitely, the economic challenges the war created could become enormous, but Hayek's fear in the dependence of the government was that such a vision would lead to national planning and even socialism or fascism (in countries like the U.S. and U.K.). In his work *The Road to Serfdom,* Hayek describes the importance of freedom and the 'danger' of national planning.[14]

For Hayek[15], private property and free markets are the guarantee of freedom, because freedom of choice makes everyone free to either buy where they want or work where they want. This is something that is unfeasible in a planning-centred socialist society; in such a society, centralisation (in order to plan) is essential. Power is thus brought to one point and thus economic power falls prey to an instrument of political power (*p.41*). Therefore, democratic governments cannot function as planners. After all, it is impossible to make compromises that satisfy everyone everywhere. To draw up an economic plan, it would be unavoidable to assign it to experts and even if it were possible to plan it economically via separate components, there is no escaping having these plans integrated together, which in turn requires a responsible and competent person, making the call for an 'economic dictator' unavoidable (*p.49*).

Hayek does not argue that government need not play a role but argues that there is an important difference to be made in how government fulfils a role within the economic domain. This difference also reveals the statement to which planning has largely gained its popularity, namely that we address desirable common problems with as much foresight as possible. In a plan economy, the government provides a blueprint by which resources are positioned so that they align with the vision of the planners (i.e. the government). From the liberal argument, Hayek argues that the government is not the superior mechanism, but competition is best equipped to steer economic activity because it is the most efficient. The government should therefore not take a passive role in this but provide a legal framework where necessary (*p.45*). Or as Hayek himself writes: "Planning and competition can be combined only by planning *for* competition, not by planning *against* competition. The planning against which all our criticism is directed is solely the planning against competition." (*p.46*) (Hayek, 2005/1944).

1.3 The Cold War: East Versus West

The post-war period shows that alliances can be temporary in nature when they serve a greater purpose. During the war, for both the Allies and Soviet Union, defeating Nazi Germany was the ultimate objective. In the period that followed, the *Big Three* (Figure 6) fell apart and a friction between the victors started. It became a struggle between two spheres of influence. The one sphere of a free democratic West and the other one of a Marxist communism from the East

That a conflict between the Big Three was emerging already became clear during the various World War II conferences. During the Yalta conference it resulted in a splitting of Germany and the agreement of

[14] Hayek argues that socialism, the collective state and planned economies are an ultimate form of *hubris*, for example, Hayek argues that when one thinks one can know everything (and therefore plans) disaster will follow, and echoes Popper's view as discussed earlier (Hayek, 2005/1944).
[15] This part further describes Hayek's work *The Road to Serfdom*. The page numbers therefore refer to this book (Hayek, 2005/1944).

spheres of influence in Europe. With the Soviet Union conquering the centre of Nazism, Berlin, the Allies did not escape from the fact that the Red Army was seen as a co-victor. With the conquest of Berlin, it also felt like a victory for communism itself, and with the Soviet Union's expansionist attitude, the U.S. developed fears that they wanted to control the entire world. This forced the Americans to also expand their spheres of influence and protect the 'free world' and followed a longer-term strategy called 'containment' – based on the belief that there could be no permanent *modus vivendi* (agreement between two actors who disagree) (History, 2023).

Figure 6: Conference in Teheran – Stalin (left), Roosevelt (middle), and Churchill (right)
Source: Library of Congress, LC-USZ62-32833.

A strategy of containment was one of the driving forces behind the build-up of U.S. military influence with which the military budget was quadrupled. Another strategy of both the Soviet Union and U.S. was a strategy of deterrence in which the aim is "to frighten from or away" – it originates from the Latin word *deterre* (Freedman, 2013). A key component within these strategies of containment and deterrence was the continued development of the weapon that had ended the previous war and now served to prevent it: the atomic bomb. It resulted in an arms race. After the Soviet Union had successfully tested its first atomic bomb in 1949, U.S. President Truman ordered the development of an even deadlier bomb, called the "super bomb", or a hydrogen bomb, and Stalin again followed suit. The scale of the first superbomb was unprecedented and could cause half of Manhattan to be destroyed in one fell swoop (History, 2023). With ever-increasing destructive power, the battle ended in 1961 with the Russian hydrogen bomb, called the 'Tsar Bomba'. A weapon estimated to be 3,300 times more devastating than the atomic bomb dropped on Hiroshima, it created a mushroom cloud 60 kilometres high and 90 kilometres wide (NOS, 2020). The arms race caused enormous turmoil among almost the entire world populace. People knew it could mean the end of the world. Shelters were built, exercises were mostly repeated everywhere, including in schools, and people took to the streets *en masse* to protest against nuclear expansion (Kelly, 2014). The parallel build-up of nuclear arsenals by both the Soviet Union and U.S. aligned with the military strategic doctrine of *mutual assured destruction* (MAD) in which an attack on one meant that the other would immediately attack back and thus bilateral destruction would be the result (de Wijk, 2024).

Along with the arms race involving nuclear power, a battle for space also emerged. In October 1957, the Soviet was the first to get a satellite into orbit with an intercontinental ballistic missile (the Sputnik). For the Americans, this was a surprise, but above all against the odds. It was a new dimension in warfare, because with the launch of such missiles, it was clear to the Americans that the nuclear threat was closer if the missile's payload was replaced for a nuclear warhead. The U.S. made every effort to catch up and launched its own satellite in 1958. The satellite was designed by rocket scientist Wernher von Braun (who had a key role in the development of the German V-2 rocket). It was the start of the Space Race (History, 2023). Von Braun was one of the many German scientists brought to the U.S. in the end phase of World War II under a covert operation called *Operation Paperclip*. An estimated total of 1,600 scientists with their families were involved (Schumm, 2020). According to Schumm (2020) opponents argued that it was unethical to exonerate these war criminals for their actions while others argued that in this, everything possible should be done to prevent the technology from getting into the hands of the Soviet Union. Despite the creation of the National Aeronautics and Space Administration, or NASA, in 1958, the Soviet had the momentum in their hands and launched the first man into space in April 1961. John F. Kennedy set a new, ultimate goal: the Americans would be the first country to put people on the moon. This ultimate goal was achieved in 1969 with which the country effectively won the Space Race (History, 2023).

In tandem with the technological developments brought about by the Cold War, there were also conflicts that were mostly fought remotely in so-called proxy wars.[16] The first incident occurred in the Korean War in which the Cold War went beyond the European continent for the first time and now found way to Asia. North Korean troops, backed by the Soviet Union, attacked in the southern pro-Western part of Korea in 1950. For the Americans, not intervening was not an option. Already a year earlier, the communist People's Republic of China (led by Mao Zedong) was founded and without intervention, South Korea would also fall prey to communism. Truman sent troops to Korea and the war would eventually last until 1953 (History, 2023).

While the NATO military alliance was formed in 1955, the Soviet Union responded by creating the Warsaw Pact. A counter-reaction that, like the West, would act as a joint mutual defence organisation. The Warsaw Pact included the Soviet Union, Albania, Poland, Romania, Hungary, East Germany, Czechoslovakia and Bulgaria and fell under the command of Soviet Union Marshal Ivan S. Konev (de Wijk, 2024).

Another conflict arose in 1962 and was called the Cuba crisis. According to officials the conflict is partly a result of an earlier attempt of the U.S. to defeat the Cuban government in 1961 with the failed Bay of Pigs invasion, created a more threatening situation for the U.S. than ever seen before. With this, the threat was potentially closer than ever before with the plan to bring Soviet nuclear weapons into Cuba. It seemed proof to Americans that the real threat from communism was in the unstable post-colonial Third World countries. It was an idea in which it was believed that a communist government in one country would result in an attempt by that government to make neighbouring countries communist as well. This believe was also challenged between communists and Americans in Vietnam. A prolonged and debilitating war that finally ended in 1975 (History, 2023).

When Richard Nixon became President of the U.S. in 1969, a new course was almost immediately set in motion in which the world was no longer looked at from a bipolar perspective, but from a point where there is room for multiple poles and no longer acted from military action, but from political action. Specifically, this meant the president was strengthening ties with China. He urged the United Nations (UN) to recognise the People's Republic and then also began to strengthen diplomatic ties with Beijing. Alongside this, Nixon also pursued a policy of "détente" meaning a more lenient attitude towards the Soviet Union. For instance, Nixon and Soviet Premier Leonid Brezhnev signed the Strategic Arms

[16] A proxy war is a conflict in which countries do not have their differences fought on their own territory (and either by secondary parties).

Limitation Treaty (SALT I) which – in a first step – scaled down the nuclear threat. Nixon's course was no longer pursued when Ronald Reagan became U.S. president. He saw the threat of communism as great and invested mostly in anti-communist movements around the world (such as in El Salvador). It came to be known as the Reagan Doctrine (History, 2023).

The Cold War demanded huge investments and depleted Soviet financial resources. With the arrival of the new Soviet prime minister Mikhail Gorbachev in 1985, two new policies were introduced to redefine its relationship with the world: *glasnost* by which political openness was meant, on the one hand, and *perestroika*, or economic reforms, on the other. The reforms were opportunistically received by the satellite states and they saw room to get rid of Soviet rule. With the most defining event being the fall of the wall in Berlin in November 1989. It was the beginning of the end. In 1991, the entire Soviet Union fell apart (History, 2023).

1.3.1 The End of a Bipolar World

In a world of *liberal internationalism*, according to Ikenberry (2018) the U.S. strived for a free world and where this was above all ensured. As early as the 1930s, this world was an aspiration led by U.S. President Wilson, with the League of Nations, during the Great War, and U.S. President Roosevelt, with his *New Deal*, during the Great Depression of the 1930s. It was also precisely those tragedies of war and depression that questioned liberal internationalism. It was only after World War II that liberal internationalism, led by the U.S. actually became a western-part thought leadership consisting of the so-called trilateral core (Europe, Japan and the U.S.). Factors that reinforced this mind-set in which in high measure the introduction of the, previously discussed, Bretton Woods system and NATO (Ikenberry, 2018).

That the U.S. pursued such an active foreign policy also had a certain underlying motive from the expansionist behaviour of the Soviet Union within Europe and parts of Asia. Shortly after World War II, British officials already recognised that the U.S. would become the new leader of Western thought and thus that they would thereby take over from the ever-mighty U.K. (Ikenberry, 2018). European dependence on the U.S. seemed inevitable and it would even be questionable whether anything else would be desirable within a war-ravaged Europe. Some independence, in which Europe would act as a superpower, might even be undesirable as it could be a reason for the U.S. to withdraw from Europe (Kagan, 2003).

With that, in the following years, the U.S. stationed troops within Europe that stood as a guarantee of protection against expansionist communism. The Cold War was a bipolar world. As often happens in history, a part ideology or threat makes for irreconcilable cooperation. It also made it easy for the leaders of both camps to justify the struggle to its people because it was so obvious. The threat was tangible. Therefore, it was a typical period of power politics that resulted in a balance to some extent. With the collapse of the Soviet Union in 1991, a bipolar world also came to an end and the U.S. became the new, and only, superpower within the world. It was a unipolar world from then on. Although, from a Western perspective, the fall of the Soviet Union felt like a victory for both themselves and the people of the former Soviet Union, for the latter group it should not be underestimated what the impact was for the population. For many, the Soviet Union may not have been a free world, but it was a stable one. With security, safety and livelihood. That freedom was lost for many in return was no problem. For former Soviet soldiers, too, a rhetoric fell away and the impact was great. They felt they were the losers (Kagan, 2003) (de Wijk, 2024) (Ikenberry, 2018).

1.4 The Invisible Enemy: War on Terror

Four planes were hijacked on 11 September 2001, with three of them hitting targets in New York and Washington D.C. The last one crashed into a field in Pennsylvania after passengers fought back. It resulted in 2,997 deaths and became the deadliest attack the U.S. had known on its soil. It was the start of the 'War on Terror'. The aim was to destroy the terroristic organisations like al-Qaeda. In a statement, U.S. President George W. Bush gave countries in the region a clear option, the decision was theirs: "Either you are with us or you are with the terrorists" (History, 2020).

Bush was already aware of the challenges in his plan shortly after the attack on the U.S. that the goal of destroying al-Qaeda was only a first step. Ultimately, the goal was to find, stop and destroy every terrorist organisation. It would be a long, challenging and much needed battle. Some two weeks after the attacks, on 25 September, Defence Secretary Donald Rumsfeld announced an anti-terror operation called *Operation Enduring Freedom*. An operation he said would last for years. In response, countries in the region, as Bush had previously called for, took sides. In the days following Rumsfeld's announcement, Saudi Arabia decided to sever all its diplomatic relations with Afghanistan (History, 2020).

In early October, the U.S. and U.K. launched the first airstrikes in Afghanistan with the aim of destroying Taliban and al-Qaeda training camps. In a response, al-Qaeda leader Osama Bin Laden revealed that the U.S. recently "tasted" what Islamic countries had been experiencing for more than 80 years. According to Bin Laden, that was a period full of humiliation, murder, blood spilled and sanctities desecrated. The ground war began the same month and in the weeks following the announcement of the ground war, the U.K., Türkiye, Germany, Italy, the Netherlands, France and Poland announced they would deploy troops in Afghanistan. Besides Afghanistan, Iraq also became a target for the U.S. and its partners (in this case mainly the U.K.). The motivation for the operation was the idea that Iraq, led by dictator Saddam Hussein, was building weapons of mass destruction. It felt like a direct threat to the U.S., which had fought previous wars with Hussein in the past – the Gulf War from 1990 to 1991. The operation began in early 2003 and would eventually last until December 2011. No weapons of mass destruction were found and Hussein was arrested and prosecuted for war crimes. He was eventually convicted and hanged in Baghdad in 2006. The hunt for al-Qaeda leader Bin Laden also continued. He was killed during a special operation in 2011 (History, 2020) (History, 2024) (Koops, 2023).

In Afghanistan the mission was of longer duration and can be divided into two parts. In the first part, which lasted from 2001 to 2014, NATO (under the UN mandate) took charge of the International Security Assistance Force (ISAF). In this mission in which 51 countries participated and at its peak numbered 130,000 soldiers, the main goal was to provide security so that the Afghan government could build a new security force and thus liberate the country from terrorism. During the first part of the mission, ISAF concentrated around the capital Kabul, but in the second half of 2006 troops also expanded to the east and south. With that, violence also grew during that period and 40,000 additional troops were deployed in 2009 for that reason. From 2011, the main focus became building up the Afghan security forces and ISAF's combat gave way to a mainly advisory and assisting role (NATO, 2022).

The ISAF mission formally lasted until 2014 after which it continued under a smaller scale and different name. This mission came to be known as, the NATO-led, Resolute Support Mission (RSM) and the Afghan National Defense and Security Forces (ANDSF) took over. In the mission, combat was no longer part of the alliance, but its main roles were to assist in planning, create oversight and transparency, ensure law and good governance, and train, recruit, manage and develop security forces. This mission lasted until September 2021 (NATO, 2022).

The withdrawal of NATO troops in 2021 led to much chaos in Afghanistan. In February 2020, the U.S. government agreed with the Taliban in a peace accord, the Doha Agreement, that U.S. troops would withdraw from the region with the counterclaim that the Taliban would counter the rise of terrorist

groups and engage in talks with the Afghan government. From that period, the Taliban began actively retaking the territory that eventually led to the fall of the ANDSF. In a later report published in 2022, investigators concluded that it was the Doha Agreement (signed by Donald J. Trump and confirmed by Joe Biden) that led to the fall of the ANDSF. Two weeks before the agreed deadline where all U.S. troops would have withdrawn from Afghanistan, Taliban fighters entered the capital Kabul. The Afghan president subsequently fled his country and chaos broke out. Thousands of desperate Afghans attempted to flee the country too as did the many remaining diplomats from NATO countries. They saw the democracy, security and stability that had been tried to build in the 20 years before disappearing in a short period of time. Women's rights were taken away, executions were reinstated and the country fell into humanitarian distress due to sanctions, declining economy and prosperity and the Russia-Ukraine war that resulted in rising food prices. Starvation was threatening (Center for Preventive Action, 2023).

Europe was also introduced to a new threat on its own soil: terrorism. With unrest in the Middle East, after the Arabic Spring, and interventionism in Syria, Libya, Afghanistan and other countries in the region, fighting Islamic extremist organisations such as Islamic State (IS), Europe also became a target. Hundreds of Europeans radicalised and joined such organisations. Attacks in France, for example on a restaurant and the Bataclan concert hall in Paris on 13 November 2015 took the lives of 130 people. Germany and Belgium were not spared either. (Burke, 2016) With these attacks, much fear was created and governments had to fight against an invisible enemy, individuals who acted individually and were part of their own population.

1.4.1 The Cohesion of the West

In the aftermath of the end of World War II, Europe thought that it needs more to be seen as a name-worthy strategic and political superpower than merely having economic power. Acting on the stage requires a major power, such as the U.S. has, over both economic and military capabilities. According to Robert Kagan, the end of the Cold War was seen by many Europeans as a "holiday from strategy" and with it, investment in defence also fell well below 2 per cent of GDP (*p.25*). This therefore made it clear that in the post-Cold War world, while Europe may have been an economic superpower, it still contained within it a dependence on the U.S. (military) superpower. To gain a broader understanding of this dynamic between economically powerful Europe and unipolar superpower of the U.S., a deeper look at Kagan's (2003) work entitled *Of Paradise and Power*. In this work, Kagan sets out why 'the West' is unified on the face of it but significantly different in reality.

A first, legitimate, question Kagan (2003) asks is why Europeans and Americans understand threat differently. According to Europeans, they know the threat from their history full of war, something that would be less perceptible to Americans on the other side of an ocean. They would know what it is like to live with threat. To live alongside the bad. That made tolerance for threat from North Korea, Russia or Hussein greater than the U.S. border and would make the U.S. strive for perfection. In line with that rhetoric, Europe also recognises that Germany was also once bad and that would mean that the nature of states can change – so wouldn't rapprochement be better than confrontation. On the other hand, military capability also plays a significant role. After all, the threat of a bear, in Kagan's example, is treated differently by a person with a gun than a person with a knife. It would therefore be in their own interest for Europeans to oppose the unilateral action of the U.S. since here they themselves are incapable of doing so.

According to Kagan, the U.S. does not act from the Machiavellian principles of the "old" imperialist Europe where the laws of *Machtspolitik* (power politics) applied, but is a "thoroughly" liberal progressive society through which they believe in power to protect their principles in the world. British diplomat and EU official Robert Cooper states that, in postmodern Europe, Machiavelli's theories have

been labelled amoral and replaced in moral consciousness. Not striving for a balance of power, but "the rejection of violence" and the writing of "rules of conduct". With the fall of the Soviet Union, deterrence – internal or external – was no longer necessary and the idealistic vision could be realised. Europe's new mission thus became a *mission civilisatrice*. Kagan calls Europe's *mission civilisatrice* perhaps one of the most important differences from the U.S. because, for instance, the U.S. does still recognise the importance of power and the importance of exercising it. That this European way of thinking does not work is evident in the Middle East, according to Kagan, where Europe as an economic superpower offers support to the Palestinians and other Arab countries, but that Europe's power is not recognised when there is (potential) conflict, because then they always turn to the U.S.. Attempts from European economic power therefore do not translate into diplomatic influence in the region, as it lacks the military component. It is therefore a question of whether expanding power abroad fits the context. Europe's ambition can thus, according to Kagan, be likened to an anachronism. In this Europe seems to have overlooked the paradox that Europe could not have implemented its moral policy if the U.S. also abandoned its belief in a military power and its willingness to deploy it or deter threats of it. According to Cooper, Europe must hence use 'double standards' by which "Among ourselves, we keep the law, but when we are operating in the jungle, we must also use the laws of the jungle" (*p.74*), because as Clark Cliffor, an American liberal democrat says is that states like the Soviet Union and dictators like Saddam Hussein only understand the language of military power (an idea and strategy in line with Machiavelli's perception of power). With the fall of the Soviet Union, the biggest threat against the West fell away, but with the new War on Terror, a threat came in its place. In it, Kagan questions whether this threat would be enough to hold the coherent term "the West". Is the threat therein sufficiently unifying? (Kagan, 2003)

According to de Wijk (2024) outside Europe it is still all about power and moral values are secondary to this. The standards that European countries have sought to impose on other countries in the unipolar world, under the aegis of U.S. military power, by only cooperating if they meet Western standards would have caused Europe (Americans still understand the concept of power) to look away too much from Russian aggressiveness and Chinese assertiveness. The common enemy that had fallen away after the Cold War was replaced by a moral politics in which justice, democracy and humanitarianism became the ideology. It translated into a foreign policy of humanitarian aid, development cooperation and interventions. That Europe could turn itself into a superpower indeed turned out to be an anachronism. It led to political wishful thinking, ideology and opportunism. A sad example according to de Wijk (2024) is the genocide of 8,300 Muslim men when the Muslim enclave of Srebrenica was overrun by Bosnian Serb troops. Although there were already complaints from military officials that the number of soldiers was too few and they were insufficiently armed, it was carried out for political motive. That political motives can get in the way of military functioning was also evident in Afghanistan where Dutch F16s were only allowed to help under strict conditions and trained Afghan officers were only allowed to work in certain areas. It undermined functioning. The call to 'do something' in a humanitarian disaster often turns out to be insufficient to fully go for it as a country (de Wijk, 2024). There seems to be too little 'skin in the game'. It was also observable in the withdrawal from Afghanistan with which the build-up was lost and the country fell back into Taliban hands. Western countries may want to bring peace, but political willingness to fight often proves insufficient. According to de Wijk (2024), soldiers are often seen as social workers who have to do good in the world. It is this attitude that was a clear signal to Russia and China that the unipolar postmodern West had weakened and therein lie opportunities for them.

1.4.2 A New Layout of the Military Apparatus

The end of World War II was seen as the unification of the West and the expansion of liberal internationalism. With the fall of the Soviet Union, the last obstacle for the West was also conquered. In

spite of spreading Western thinking around the world and protecting it through humanitarian, peace and stabilisation operations, such as in Afghanistan, it also turned out that the West was not as unified as previously thought. In Europe, moral politics gained the upper hand (as the enemy was no longer visible) and the focus shifted to economic power. The U.S. still recognised the importance of military capabilities, seeing terrorism – and potential conflicts in general – as a greater threat than people in Europe.[17] The difference is also shown by the Stockholm International Peace Research Institute (SIPRI), which tracks data relating to military expenditure over a time period from 1949 to 2023 (SIPRI, 2024). After the fall of the Soviet Union in 1991, spending by both the European part of NATO and that of the U.S. fell, however after 9/11 in 2001, the investment in defence of the U.S. rose again, but that of the European branch remained almost constant (see Figure 7). It proofs that the Europeans and Americans both had different views. That this would create military dependence on the one hand and an unequal relationship within NATO on the other was inevitable. Within NATO (which has 32 members in the final year of the interval), the U.S. is responsible for an average of 71 per cent of all military expenditure over a time period from 1991 to 2023 (see Figure 8 for ratios).

European allies' underinvestment in defence was also mostly against the grain of the Americans, who mostly insisted on an increase. Former President Trump went a step further in this, threatening to leave NATO if countries did not meet the set standard of 2 per cent (Barnes, Julian E.; Cooper, Helene;, 2019). As shown in Figure 9, the U.S. has been meeting the 2 per cent standard well over the entire period, while the other NATO countries have been underperforming on average. In doing so, it offers to be said that a significant difference can be seen within this average. Countries like the U.K. and France mostly meet or even exceed the norm, while countries like Germany, the Netherlands, Spain and Sweden are below it. For instance, Germany's low point in 2015 was at 1.14 per cent of GDP while the U.K. was at 2.05 per cent of GDP in the same year (SIPRI, 2024).

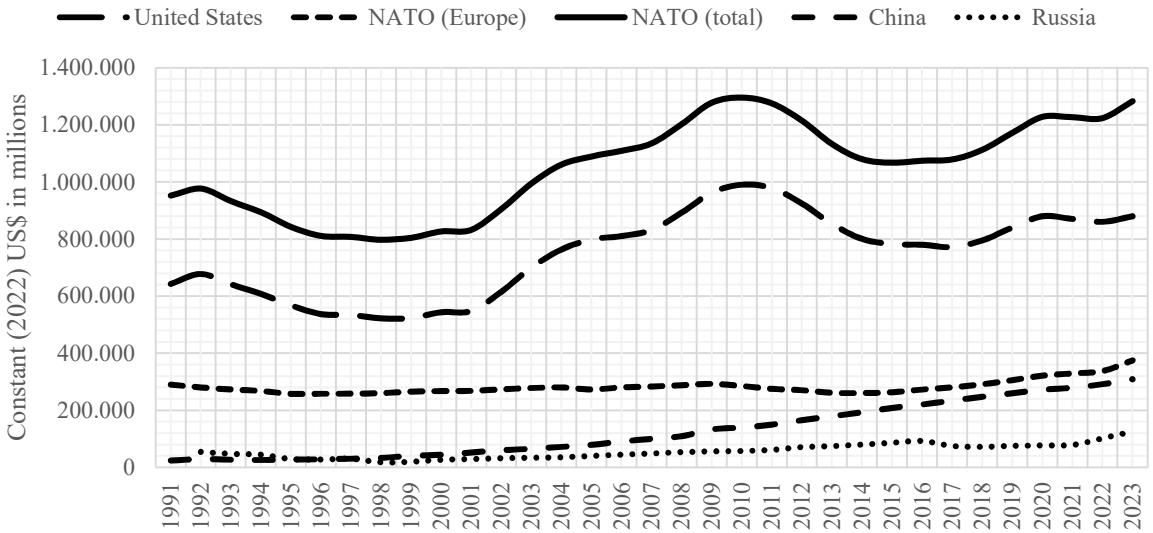

Figure 7: Military expenditure – own work (SIPRI, 2024) [18]

[17] A 2002 poll subsidised by Germany Marshall Fund, for example, showed that 91 per cent of Americans saw threats to vital interests as extremely important compared to 65 per cent of Europeans. Respectively, only 58 per cent of Europeans considered the possible threat of 'weapons of mass destruction' in Iraq essential compared to 86 per cent of Americans (Kagan, 2003, p. 35).

[18] This figure does not distinguish the entry dates of new member states, such as Sweden or Finland. The military expenditure of these members is added over the entire period. It also adds the 2022 and 2023 European Union expenditure. This figure also includes Turkey in the European bloc and does not otherwise consider different countries in terms of their method of calculation.

It is not just the new vision (the *mission civilisatrice*) of many European countries that caused military expenditure to fall, but the removal of an external threat did make defence one of the first sectors that could be saved on like during the 2008 Financial Crisis and Covid-19 pandemic. Some say it could be called a "lost decade" in which many armed forces were stripped to the bone. According to NATO, defence was already largely stripped around the 2008 crisis for the first time and military expenditure is said to have fallen by about 3 per cent during that period, and investment in purchases of new equipment and research in particular also dropped significantly. It is estimated that European armed forces lost 35 per cent of their capabilities in the last two decades (Morcos, 2020). It was even stated in the German parliament that due to budget cuts, international missions and poor management that military readiness is "dramatic" (Deutsche Welle, 2018).

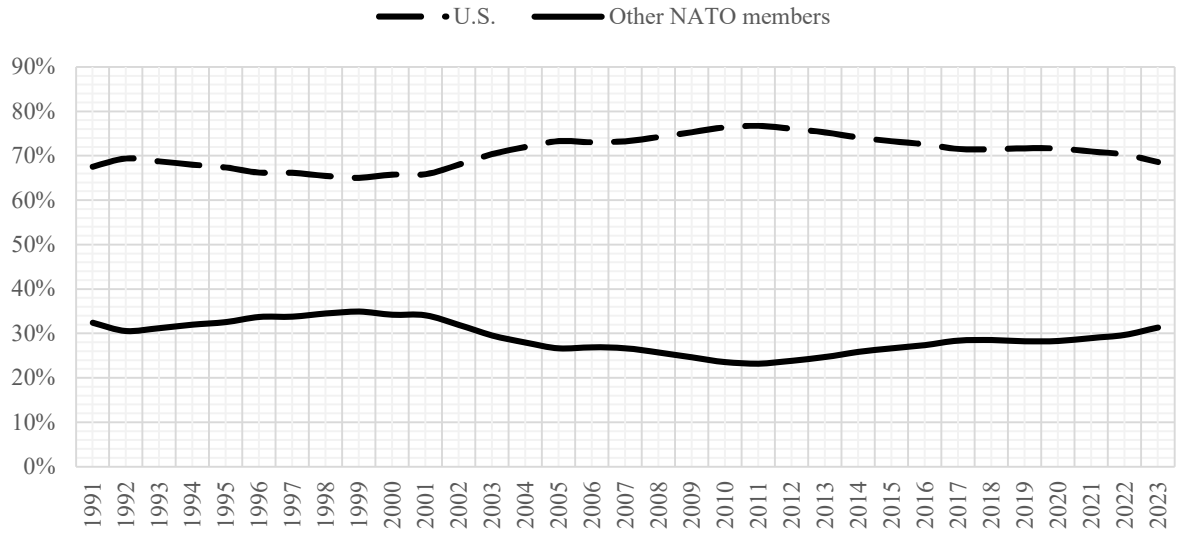

Figure 8: Ratio total military expenditure NATO: difference U.S. and other NATO members – own work (SIPRI, 2024)

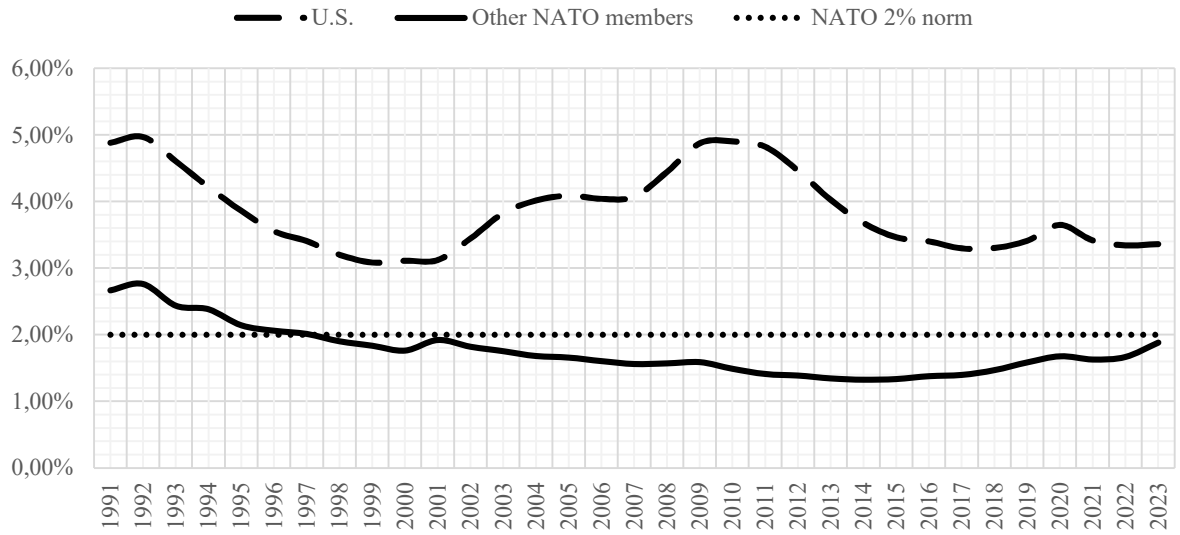

Figure 9: Military expenditure as % of GDP U.S. and other NATO members – own work (SIPRI, 2024)

1.5 Back to the Basics: Conventional Warfare in Europe

Russia's large-scale invasion of Ukraine on 24 February 2022 was the escalation of a long-running conflict between the two countries that began with the annexation of Crimea, by Russian separatists, in 2014. To better understand the reasoning from Russia (as strategist Liddell Hart argued to understand "the other side of the hill" (Cordesman, 2014)) and partly that of countries that support Ukraine in this conflict, it is necessary to take a brief look at the history of the country where, for the first time since World War II, a war between two sovereign states on the European continent is taking place again.

In the Soviet era, Ukraine was the second (after Russia) most populous and powerful republic of the total 15 Soviet republics. Within the Soviet Union, it was a cradle of agriculture, defence industry and also home to the Black Sea Fleet and nuclear arsenal. For Russians, the country's capital, Kiev, also had a deeper meaning and is sometimes popularly referred to as "the mother of Russian cities" (Masters, 2023). It therefore hurt many Russians that 92 per cent of the Ukrainian population voted for independence in 1991 (Council on Foreign Relations, sd). In the period that followed, Ukraine experienced a dichotomy between the Western free and democratic mindset and the former spheres of influence of communism. In the 1990s, Ukraine intensified cooperation with NATO, reduced its nuclear capability to a status where it was no longer seen as a nuclear power and reformed its constitution, such as freedom of speech and separation of powers. In the year 2000, unrest arose in the country after a Ukrainian journalist, Heorhiy Gongadze, went missing and his body was found decapitated two days later. He was investigating corruption in the Kuchma government. Audio recordings later revealed that Kuchma allegedly ordered the murder. It led to public condemnation of the elite and large-scale protests. The European community also questioned the country's freedom (Council on Foreign Relations, sd) (Masters, 2023).

In the 2004 presidential elections, a battle ensued between two candidates, the Western-oriented Yushchenko versus, the Moscow and Kuchma-backed, Viktor Yanukovych. Ukraine was faced with the choice of either increasing cooperation with NATO and the EU or further strengthening ties with Moscow. In September that year, Yushchenko was stricken with dioxin poisoning. He survived that, but with mutilations to his face. After two messy rounds of voting, Yanukovych won, to the displeasure of many. It led to the so-called Orange Revolution in which supporters of Yushchenko dressed in orange, Yushchenko's campaign colour, took to the streets demanding another round of voting. Yushchenko won that one. It was the second, so-called, colour revolution. A year earlier, there was already a colour revolution in Georgia – the Pink Revolution. Various documentation from the Russian Ministry of Defense's third Moscow Conference on International Security in 2014 shows that senior Russian officers mostly see these colour revolutions as a new approach by the U.S. and EU to destabilise the region with low costs and few casualties. Russian officers also see this approach to destabilisation in the Middle East and North Africa and see it as one of the reasons for terrorism. They therefore see it as policy failure. With Yushchenko's new Western-oriented government, a difficult relationship with Russia emerged. After infighting over gas prices, it led to a shutdown of gas pipelines owned by Russian state-owned Gazprom. It showed Ukraine's dependence on Russia, but also Europe's dependence on Russia. It resulted in discontent among the Ukrainian people and cracks appeared in Yushchenko's popularity (Cordesman, 2014) (Council on Foreign Relations, sd) (de Wijk, 2024).

In 2008, Russia significantly changed its attitude towards Ukraine and other former Soviet republics. Whereas previously, to some extent, the West was given a 'free hand', Putin vehemently opposed NATO talks for a Membership Action Plan (MAP) – a precursor to membership – of Croatia, Georgia and Ukraine. Mainly the latter two were against the grain and Putin was unwilling to engage in any consensus. In several mutual discussions with U.S. President Bush, Putin is even said to have argued that Ukraine "would not even be a true nation-state" (Council on Foreign Relations, sd). Later that year, in August, Russian troops invaded Georgia to fight Southern Ossetian separatists. It resulted in a five-day war, rising tension between Kiev and Moscow and Russia's enlarged sphere of influence in Georgia.

The Russian invasion in 2008 is reminiscent of the Soviet-era Brezhnev doctrine where military intervention in rebellious countries is justifiable when socialism is in danger. Whether the blame is entirely attributable to Russia is debatable. In 2009, an independent report commissioned by the European Union stated that both violated international human rights. There was serious evidence, although not hard evidence, of ethnic cleansing, but Russia's response was allegedly disproportionate (Reuters, 2009). With the invasion of Georgia and pressure on Ukraine from Moscow, Ukraine's sovereignty began to become increasingly uncertain, and less than a month after the invasion, EU-Ukraine cooperation was scaled up. The future would be in Europe and European standards were envisaged (Cordesman, 2014) (Council on Foreign Relations, sd) (de Wijk, 2024).

During the years led by Yushchenko's government, Ukraine was struggling economically. It was also the time of the Financial Crisis that was followed by the Eurozone crisis. In addition, many promises did not come true. Yushchenko was therefore eliminated early on. Eventually, under international supervision, Yanukovych became Ukraine's new president. His vision was to keep both relations with the east and the west good. Although he was against full NATO membership, he partially revised his vision and was open to further EU-related integration. Later in his government term, Yanukovych's attitude changed. A year after the 2010 elections, his then opponent Tymoshenko was convicted of abuse of office. According to many Western countries, the trial was politically motivated. Two years later, Yanukovych no longer thinks about further integration in Europe and withdraws from talks with the EU. In contrast, he announces he is stepping up dialogue with Russia to possibly join the Eurasian Custom Union. It is the beginning of major unrest in the country. November 2013, the so-called Euromaidan Protests break out. Part of the population expressed dissatisfaction with the intensification of Russian cooperation and a preference for a European connection. The protests started mostly peacefully, but after Yanukovych's government decides to break through the lines it resulted in over 100 deaths. Yanukovych flees to Russia, leaving his country behind (Mankoff, 2010) (Cordesman, 2014) (Council on Foreign Relations, sd) (de Wijk, 2024).

Once again, the Brezhnev doctrine seems to have returned. In 2014, Crimea is invaded by pro-Russian separatists dressed in Russian uniforms without insignia. Much of the population in Ukraine's eastern provinces are ethnic Russians, so too in Crimea. They organise a referendum for an annexation of Crimea that would reunite it with Russia. A majority vote in favour, but the international community declares it invalid. Russia is voted out of the Group of Eight (G8), becoming the Group of Seven (G7). Putin later acknowledges involvement, stating that it was to protect the threatened ethnic Russians in the region. Fighting in the regions is fierce and separatists venture to capture places in the Donbas by force. It is estimated to have cost the lives of fourteen thousand people until the large-scale invasion (Council on Foreign Relations, sd). In 2014, MH17 was also shot down by a missile fired from Russia-occupied region. All 298 occupants were killed. A Dutch-led investigation found that Russia supplied the missile. Russia denied. Despite several attempts to stop the violence, such as the Second Minsk Agreement, the fighting continues. The now, in 2019, newly elected president Volodymyr Zelenskyy is also pushing for broader cooperation and possible future accession to NATO and the EU. As a signal, among other things, he is tackling corruption in his country and taking measures against several oligarchs. It is also that period when Russia builds up its forces along Ukraine's borders to the great concern of the U.S.. In an article published by the Russian Federation, Putin states that the Russian and Ukrainian people are one and suggests possible collusion of the Western world against Russia. Just before the 24 February invasion, Russia makes demands on NATO and U.S., such as about possible expansion. These are refused and reinforce Putin's reasoning (Cordesman, 2014) (Council on Foreign Relations, sd) (de Wijk, 2024).

Russia's tone changes over time. Where initially it was seen as a special military operation in the need of denazification and demilitarisation of Ukraine (and the word 'war' was not allowed to be uttered) it is changing to a war against the West and Ukraine is less and less mentioned as a culprit. Instead, the U.S. and Europe are identified as culprits. One reason Putin sees it this way is because of Western

support for Ukraine. Not just militarily, but also in economic, financial and humanitarian terms. Mainly the military support expanded more and more. What first started as supplying life-saving resources or protective equipment, such as shield vests and helmets, eventually included F16s and patriot missiles. The Boetsha massacre was a tipping point for many in this. Innocent civilians were massacred during the withdrawal of Russian units. Some with their hands tied behind their backs and their shopping bags at their sides (de Wijk, 2024). That on the European continent a war would be fought from trenches, as in World War I, was for many prior unthinkable. In the months before the war, then British Prime Minister Boris Johnson still stated, "the old concepts of fighting big tank battles on the European landmass ... are over." (Sabbagh, 2023).

1.5.1 Changing Perspective on Military Expenditure in Europe

Russia's invasion of Ukraine in February 2022 has revived the world of power politics within Europe (de Wijk, 2024). To explain that movement, it is necessary to delve deeper into what it is and extend the earlier narrative from the previous section. Power is achieved in a country through various components. These components include population size, territory, economy and military, but technology, politics and strategy also play a role. Following that, power politics is the translation of the willingness to deploy power and also how it is used. For instance, a country can be economically powerful but not participate in the 'playground' of power politics (de Wijk, 2018). An example is Germany's (post-war and before the invasion of Ukraine) pacifist attitude of a powerful country that does not turn to the arena of power politics. Russia, on the other hand, is an example of in principles lesser degrees economic powerful country, but militarily powerful and which (with the availability of nuclear weapons) turns to power politics. That power can also be found in technology was recognised by the U.S. military. It invested heavily in the modernisation of its armed forces and innovation to improve cooperation and integration of systems to gain a technological edge over its adversary (Freedman, 2013).

That many analysts, see only former British Prime Minister Johnson's earlier comment, thought that with the fall of the Soviet Union, Europe would no longer have a major war, as it would be too expensive (Sabbagh, 2023). In addition, this is partly reflected in the thinking that has its origins in the Enlightenment says de Wijk (2024). According to German philosopher Immanuel Kant, democracies do not wage war among themselves (only in self-defence). After all, civilisations would not want war. That is something of autocrats, like the monarchies of the time. The Enlightenment, as the Western world knows it, could never find the same foundation in Russia. With the Tsarist empire after the Russian revolution that turned into a communist empire under the doctrine of Lenin and Marxism, Western values, which some say we inherited from Greek philosophy, Roman law and Christian values, were no talk. Under Yeltsin in the 1990s, small steps were taken for further democratisation of the country, but they were stranded with the arrival of Putin who returned Russia to an autocracy (de Wijk, 2024).

After the Cold War, many nations said goodbye to power politics and moral politics took its place. The Netherlands, for instance, is a country in which the size makes power politics challenging, as the size of its territory and population are limited. Like many smaller affluent countries, it largely implements moral political policies in order to shape the international legal order to its liking. After all, the country is not in a position to enforce this with military force (it follows an earlier example by Kagan (2023) in which it can be argued that a risk is assessed differently according to the resources available) (de Wijk, 2024).

The focus of many European countries going through a period of prosperity was mainly on *low politics*, which is about the functioning of the state and ensuring the welfare and welfare state, while *high politics*, which is about the survival of the state, national security and foreign policy, were largely neglected (de Wijk, 2018). With the annexation of Crimea and the withdrawal from Afghanistan, the Russians saw a 'window of opportunity' says de Wijk (2024), as this was seen by both the Russians and Chinese as a

form of weakness, and finding your opponent's weaknesses is what power politics is by definition all about. That naivety and moral political policy among many European countries even after Russia's invasion of Ukraine shows that countries like the Netherlands even still favoured an idealistic vision in which human rights (such as a 'feminist' foreign policy) had to be prioritised over the protection of national interests. It confirms the thinking of China and Russia who see the Western world as countries that want to bring peace everywhere with an interventionist and meddlesome attitude. A reversal in European thinking of a makeable world had to be replaced by a vision that understood that many leaders only understand the concept of power (de Wijk, 2024).

The power politics that has been (partly) recognised again by the European order since 2022 does not just play out between warring parties. Power also plays an important role within NATO, the EU and in Russia itself that is quickly overlooked. The power structure of Russian doctrine resulted in major obstacles at the beginning of the war in which mainly senior officers knew the idea of the plan and, due to secrecy, Russian pilots, for example, could not properly prepare for a flight. As a result, many Russian planes were shot down by their own anti-aircraft fire and much experience, gained in Syria among other places, was lost (de Wijk, 2024). In the view of de Wijk (2024) a game of power was also playing out within the European Union. For instance, there were several accusations from Poland towards Germany, for electoral gain, about them supplying too few arms and wanting to act too much towards Putin. A discussion in which reparations from World War II were revived. On the other hand, French President Macron posed as the new European power by taking the lead in reactions towards Moscow that did not rule out the deployment of NATO troops (which was then debunked by allies) (NOS, 2024). It shook European cohesion and many wondered how long this unity would last. In the U.S., the battle between republicans and democrats is also mainly focused on what the budget is for. Whereas republicans believe that the money should go mainly towards border protection with Mexico to stop illegal immigration and support for Israel, democrats believe that support for Ukraine is of great importance for the survival of Western thought (de Wijk, 2024).

Compared to the Cold War era, West Germany had 7,000 battle tanks, now there are only 200 (Colchester, Max; Luhnow, David; Pancevski, Bojan;, 2023). Although demand is increasing as stated by Colchester et al. (2023), the industry cannot handle the current capacity. Germany, for example, can only produce three tanks a month. The Netherlands had even sold all its tanks and was seen within Europe as the forerunner of cutting back on the armed forces. Industry is not the only one struggling; politicians too are struggling to meet demand with their own view on military spending. For major European governments, military spending is "hard to sell" because it often comes at the expense of other public spending (Colchester, Max; Luhnow, David; Pancevski, Bojan;, 2023). Often, a metaphor of an insurance premium sounded for investing in and maintaining defence.[19] According to Osinga (2021), they (European leaders) were too optimistic. Only humanitarian operations were considered reasonable investments. Russia proved to them that war was never far away. European countries' strategy was below par and too dependent on the U.S. (Osinga, 2021, pp. 1-15).

Already in 2023 Kagan's work, *Of Paradise and Power*, he wrote that politicians like Cooper argued that Europe needed to build up its military capability – even if marginally. In the same work, Kagan argued that the next focus of the U.S. would be China, not Europe or Russia. This was also evident in a secret document, the U.S. National Defence Strategy, that the U.S. sees China as the major threat and Biden did not think a war with Russia through the invasion of Ukraine was worth it (de Wijk, 2024). Therefore, Biden did not think a compromise was out of the question and could perhaps bring with it the same idea as where Chamberlain tried to avoid conflict with Hitler in the run-up to World War II by

[19] For many, this metaphor is a premise in their rationale for increased (or the importance of) military expenditure. During my conversation with Professor Dr Robert Beeres, he suggested that this metaphor could potentially contain an inaccuracy. That when a house burns down, one gets his or her money back for a new house, but that this is not the case with war.

reaching a compromise in Munich. In the eyes of Europeans, with moral politics fresh in their minds, such a compromise is unacceptable.

Uncertainty surrounding U.S. involvement in Europe created a tipping point of the EU wanting to join in on the scene of power politics. In September 2023, Commission President Ursula von der Leyen stated that "a geopolitical union was born" (de Wijk, 2024). That union had to independently take a stand against aggressive Russia and assertive China. Economic power is no longer enough and EU member states must also understand the importance of military power, according to de Wijk (2024). Lessons from the Cold War must also be learned, he says: nuclear powers must be taken seriously and deterrence and containment must be taken seriously again as visions.

1.6 What Does Time Teach Us?

This first chapter examined the economic consequences of military expenditure from the different domains within which mainly strategic thinking was at the core. The aim of this chapter was not to draw up a timeline using an explanatory method, but in a descriptive way. That means not looking for patterns, rhythms, tendencies and laws throughout history, as Karl Popper described, but rather drawing lessons from a broader context and demonstrating contrasts. In the beginning of the chapter, the four main lessons of significance in this study have already been presented, but below they can again be found:

[1] *The interaction of different domains, is more important than the domains in themselves* (after all, the military domain, for example, loses its value if it no longer serves to protect a nation's political ideology or economy).

[2] *Alliances or enemies are part of the spirit of the times and therefore change over time* (where Germany was once the Allies' main enemy, it is now one of the main partners).

[3] *Fundamental disparities can fall into oblivion when a higher common purpose arises* (despite the fundamental differences between the Soviet Union and U.S., they still worked together to defeat Nazi Germany).

[4] *The world order is constantly shifting* ("Something that exists in motion is never stable" (Seneca, 2023, p. 154)).

The first part of this chapter looked at the contrast between the course of the end and subsequent peace talks of the Great War and World War II. Both differed significantly, as where in the Great War political leaders were mainly bent on revenge towards the Germans, the opposite was true in the aftermath of World War II. This difference proves that resentment and reconstruction mostly fell under the political sphere of influence which subsequently brought economic and military consequences (something Keynes already described out of dissatisfaction with the Treaty of Versailles). Hence, there is a clear nexus between the different domains. The second section took a closer look at the Cold War. This protracted conflict shows that an alliance can be formed and lost in the contextual situation, as when a greater threat arose, the U.S. united with the Soviet Union to defeat Nazi Germany. That alliance disappeared shortly after defeating that common enemy. Part three looks at the War on Terror that ushered in a new era. An era that many experts believed made conventional military means and warfare a thing of the past. It was the beginning of the reduction of many Western military capabilities and a shift to a focus on humanitarian and peacekeeping operations. Mainly within Western Europe. It shows that the world is constantly changing and the perspective on it is evolving. The final section takes a closer look at the recently unfolding conflict in Ukraine after the Russian invasion. This shows that the

unexpected can still happen. It is a conclusion with which the ‘cards have been reshuffled’ and Europe has to choose a new position within the geopolitical context. Not only does Russia pose a threat, but other challenges also lie ahead (think the relationship with the U.S., turmoil in the Middle East and Africa, but also the position of China).

With this fundamental chapter of this study, a follow-up step can now be taken to further examine the economic consequences of military expenditure. The lessons from this chapter demonstrate the complexity of the subject, but also give the theme a deeper meaning that is difficult to capture in words. Due to the complexity and size of the topic, a focus should be set within a context. Specifically, this means defining the countries the research is about. Although this research is already mostly from a western perspective, this is explored further in the next chapter after which this foundation can be built on.

2 The Unit of Analysis

The Selection of the Countries for a Less Fragile Perspective on Military Expenditure

Actors, such as countries, groups or individuals, act out of a particular interest of the zeitgeist. In the previous chapter, we noted that this interest can override another interest, such as the cooperation between the communist Soviet Union and the capitalist West (the U.S. and U.K. in this case) in order to bring fascist Nazi Germany to its knees. On the other hand, the timeline has also noted that interests and relationship to another country or actor depends on the spirit of the times (again the zeitgeist). For instance, there is a long history of enmity between France and Germany, but the countries work closely together. These observations also show that it is not possible to develop a single less fragile perspective on military expenditure later in this study. In this study, Germany and the Netherlands were chosen because, as will be further explained in this chapter, the similarities of these countries from both different domains and strategic perspectives are strong. To arrive at the choice of countries, the unit of analysis (which refers to what is measured and what data is collected (Sekaran & Bougie, 2016)), a method is followed in which a step-by-step categorisation is made. Within these categories, three belong to the domains (the political, economic and military, see Figure 2). The first step is a mostly underestimated but perhaps the most obvious category, namely geography. Figure 10 shows what the sequence looks like. Although the interaction and dependence between the domains is continuously indicated, the rationale for the selection of Germany and the Netherlands follows the order as shown in the figure. However, this does not mean that the domains are independent of each other, but only that in that theme the respective topic has the main focus. Overlap is thus inevitable and the nexus thus remains constant.[20]

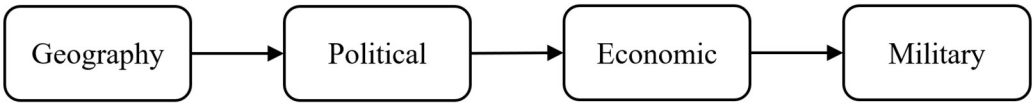

Figure 10: Order of selecting the unit of analysis (own work)

2.1 Geographical and Political

Recognition of the seven continents is the foundation of categorising countries on political similarities. Although every continent has its own unique (political, economic and/or military) challenges that influences strategic choices, war between two sovereign countries on the European continent mounts European countries with new unique and complex strategic dilemmas. While threat within the continent increases, cooperation, and support of the U.S. is uncertain with a shift towards China (as a result of the new multipolar world). These new challenges for Europe, in which on the one hand the threat from the East is increasing and on the other hand the certainty of support from the west decreases, the choice in this study is for Europe in which further categorisation is attained.

[20] Besides Germany and the Netherlands being chosen based on the strategic similarities described, the final choice is also a personal consideration.

It would be an unjustified generalisation if Europe and its strategic position were considered as a whole. Important fundamental differences affect the way countries adapt their actions.[21] It would entail a high degree of complexity to sort out all these political differences (and determine similarities) that it is decided to select the quantifiable components that contribute to a greater general interest on which a categorisation is made. The first step is to no longer label Europe as a whole, but to make a distinction of regions (within it in the usual form of north, east, south, and west). There are several ways to make this distinction. In this study, the classification of regions is used, which is also used by the European Parliament, according to EuroVoc (European Union (EU) Vocabulary). EuroVoc shapes the regions according to different measurements, such as cultural similarities (an example of this is language) (EuroVoc, 2024).

Within the contemporary geopolitical situation, threat from Russia is an important focus of two alliances: the North Atlantic Treaty Organisation (NATO) and European Union (EU). Although the latter is originally a treaty, which focusses on economic, social and territorial cooperation, and integration (EU, sd), the threat from Russia is also recognised as one of the most important tasks in which its members must work together – especially due to the changing attitude of the U.S. The EU is taking various steps in this regard within its mandate (in which sanctions are an important method and of which more than 16,500 have already been imposed (BBC, 2024)) and even made a first attempt with the European Commission presenting a strategy for a boosting the defence industry (Ministry of Foreign Affairs of the Netherlands, 2024). In contradiction to the EU, NATO is focussing on military affairs. It is a multilateral defensive alliance that was founded shortly after the Second World War, in 1949, and today has thirty-two members with Sweden and Finland as newest partners. The alliance is often seen as the bond between the European and Northen American continent. The basis for the alliance is *The North Atlantic Treaty* (Washington D.C. fourth of April 1949) in which article five states that: "The Parties agree that an armed attack against one or more of them in Europe or North America shall be considered an attack against them all..." (NATO, 2023). Another difference with the EU and NATO is that within NATO decisions are reached by consensus (NATO, 2023). Members of NATO informally agreed to allocate at least 2 percent of their GDP to national defence budgets annually and 20 percent of that to procurement and R&D in 2006. With NATO's 2014 Wales Summit these targets were formalised (Paul Belkin, 2021). When the above-described preconditions for categorisation are applied in practice, the results are shown in Table 2 and graphically in Figure 11. Four blocks are formed, consisting of a combination of the regions as described by EuroVoc and the countries that are members of both NATO and the EU.

Table 2: An overview of the European countries that are both member of NATO and EU according to the EuroVoc regions

Northern Europe	*Central and Eastern Europe*	*Southern Europe*	*Western Europe*
[1] Denmark	[7] Bulgaria	[15] Greece	[19] Belgium
[2] Estonia	[8] Croatia	[16] Italy	[20] France
[3] Finland	[9] Czechia	[17] Portugal	[21] Germany
[4] Latvia	[10] Hungary	[18] Spain	[22] Luxembourg
[5] Lithuania	[11] Poland		[23] Netherlands
[6] Sweden	[12] Romania		
	[13] Slovakia		
	[14] Slovenia		

[21] An example of this is the use of law. Many countries within Europe use civil law, which has its origins in Roman Law and Napoleonic code (an example of principle-first thinking), while the United Kingdom for example uses common law (an example of application-first thinking) (Meyer E. , 2015, p. 98).

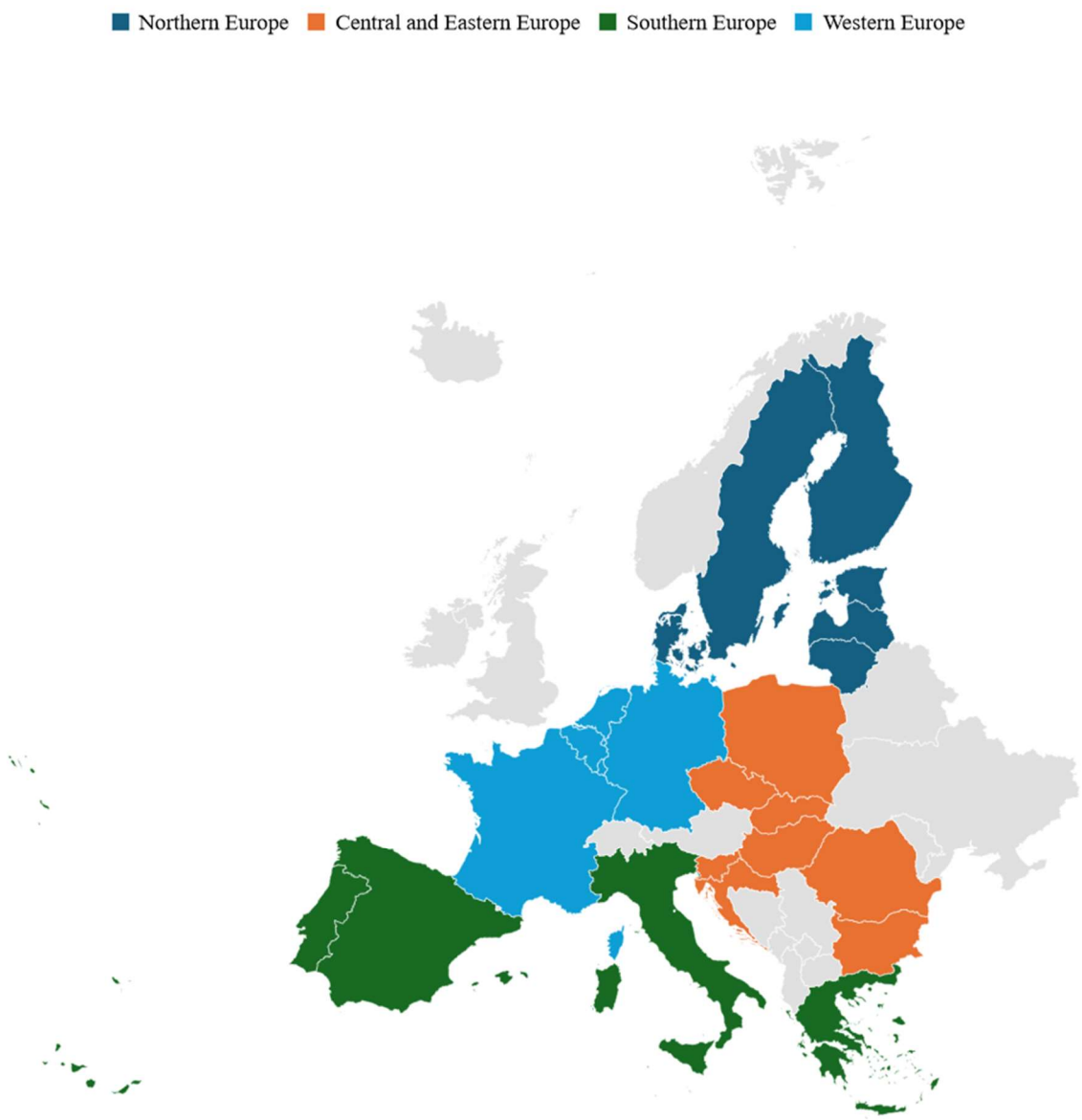

Figure 11: Categorisation of Countries (own work - map supported by Microsoft)

2.2 Economic Similarities

In economic literature there are several classifications of countries within Europe. For example, the Europe Core (EC) countries, consisting out of Austria, Belgium, France, Germany, the Netherlands, and Switzerland, are considered relatively highly regulated and have below-average growth and relatively little inequality. Another recognised group is Europe Mediterranean (EM) which includes Greece, Italy, Portugal, and Spain. The remaining two categories are liberal Anglo-Saxon (AS), consisting of Australia, Canada, the United Kingdom, and the United States and finally the social-democratic Nordic economies of Denmark, Finland, Norway and Sweden (Storm & Naastepad, 2012). An example of differences within these groups can be found in Figure 12 where inequality is plotted against real GDP growth in two periods (from 1984 to 1994 and from 1994 to 2004). It shows that the trade-off according to the current monetary policy, which states that to achieve high growth only goes hand in hand with a more unequal society and in which, on the contrary, a more egalitarian society goes hand in hand with low

growth, is not correct. The Nordic countries have an egalitarian society with above-average real GDP growth according to the figure below.

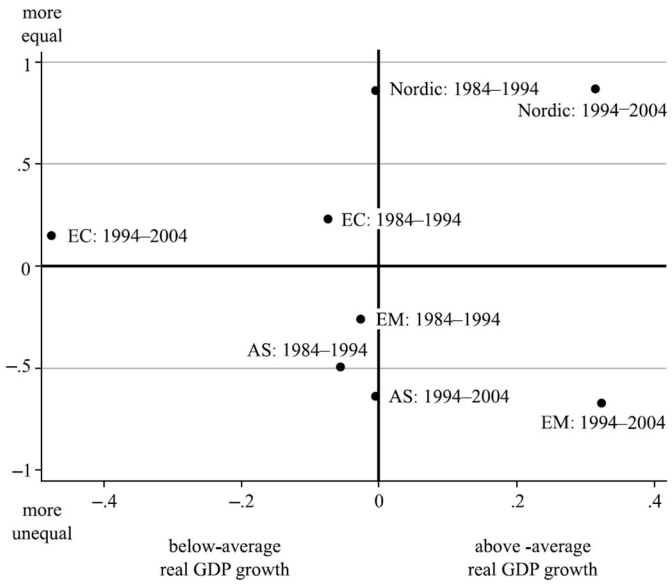

Figure 12: "The growth- equity trade- off does not hold true" (Storm & Naastepad, 2012, p. 46)

The categorisation made earlier (Table 2) appears to be largely the same as that from economic literature (see for example the EC and WE countries). Although this is not completely true, it can be stated that the previously made categorisation can be further analysed for economic similarities. The data used in this analysis comes from Eurostat.[22] Eurostat is the official statistical office of the EU and coordinates statistical activities within the EU (particularly the European Commission) (Eurostat, sd). An important next step is to compare data from regions and the countries within the regions. The time scale considered is limited to a period from 2014 to 2023, because as stated, history shows that it is difficult to find similarities on a longer term and that interests fit the current zeitgeist.

Three quantifiable components are considered. In the first step, the GDP is examined and the size of an economy is determined. Figure 13 shows the combined nominal GDP per region in a period from 2014 to 2023. These are shown in current prices. The data shows that Western Europe (WE) has the largest economy of the four regions and on average is responsible for 55.0 percent of total GDP (2014-2023). After WE, with an average value of 25.9 percent of the total GDP, Southern Europe (SE) has the largest economy. Northern Europe (NE), with 8.8 percent, and Central and Eastern Europe (CEE), with 10.3 percent, are the last to have a comparable size economy.

Considering each region themselves, starting from NE, Finland, Denmark, and Sweden are responsible for the largest portion of the combined GDP. This makes the size of the economies of Estonia, Latvia, and Lithuania almost negligible. Together, these three economies contribute a combined average of 9.2 percent. Within CEE, of the eight countries, the economies of Hungary, Poland, Romania, and Czechia are the largest, with Poland as the leader. Poland's economy is responsible for an average of 38.8 percent of the CEE region. The two largest economies in SE (Spain and Italy) are responsible for an average of 88.4 percent of the total within this region. With WE's economy by far the biggest it is essential to take a closer look. Figure 14 shows that Germany is responsible for almost half of the combined GDP output.

[22] Eurostat has a comprehensive dataset of European member states. This chapter includes economic data (GDP, HICP, imports and exports) from this dataset. Only the military expenditure is from SIPRI, but these were then combined with Eurostat data.

France follows with about a third, followed by the Netherlands[23] and Belgium. Luxembourg has a minimum contribution of approximately one percent.

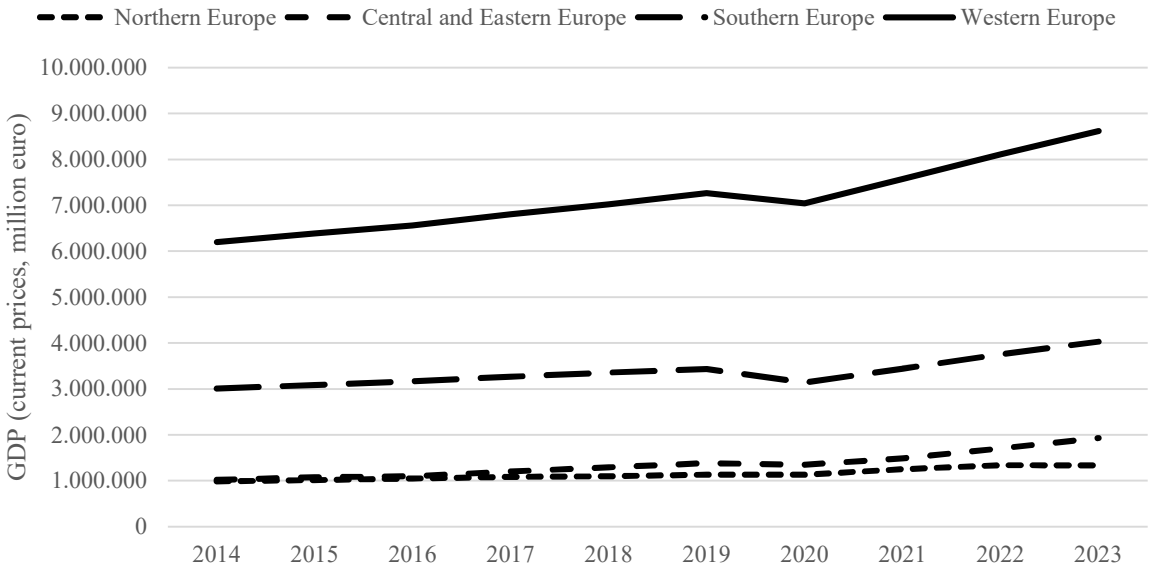

Figure 13: Combined GDP in millions (current prices) (source: Eurostat)

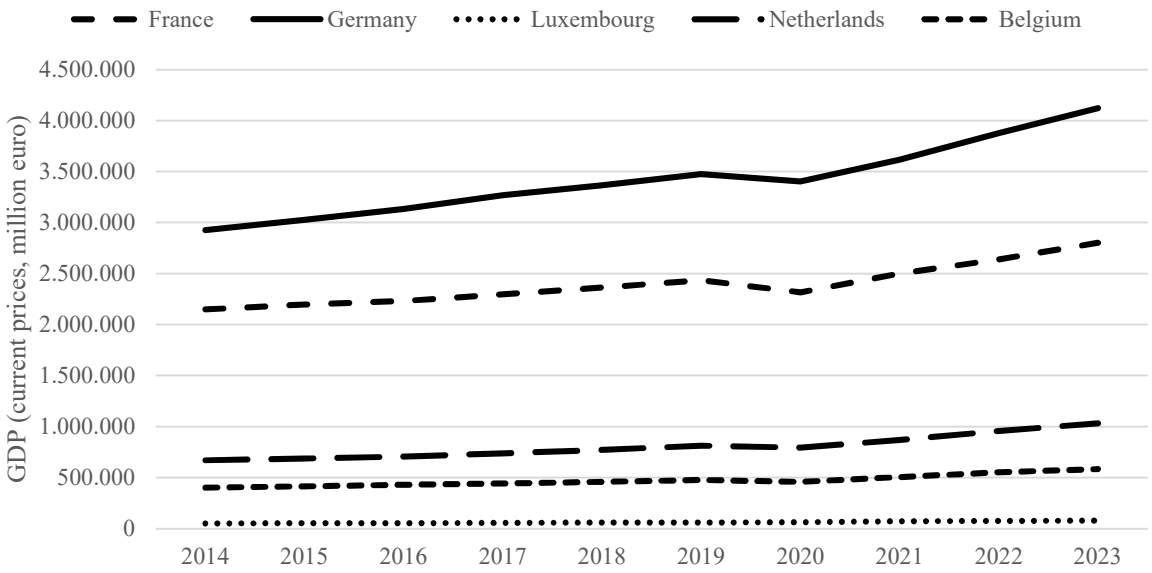

Figure 14: GDP in millions Western Europe (current prices) (source: Eurostat)

Figure 15 shows the trade balance of the various regions. The trade balance is the difference between the goods that a country exports and imports. If a country imports more than it exports, it means that it

[23] Despite the Netherlands appearing relatively small within WE, it is important to realise that the size of the Dutch economy alone in absolute terms is 77.2 per cent (in 2023) of the cumulative value of NE (NE was 1,339,303 and that of the Netherlands was 1,034,086 – current prices, in millions of euros) (source: Eurostat)

has a deficit, because more money goes abroad than comes in. When a country exports more than it imports, there is a surplus and more money comes in.

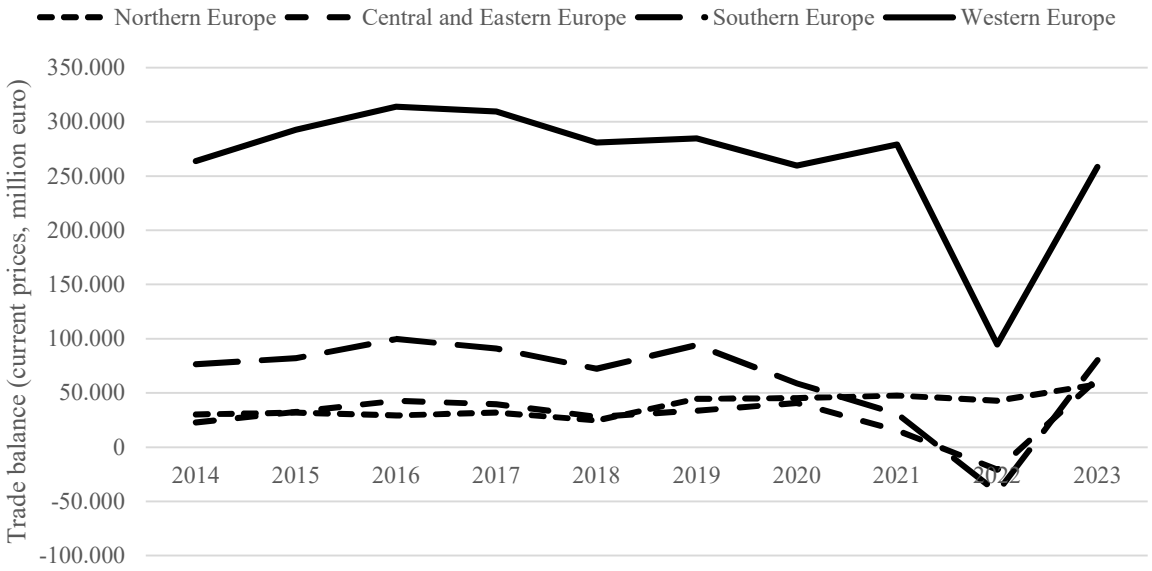

Figure 15: Trade balance in millions (current prices) (source: Eurostat)

Where the combined trade balances of most regions are, again, close to each other, WE show that it has the largest combined surplus. It is important to take the entire dataset into account because it appears that there are regular differences within a region. While within SE Greece, Italy, and Portugal have a deficit, Spain has a surplus. The trade balances of the WE can be found in Figure 16. This shows that France has a deficit over the entire period. Germany and the Netherlands, on the other hand, have a higher surplus. The Netherlands even have a higher surplus than Germany in 2022.

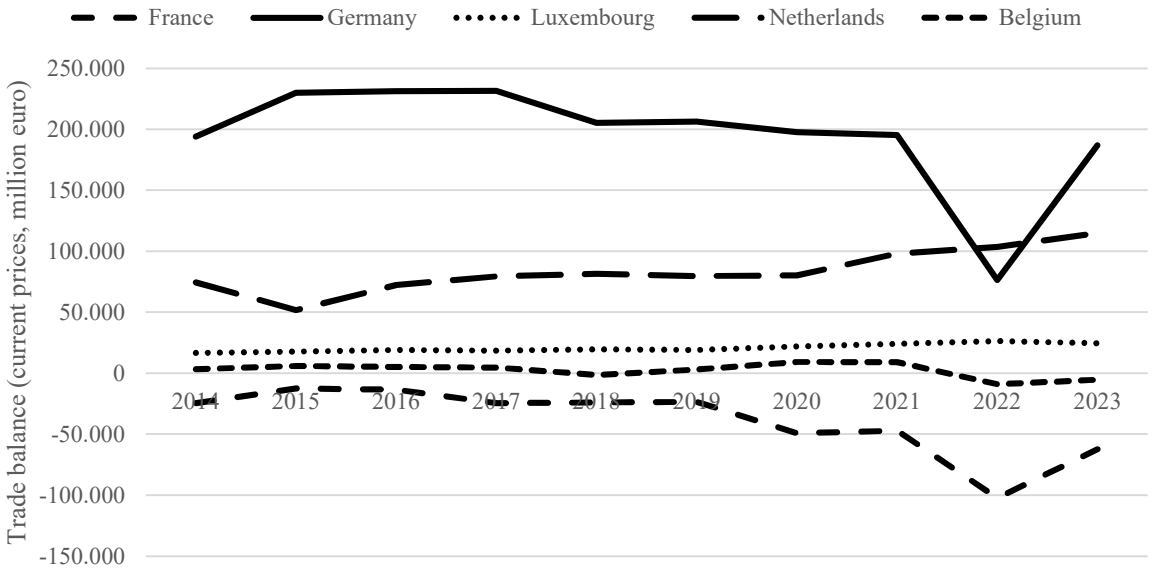

Figure 16: Trade balance of WE in millions (current prices) (source: Eurostat)

2.3 Military Similarities

In examining the military similarities the first step is to take a closer look at the military expenditure as percentage of GDP. Data from SIPRI (Stockholm International Peace Research Institute) is used which covers a period from 1949 to 2023 (SIPRI, 2024).

The combined military expenditure of the 23 countries in 2023 is equal to 285.7 billion euros which is the highest growth within the time interval compared to the year before (a growth of 45.4 billion euros compared to 2022, or 18.9 percent growth). In that same year, WE are accountable for 50.3 percent of the total military expenditure. This share of the WE does get smaller in the interval and mainly CEE's share, with a country like Poland close to the threat of Russia rises. CEE's share is almost doubling in the period from 2014 to 2023 (from 9.7 per cent to 17.2 per cent). Table 3 shows an overview of the percentages countries spend of their GDP on defence. In the period from 2014 to 2023, only one country in this group met the NATO norm, namely Greece (which has tensions with Türkiye), and nine countries met this norm by 2023. These are, again, mainly the countries close to the threat, such as the Baltic States. Within SE, only Greece meets the norm and within WE only France, which already has a more stable spending pattern over the whole period of between 1.84 and 2.06 per cent.

Table 3: Military expenditure as percentage of GDP (SIPRI, 2024)

Northern Europe		*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*2021*	*2022*	*2023*
1	Finland	1,45	1,45	1,42	1,35	1,36	1,35	1,43	1,29	1,57	2,42
2	Denmark	1,15	1,11	1,15	1,14	1,28	1,30	1,38	1,30	1,37	1,95
3	Sweden	1,13	1,07	1,05	1,02	1,03	1,09	1,15	1,19	1,31	1,47
4	Estonia	1,93	2,03	2,07	2,01	2,01	2,04	2,30	2,03	2,16	2,87
5	Latvia	0,94	1,04	1,45	1,59	2,06	2,02	2,16	2,09	2,09	2,27
6	Lithuania	0,88	1,14	1,48	1,71	1,97	2,00	2,07	1,96	2,45	2,72
Central and Eastern Europe		*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*2021*	*2022*	*2023*
7	Hungary	0,86	0,90	1,00	1,19	1,01	1,34	1,76	1,32	1,84	2,13
8	Poland	1,92	2,14	1,95	1,90	2,04	1,98	2,29	2,24	2,23	3,83
9	Romania	1,35	1,45	1,43	1,73	1,79	1,84	2,01	1,85	1,72	1,61
10	Bulgaria	1,31	1,25	1,24	1,22	1,45	3,13	1,59	1,52	1,59	1,85
11	Croatia	1,82	1,75	1,59	1,64	1,55	1,60	1,70	1,97	1,79	1,78
12	Slovakia	0,98	1,11	1,12	1,10	1,22	1,70	1,92	1,74	1,81	2,02
13	Czechia	0,97	0,95	1,00	0,96	1,09	1,15	1,32	1,40	1,38	1,52
14	Slovenia	0,97	0,93	1,00	0,98	0,98	1,05	1,06	1,23	1,29	1,34
Southern Europe		*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*2021*	*2022*	*2023*
15	Greece	2,35	2,46	2,57	2,56	2,72	2,62	3,07	3,87	4,02	3,23
16	Italy	1,28	1,21	1,33	1,36	1,36	1,31	1,74	1,68	1,69	1,61
17	Portugal	1,31	1,33	1,54	1,24	1,34	1,37	1,43	1,52	1,40	1,52
18	Spain	1,25	1,27	1,14	1,23	1,25	1,23	1,37	1,35	1,43	1,51
Western Europe		*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*2021*	*2022*	*2023*
19	France	1,86	1,87	1,92	1,91	1,84	1,84	2,00	1,91	1,93	2,06
20	Germany	1,15	1,14	1,15	1,15	1,17	1,26	1,37	1,32	1,38	1,52
21	Luxembourg	0,37	0,42	0,38	0,50	0,50	0,55	0,58	0,47	0,63	0,75
22	Netherlands	1,16	1,13	1,16	1,16	1,22	1,32	1,44	1,40	1,35	1,53
23	Belgium	0,97	0,91	0,89	0,88	0,89	0,89	1,01	1,04	1,18	1,21

When the GDP from the earlier part of this analysis is multiplied by the values of military expenditure, the size of the nominal value of military expenditure can be calculated. The cumulative values of the regions are shown in Figure 17. In absolute terms, WE are the largest actor on the European continent with regard to military expenditure. Due to this major influence, it is important to make a closer comparison between the different countries within this context. This shows that Germany and France invest the largest amount. As of 2019, Germany's investment in defence exceeded that of France (see Figure 18). The Netherlands comes in third, followed by Belgium. Luxembourg's investment in this is negligible compared to other countries.

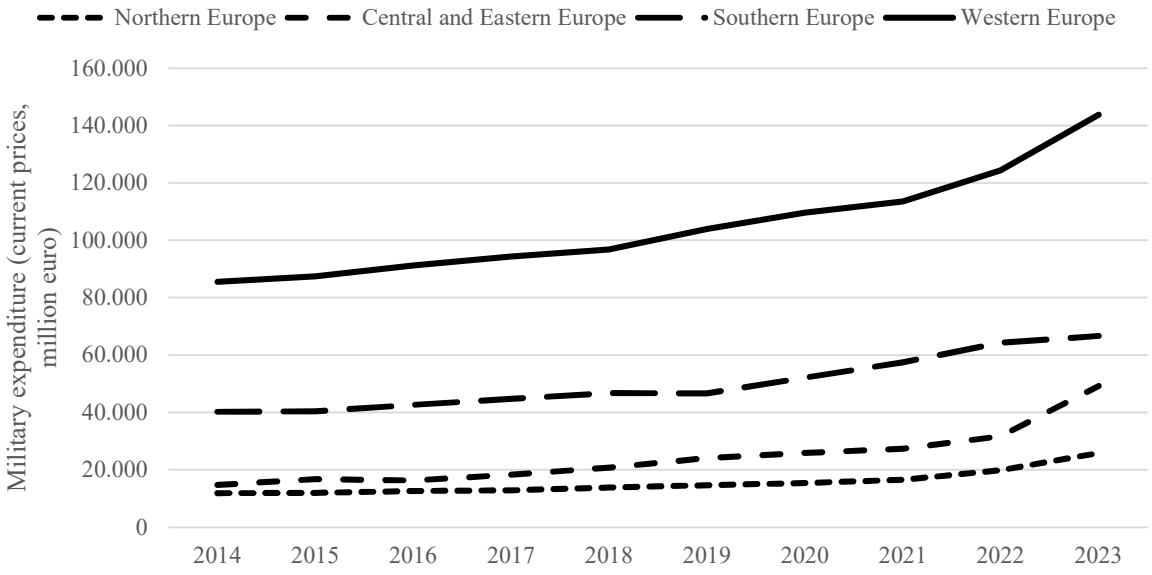

Figure 17: Military expenditure in millions (current prices) (sources: Eurostat and SIPRI)

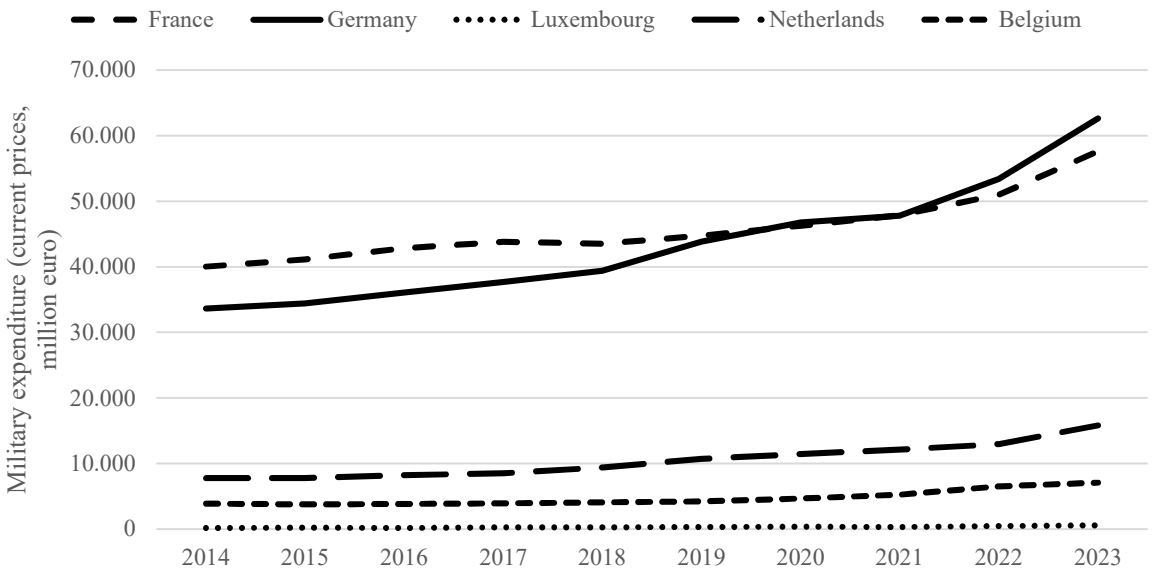

Figure 18: Military expenditure WE in millions (current prices) (sources: Eurostat and SIPRI)

The ratios can be better explained if military expenditure is also examined in a relative sense. This means the military expenditure as percentage or GDP (see Table 3). It is noticeable that France is a relatively stable factor within this figure with constant investments. The Netherlands and Germany follow a similar trend of growth. Belgium, but especially Luxembourg, are lagging in this regard and, despite the increasing threat, are still investing far below the set standard. In comparison, the U.S. spend on between four and five percent of their GDP on their military and are accountable for approximately seventy percent of NATO's combined military expenditure (see Figure 8 from the previous chapter). Taking into account the previously discussed scenarios in which the U.S. withdraws from NATO and the increasing threat from Russia, the potential for WE is high. Especially for countries that invest relatively less and are even below the minimum. This (growth) potential is mainly high for countries such as Germany, the Netherlands, and Belgium.

Despite the fact that the values, such as percentage of GDP, and nominal value of military expenditure seem to rise sharply in the period from 2014 to 2023, it should be noted that these are nominal values. When looking at the real values by observing the HICP (Harmonised Index of Consumer Prices: a value to compare inflation rates with other EU member states), Figure 19 can be seen that the growth in military expenditure is not as large as just might be thought.

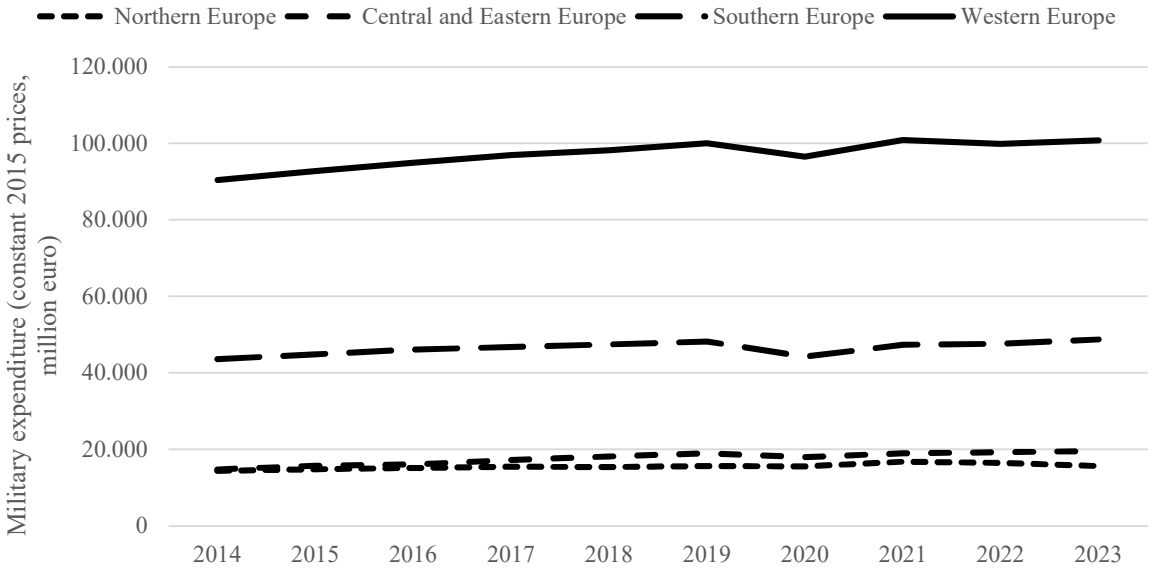

Figure 19: Military expenditure in millions (constant 2015 prices) (sources: Eurostat and SIPRI)

The observation that the growth of military expenditure in real values appears much less than in nominal values, despite the growth in investment, calls for a deeper look at this growth by country. Table 4 shows the growth factor of military expenditure (absolute values) of 2014 compared to 2023. This table shows that nominal growth is many times higher than real growth due to the HICP. With this, military expenditure often turns out to be less effective. Poland, for instance, shows a large growth in military expenditure, where the percentage in relation to GDP was 1.92 per cent in 2014, it was 3.83 (roughly doubled) in 2023. In nominal values, military expenditure would have a growth factor of 3.690 while in reality it is 'only' 1.296 (or a growth of 29.6 per cent). For many other countries too, the difference between nominal and real values causes the growth factor to be a lot lower.

Besides the quantifiable similarities, there are fundamental differences within the two superpowers. For example Germany and France in the way they organise military expenditure. Not only does Germany

have a relatively more (traditionally) pacifist attitude compared to France, France also has a nuclear capability on which much of the deterrence within NATO and Europe are based. In addition, France also sees the importance for national decision-making as more important than Germany which prefers decision-making from the EU to jointly protect Europe (Kayali & Posaner, 2024). Throughout the analysis, it can be seen that Germany and the Netherlands share many similarities, such as the percentage spent on defence (and its growth), the trade balance, but also strategic interests and an integration of each other's military (NOS, 2023). Germany is the economically largest country within the selection made, but the Netherlands also contains a relatively large economy. Both countries therefore have a large capacity to actually make a difference. For this reason, Germany and the Netherlands are used further in this study as units of analysis.

Table 4: Growth factors military expenditure nominal versus real value (2014 relative to 2023) (sources: Eurostat and SIPRI)

Northern Europe		*Nominal*	*Real*	*Southern Europe*		*Nominal*	*Real*
1	Finland	2,216	1,121	15	Greece	1,709	1,085
2	Denmark	2,390	1,194	16	Italy	1,604	1,059
3	Sweden	1,623	0,975	17	Portugal	1,783	1,283
4	Estonia	2,799	1,256	18	Spain	1,704	1,188
5	Latvia	4,105	1,189				
6	Lithuania	6,076	1,325				
Central and Eastern Europe		*Nominal*	*Real*	*Western Europe*		*Nominal*	*Real*
7	Hungary	4,584	1,150	19	France	1,439	1,081
8	Poland	3,690	1,296	20	Germany	1,861	1,111
9	Romania	2,582	1,529	21	Luxembourg	3,127	1,254
10	Bulgaria	3,080	1,645	22	Netherlands	2,035	1,202
11	Croatia	1,696	1,367	23	Belgium	1,815	1,144
12	Slovakia	3,293	1,163				
13	Czechia	3,058	1,308				
14	Slovenia	2,301	1,347				

2.4 An Important Side Note

In this chapter, we have concluded that Germany and the Netherlands are the unit of analysis of this study. In this, it is important to realise that this does not mean that the research is specified on these countries from here on. Quite the contrary, in fact. In line with this entire study, a broader perspective is maintained in order to explore different perspectives and avoid focusing too specifically on these countries. However, it does mean that further research is mostly reasoning from a western perspective that mostly relates to these countries and when specification is necessary it is realised exclusively for Germany and the Netherlands. In this, consider, for example, the importance for Germany and the Netherlands of trade. Moreover, this chapter also adds an extra layer to further research with which dynamics between different countries and regions can be better understood – from a quantitative view (think for instance of the fact that the threat would be felt more in Eastern Europe than in Southern Europe).

3 The Fiscal Multiplier on Military Expenditure

The Tangible Part of the Economic Consequences of Military Expenditure

The post-World War II period (1950-1975) is often referred to as the *golden age*. During this period, governments pursued Keynesian policies that aim for full employment and support through fiscal policy (just think of the Marshall Plan, as we saw in the timeline in Chapter 1). This idea of fiscal policy includes the *fiscal multiplier*. The fiscal multiplier reflects the change in GDP due to an increase or decrease in government spending. However, the Keynesian orientation in macroeconomic policy was abandoned in the 1980s, by the governments led by Reagan in the U.S. and Thatcher in the U.K., and instead the policy orientation shifted to inflation control, privatisation and fiscal austerity, in the hope of increasing welfare and growth – a period described by some economists as the 'great moderation' (Stiglitz, 2019, pp. 32-34). The change in macroeconomic policy alone shows that the fiscal multiplier, and fiscal policy in general, is a controversial idea on which economists and policymakers are not unanimous. Hence, studies on the size of the fiscal multiplier show a variation in result: some studies conclude that the fiscal multiplier is negative, others that the fiscal multiplier is positive or that fiscal policy has no effect at all – it can be concluded that the fiscal multiplier thus remains a conceptual concept in the 'real world' (Santamaría, García, & Domonte, 2022). This chapter takes a closer look at the fiscal multiplier, to be specific the fiscal multiplier of military expenditure. To this end, the first section provides an extensive analysis of the existing literature, after which the second section attempts to estimate the fiscal multiplier for a select number of countries. The chapter concludes by discussing the strengths and limitations of the concept of the fiscal multiplier in the context of the earlier analysis.

3.1 Literature Review

Prior to looking specifically at the fiscal multiplier of military expenditure, a brief introduction to the fiscal multiplier in general should be made. In a meta-regression analysis of a unique dataset consisting of 98 empirical studies[24] and more than 1,800 observations, Gechert and Rannenberg (2018) distinguish six different components in which the fiscal multiplier can have an effect: (1) general spending, (2) public consumption, (3) public investment, (4) military spending, (5) taxes and (6) transfers (see Figure 20). Gechert and Rannenberg (2018) conclude that, except concerning the case of taxes, the size of the fiscal multiplier depends strongly on the state of the economy (or as expressed by Gechert and Rannenberg: the magnitude of the fiscal multiplier depends on the *economic regime*). Thus, the fiscal multiplier would be lower when the economy is doing better than if the economy is in recession – a difference that could be as high as 0.7–0.9 units (Gechert & Rannenberg, 2018). That the fiscal multiplier is effective in stimulating the economy when monetary policy fails is confirmed by Stiglitz (2019). Only Stiglitz does argue that governments should prioritise public spending with high returns such as

[24] According to Gechert and Rannenberg (2018), the number of studies on the fiscal multiplier grew enormously after the 2008 crisis – a period when there was much disagreement about the 'right' approach, or a contradiction between fiscal stimulus and fiscal austerity.

investment in education, and not on paying foreign contractors to fight foreign wars (Stiglitz, 2019, p. 194).

Having taken a more general look at the fiscal multiplier, it is now relevant to look specifically at the fiscal multiplier of military expenditure. The fiscal multiplier of military expenditure is not just an economic problem, but rather a mix of the economic, strategic, political, psychological, cultural and even moral (Dunne & Nikolaidou, 2012). A majority of the existing literature examines the relationship between military expenditure and economic growth (Santamaría, García, & Domonte, 2022). In contrast, others look primarily at investment channels (Dunne & Smith, 2019). There is also considerable variation in the type of analysis and country selection. Some studies use a meta-analysis while others look at specific regions such as Europe. The study by Santamaría, García, and Domonte (2022) examined and compared 162 articles on this topic. It shows that the published studies mostly focused on the U.S., Türkiye and Greece, but also focused on the supranational level of NATO and EU (Santamaría, García, & Domonte, 2022).

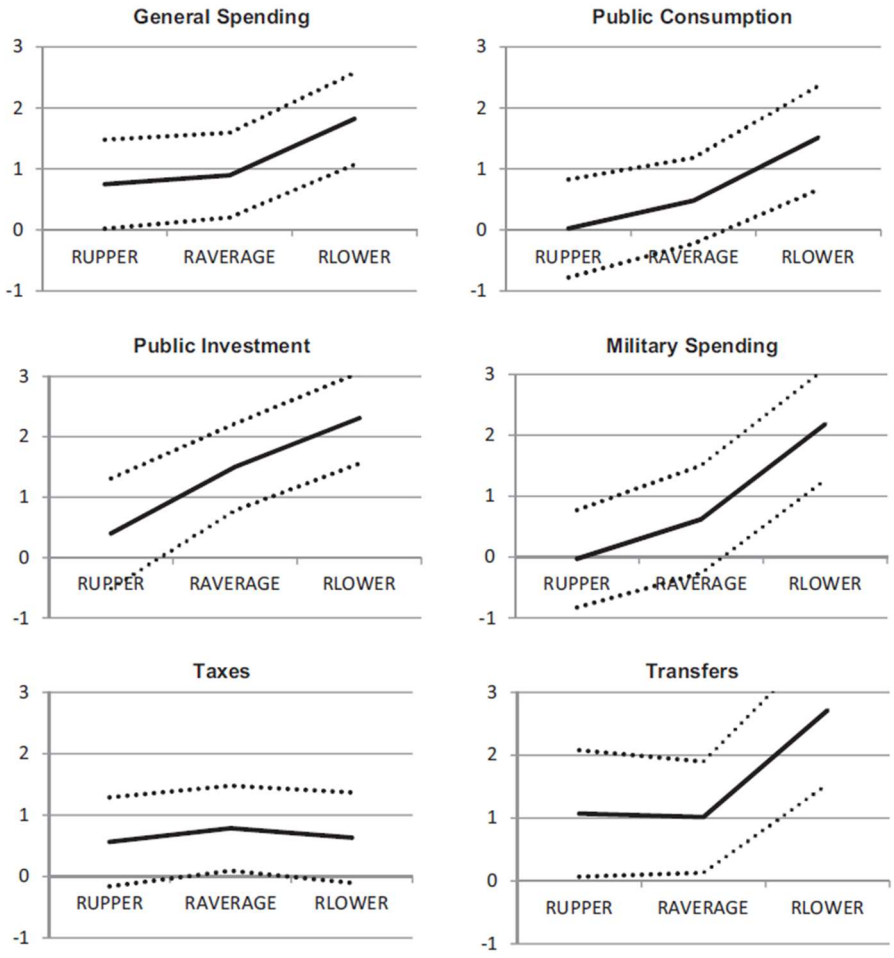

Figure 20: "Compound Cumulative Multipliers of Fiscal Impulses for Different Regimes" (Gechert & Rannenberg, 2018)

That the fiscal multiplier of military expenditure depends on economic regime (or business cycle) was already evident from the study by Gechert and Rannenberg (2018). Studies that have looked specifically at the fiscal multiplier of military expenditure also conclude that the magnitude of the fiscal multiplier strongly depends on where in the business cycle the economy is located (Felix, 2018). To have a positive impact on the economy when the economy would be in a recession, it is important that military

expenditure is used to purchase goods (Spirovska & Sheremirov, 2015). Also, a large difference can be observed between advanced economies and less developed countries (LDCs): the fiscal multiplier of military expenditure in LDCs is generally found to be smaller than in advanced countries (Kollias, Mylonidis, & Paleologou, 2007). The fiscal multiplier for advanced economies could be up to twice as large relative to LDCs, but it would also be affected by how open an economy is to trade; indeed, 'closed' economies would experience a higher multiplier (Sheremirov & Spirovska, 2022). That the fiscal multiplier is lower for LDC is argued to be due to the fact that resources are scarce, but inefficient policies, the challenge of raising taxes, poverty and higher unemployment would also have an impact (Churchill & Yew, 2017).

The literature on the fiscal multiplier of military expenditure does not reach a consensus on the sign and/or magnitude of the multiplier effect. Some studies observe a positive relationship, others a negative one, but similarly some studies state that the outcome is more nuanced. Sheremirov and Spirovska (2022) observe a positive effect on the economy due to military expenditure and state that the fiscal multiplier of military expenditure is around 0.80 after one year. For advanced countries, the fiscal multiplier in times of recession would be around 1.70 and during the expansionary phase of the business cycle only 0.30 (Sheremirov & Spirovska, 2022). In an earlier study, Sheremirov and Spriovska (2015) found that the fiscal multiplier for the U.S. is small, at 0.20, but when financed by debt, it could exceed 1.00 (Spirovska & Sheremirov, 2015). Also, Figure 20 shows that the fiscal multiplier of military expenditure can reach a value of 2 during the downswing of the business cycle (Gechert & Rannenberg, 2018). A meta-analysis by Alptekin and Levine (2012), using 32 empirical studies with 169 estimates, also found a positive effect. This positive effect was found for advanced economies (Alptekin & Levine, 2012). A 2007 study, when there was a move towards the European Security and Defence Policy (CESDP), found a positive 'feedback effect' between military expenditure and economic growth in the long run and a positive impact in the short run (Kollias, Mylonidis, & Paleologou, 2007).

On the other hand, other studies find a negative effect. For instance, Becker and Dunne (2021) – who mainly look at the effects of several types of military expenditure – find a consistently negative impact driven mainly by the effects of staff investment and also (to a lesser extent) O&M (operation and maintenance) costs. This contradicts the thinking of many governments that human resource investment would have a positive impact and could reduce unemployment (Becker & Dunne, 2021). For developing countries (LDCs), no significant or even negative effects would be associated with military expenditures, but also for some European countries (the EU15 in this study) there appear to be no effects or even negative effects (Dunne & Nikolaidou, 2012). Other studies, such as M. Yesilyurt and F. Yesilyurt (2019) and Mylonidis (2008) also see no effect or even a negative effect of military expenditure on the economy. When conflicts and instability surrounding a country are also included, an empirical analysis of 133 countries between a period of 1960-2012 shows an increase in military expenditure of 1.0 per cent of GDP resulting in a shrinking of 1.1 per cent on the economy (Saeed, 2023).

The latter 'group' does not specifically identify a positive or negative effect of military expenditure on the economy, but says the relationship is more nuanced. For instance, according to Kollias, Mylonidis and Paleologou (2007), different countries would each contain distinctive characteristics, also the moment in 'time and space' has an important effect and different methods all give different results. According to Becker and Dunne (2021), a unified use of method, interpretation of the literature and approach to investigating the relationship is lacking within this field. Becker and Dunne (2021) identify four theoretical approaches, namely the Neoclassical, Keynesian, (liberal) Institutional and Marxist, in which the Neoclassical approach would prevail (Becker & Dunne, 2021). According to Dunne and Nikolaidou (2012), the Neoclassical approach looks at defence as a purely public good in which the government should protect the, clearly defined, interests of the national good by acting rationally and

maximising the different interests. It requires finding a balance between the opportunity costs[25] and security benefits of military expenditure. The Keynesian view views military expenditure from a proactive and interventionist stance where action is taken out of economic interest. In other words, military expenditure should be increased when aggregate demand is insufficient to stimulate the economy. The Institutional approach relates to the military industrial complex (MIC) as the focal point around military expenditure and assumes benefit from conflict. The latter, Marxist, approach sees military expenditure as a social phenomenon with the historical perspective taken into account which puts the focus on strategic factors, and to a lesser extent economic factors (Dunne & Nikolaidou, 2012). In practice, this means that with a Keynesian approach, the stimulation of aggregate demand by military expenditure can result in a boost of the economy, but at the same time (from a non-Keynesian perspective) it can also cause higher inflation, a crowding-out effect, reduction of available public funds that could otherwise be used for potentially more productive areas (Kollias, Mylonidis, & Paleologou, 2007). It can thus be argued that military expenditure on the one hand promotes the economy, but at the same time hinders it (Churchill & Yew, 2017). According to Emmanouilidis (2022), it is also time-dependent whether military expenditures are perceived as positive or negative and it also matters what the investments are made in. On the other hand, a reduction in costs may seem positive at first glance in the short term, but may have a greater impact in the longer term when considering that a larger industry, such as in the U.S., leans on it (Emmanouilidis, 2022). It is thus controversial to draw a general conclusion regarding the consequences of military expenditure as it also depends on the country under consideration (Alptekin & Levine, 2012). Within Europe alone, there are large differences between countries, as nuclear countries such as France and the U.K., as well as Germany, for instance, have a larger defence industry and therefore are likely to benefit more from the rising military expenditure in other countries (Kollias, Mylonidis, & Paleologou, 2007). It also seems that the fiscal multiplier for military expenditure is negative when the system is driven by a strategic shock (such as a new threat, e.g. attack on 9/11), but the opposite occurs (i.e. a positive effect) when the system is driven by an economic shock (Dunne & Smith, 2019). In addition, several studies, such as Mylonidis (2008) and Churchill and Yew (2017) argue that the multiplier effect of military expenditure is non-linear. Specifically, lower levels of military expenditure will have a positive impact on the economy, but when these expenditures become larger, their impact can turn negative (Mylonidis, 2008).

Although there is a large literature on the relationship between military expenditure and economic growth, a categorisation of studies and findings remains to be done (Becker & Dunne, 2021). Nevertheless, the composition of military expenditure should play a key role, as different components could lead to different outcomes (Emmanouilidis, 2022). One of the biggest obstacles to researching the fiscal multiplier for military expenditure is that, during much of the post-Cold War period, the spending levels on military purposes have been relatively stable over time, while being relatively small compared to the overall economy, while the economy has grown. (Dunne & Smith, 2019). Dunne and Smith (2019) conclude that despite the growing body of research since the 1970s and new more comprehensive methodologies, a one-size-fits-all answer to the size of the fiscal multiplier remains elusive and there is no consensus among economists and policymakers. In this, ideological undertones could also influence their views on military expenditure (Yesilyurt & Yesilyurt, 2019) – after all, four different schools of thought have been identified earlier. In these, researchers also often find that there are positive effects of military expenditure vis-à-vis the economy, but these are mostly difficult to measure (Mylonidis, 2008). Ultimately, the research area regarding the economic effects of military expenditure proves to be complex and inconclusive (Santamaría, García, & Domonte, 2022). According to Santamaría, García, and Domonte (2022), the contemporary geostrategic scenario for the EU and NATO calls for new, but

[25] Later in this study (see Chapters 4 and 5) opportunity costs (the costs incurred in the military domain when they could be invested in something else) are discussed in more detail. In this chapter, however, it is important to note that opportunity costs depend on the economic regime, for example, when looking at the study by Gechert and Rannenberg (2018), this shows that opportunity costs can differ by economic regime or, in other words, depending on the economic regime, a choice for a particular government expenditure can be better argued.

above all permanent military expenditures for both the long and short term in the area of new technologies, but also developments for the new threats – despite the fact that, in public opinion, this would mostly come at the expense of other issues that might be seen as more important.

3.2 Estimation of the Fiscal Multiplier

The literature review shows that there are many studies on the size of the fiscal multiplier since the 1970s. Despite increasingly large available datasets and more complex methods, economists have yet to agree on whether the fiscal multiplier is negative or positive. Studies tend to focus on the U.S., Greece, Türkiye or at the supranational level of NATO and the EU (Santamaría, García, & Domonte, 2022). Thus, relatively little is known in the literature at the national level of European countries. This study looks at this national level and specifically Germany and the Netherlands, but also includes several other (western) countries which are considered relevant for the analysis.

3.2.1 Methodology and Data Collection

To determine the fiscal multiplier, empirical research is conducted into the relationship between real GDP per capita and military expenditure. An intuitive and accessible model is used to test for a relationship with the following form:

$$\log(Y_t \; per \; capita) = C + \beta \cdot \log(inv_t) + \gamma \cdot \log(milex_t)$$

in which the dependent variable Y_t is real GDP per capita and the independent variables inv_t is gross capital formation and $milex_t$ is military expenditure. A log transformation was conducted to perform a better regression analysis.

The dataset is composed of five countries: Belgium, France, Germany, the Netherlands and the U.S. The latter country, the U.S., is included in the analysis because a relatively large amount of research has been done on the relationship between military expenditure and economic growth in the U.S.. This allows the U.S. to be used as a benchmark. Although the focus is on Germany and the Netherlands, Belgium and France are also included in the analysis because these countries fall within the WE (Luxembourg has been left out of this analysis). It also allows for better interpretation of the data, as it brings out the proportions relative to each other.

Unfortunately, Eurostat datasets (used in Chapter 2) are only available for a period from 2014 to 2023. Therefore, the OECD (Organisation for Economic Cooperation and Development) dataset is used for this chapter. From the OECD dataset, nominal GDP, the price index deflator to convert nominal GDP to real GDP, gross capital formation and population size were obtained. Due to the former split of East and West Germany, this economic and demographic data for Germany are only available from 1991 to 2022 (n= 32). For the remaining countries, the data are available from 1960 to 2022 (n= 63). For military expenditure, as in the previous chapter, data from SIPRI are used.

3.2.2 Results

Table 5 shows the descriptive statistics and correlations. These correlations show that the explanatory variables are not strongly correlated. This means that there is no sign of multicollinearity in the data. Table 6 shows the results of the regression analysis. The results of this analysis show that each country (and the combination of Germany and the Netherlands) contain a high coefficient of determination (R^2), between 0.918 and 0.989, indicating that a large part of the variance in the dependent variable (real GDP per capita) can be explained by the independent variables. The F-test (with two degrees of freedom) is also significant which allows us to conclude that the regression model contains significant explanatory variables.

Table 5: Descriptive statistics and correlations

	Descriptive statistics				*Correlations*		
Belgium (BE)	*Mean*	*s.d.*	*Min*	*Max*	*[1]*	*[2]*	*[3]*
[1] Investment	10.717	0.220	10.260	11.049	-		
[2] Military Expenditure	9.679	0.097	9.515	9.862	-0.004	-	
[3] Real GDP per capita	4.392	0.165	4.023	4.602	0.035	0.000	-
France (FR)	*Mean*	*s.d.*	*Min*	*Max*	*[1]*	*[2]*	*[3]*
[1] Investment	11.491	0.191	11.037	11.775	-		
[2] Military Expenditure	10.561	0.071	10.402	10.657	0.012	-	
[3] Real GDP per capita	4.368	0.150	4.007	4.540	0.028	0.010	-
Germany (GER)	*Mean*	*s.d.*	*Min*	*Max*	*[1]*	*[2]*	*[3]*
[1] Investment	11.096	0.086	10.921	11.227	-		
[2] Military Expenditure	9.947	0.037	9.891	10.038	0.001	-	
[3] Real GDP per capita	4.572	0.059	4.455	4.659	0.005	0.000	-
The Netherlands (NL)	*Mean*	*s.d.*	*Min*	*Max*	*[1]*	*[2]*	*[3]*
[1] Investment	10.954	0.175	10.579	11.227	-		
[2] Military Expenditure	9.933	0.058	9.755	10.038	0.005	-	
[3] Real GDP per capita	4.443	0.154	4.126	4.659	0.026	0.005	-
United States (U.S.)	*Mean*	*s.d.*	*Min*	*Max*	*[1]*	*[2]*	*[3]*
[1] Investment	12.260	0.271	11.736	12.685	-		
[2] Military Expenditure	11.698	0.123	11.498	11.916	0.027	-	
[3] Real GDP per capita	4.590	0.153	4.287	4.816	0.041	0.015	-
Germany and Netherlands	*Mean*	*s.d.*	*Min*	*Max*	*[1]*	*[2]*	*[3]*
[1] Investment	11.002	0.164	10.579	11.227	-		
[2] Military Expenditure	9.938	0.052	9.755	10.038	0.004	-	
[3] Real GDP per capita	4.487	0.143	4.126	4.659	0.023	0.004	-

When considering the six different models (read countries), it can be seen that most of the regression coefficients are significant (see Table 6). Only the (military expenditure) regression coefficients of Germany and the U.S. are not significant. It is also worth noting that none of the fiscal multiplier (regression coefficients of military expenditure) exceeds one, but most values fall between 0 and 1 with the exception of Germany. In the case of Germany, the fiscal multiplier is in fact slightly negative (-

0.179). Of the positive fiscal multipliers, France experiences the highest (0.672) effect and the U.S. the smallest (0.051).

Table 6: Results of the regression analysis

	BE	*FR*	*GER*	*NL*	*U.S.*	*GER/NL*
Constant	-6.940** (0.486)	-9.078** (0.469)	-1.112 (0.872)	-7.134** (0.675)	-2.646** (0.230)	-6.344** (0.593)
Investment	0.753** (0.018)	0.553** (0.025)	0.673** (0.038)	0.820** (0.026)	0.541** (0.013)	0.825** (0.022)
Military Expenditure	0.338** (0.042)	0.672** (0.066)	-0.179 (0.089)	0.262** (0.078)	0.051 (0.029)	0.176* (0.067)
R^2	0.965	0.986	0.918	0.961	0.989	0.957
F	830**	2134**	161**	736**	2,730**	1023**
n	63	63	32	63	63	95

**p < .01; *p < .05

3.2.3 Discussion and Limitations of the Model

The determination of the fiscal multiplier shows a positive relationship between GDP per capita and military expenditure for most countries. Hence, this analysis is in line with the literature that states that a positive effect can be observed. It is of added value to check whether the results are in line with this literature in more detail and also look at the limits of the method applied.

Many studies argue that the size of the fiscal multiplier is highly dependent on the location of the economy in the business cycle and thus the fiscal multiplier would be higher when the economy is in recession (Gechert & Rannenberg, 2018). In the available time interval (1960-2022), there were several moments when the economy performed less or better, such as the 2008 banking crisis that still had many effects on Europe in the following years (Eurozone crisis) or the golden age in the 1960s where the economy actually performed relatively well. These differences were neglected in the regression analysis. This offers a possible explanation for the fact that Germany experiences a negative fiscal multiplier, for instance. Because Germany's data are only available after 1991 (due to the Cold War), Germany does not have the coherence that can be found in the other countries where economic growth of the golden age coincided with the growth of military expenditure as a result of the rising tension in the Cold War. In contrast, Germany's data mainly show a trend in which defence spending was cut sharply after the 2008 crisis to make up for (rising) government deficits. Also, the first chapter of this study already showed that military expenditure was seen as less important following the end of the Cold War (in the early 1990s) and investments were mostly scaled back while the economy mostly grew.

When looking specifically at the values of the fiscal multiplier in the various studies and comparing them with the results of the analysis, one can observe that many of the results are in line with these studies and the major ones are also partly explainable. For instance, Gechert and Rannenberg's (2018) study – see also Figure 20 – shows that the fiscal multiplier in the downswing of the business cycle is around 2.121, in an average regime 0.551 and in the upswing of the business cycle -0.269. Sheremirov and Spriovska (2015) concluded that the U.S. fiscal multiplier is relatively small, at around 0.200 and that when the economy is in an expansionary phase, the multiplier is around 0.300. The average outcome of the fiscal multiplier in this study, excluding Germany, is 0.331. This analysis also shows that the U.S. contains a relatively low fiscal multiplier, at 0.051.

Other important limitations of the methodology used is that the analysis only looks at the immediate effects, but does not include the longer-term effects of investment. For instance, Sheremirov and Spirovska (2022) state that the fiscal multiplier is 0.80 after one year and 0.86 after two years. Also, this model did not consider stability or any wars a country was involved in while this has a significant impact on military expenditure. For instance, U.S. military expenditure grew strongly during the period of the War on Terror (as described in the first chapter) while real GDP per capita fell in the same period around the financial crisis in 2008. The opposite is also true, as with the phase-out in the following years, in Afghanistan, for example, military expenditure also fell while the economy grew. An important factor and limitation of the method is that military expenditure has been viewed as one and the same while, according to Spirovska and Sheremirov (2015), there is a difference between the fiscal multiplier of durables and nondurables. Similarly, Becker and Dunne (2021) argue that for example operations and maintenance would have a more negative impact on the economy than other military investments. The composition of military expenditure could thus be only one explanation for the difference between countries for the different size of fiscal multipliers. As a final factor, economic policy also plays an important role on the economy. The impact on real GDP of an increase in military spending will be overwhelmed by a simultaneous increase in overall government spending. Singling out the impact of military spending on real GDP remains difficult.

3.3 Interpretation of the Fiscal Multiplier (Conclusion)

Exploring and determining the fiscal multiplier is a crucial step in this research. It shows that the complexity is endless and that using either the same methods or datasets or different methods, the outcomes and interpretations will vary. Also, the discussion of what does and does not affect this fiscal multiplier is complex and the boundaries are almost impossible to define. Therefore, the quantitative results of this chapter must be understood in a larger and longer-run context which requires a more in-depth investigation into the intangible and difficult to quantify component of the economic consequences of military expenditure. However, this chapter does provide an insight into trade-offs and thought processes when making considerations within the argumentation such as non-linearity, the difference between advanced and less advanced economies, the composition of military expenditure, the place of the economy in the business cycle and the effect of economic policy.

4 A Broader Perspective on Military Expenditure

The Non-Tangible Part of the Economic Consequences of Military Expenditure

As noted in the previous chapter, the fiscal multiplier turns out to be a theoretical concept in which it is difficult to fully express the economic consequences of military expenditure in measurable components of the economy. This chapter takes a closer look at the non-tangible part of the economic consequences of military expenditure. Thus, this chapter examines whether the non-tangible effects would have either a positive or a negative impact on the economy. The aim of this chapter is to write in a descriptive rather than explanatory manner, as in Chapter 1 where the timeline was outlined. It also guards against hindsight bias and puts things in a broader perspective. The difficulty of measuring the broader perspective also adds to the complexity of the topic and makes it multi-interpretable. Many themes contain both negatives and positives and it is up to the reader to make a judgement in this.

4.1 The Blurring of Borders: Hybrid Warfare

Since the war in Ukraine, conventional warfare has returned to Europe. In this study, conventional warfare refers to interstate combat using more traditional, or typical (and ostentatious) military means – for example, the use of tanks, large-scale quantities of ammunition and trenches, as well as conquering and recapturing territory (Fabian, 2021).[26] Highlighting these last three components, people draw comparisons with Ukraine, arguing that the current war in many ways resembles the Great War (1914-1918) in which rats and mouse infestations occurred among the troops in the trenches (Edwards & Voitovych, 2024). However, the war within Ukraine goes beyond its borders and Europe is also engaged in a battle with Russia that does not fit into the framework of conventional warfare and involves a form of so-called 'hybrid warfare'. Hybrid warfare (or hybrid threat) is a form of conflict in which no direct conventional means such as tanks are deployed, but where components within society are seized upon to disrupt society and achieve political objectives.[27] This can include cyber attacks, sabotaging infrastructure, or (economic) sanctions. It can also be described as a 'grey zone'. This section takes a closer look at how borders between conventional and hybrid warfare are getting blurred and what impact this has on the economy.

[26] During the conversations I had with various people from the military domain, the concept of 'conventional warfare' does not appear to be understood unambiguously and people seem to see (mostly minor) differences in it.
[27] However, academics are not unanimous on exactly what hybrid warfare is and what it includes. Consequently, there are different definitions of the term 'hybrid warfare'. By NATO, hybrid is described as: "NATO Allies face threats and challenges from both state and non-state actors who use hybrid activities to target political institutions, influence public opinion and undermine the security of NATO citizens." (NATO, 2024). Another definition that fits well with this study is: "The term hybrid threat refers to an action […] whose goal is to undermine or harm the target by influencing its decision-making [...] Activities can take place, for example, in the political, economic, military, civil or information domains." (Sweijs & Zilincik, 2019)

4.1.1 A Stronger Commitment Than Thought

It is the spring of 2024, several months before European Parliament elections take place in June. The Czech government imposed sanctions on a news site called 'Voice of Europe' because it was allegedly part of a Russian influence mission in which Euro parliamentarians would also be paid from Moscow to make pro-Russian statements (Vinocur, Haeck, & Wax, 2024). In another case, the German government found that a Russian hacker group called APT28, which operated from the Russian intelligence service, was behind several cyber attacks of government and defence servers to obtain mail addresses and disrupt or expose websites, data and information supply of, for example, the delivery of German Leopold 2 tanks to Ukraine. Hybrid warfare became part (with already 17,000 disinformation units in two years) of the Russian fight not only against Ukraine, but also Europe (O'Carroll, 2024).

This form of hybrid warfare would allow Russia to 'pretend to be bigger than they are', as they cannot match the military and economic capacity of the West (Bilal, 2024). In this, according to Bilal (2024), social media platforms play an important role, as this is an easy place to spread disinformation and it seems to be an integral component of Russia in their fight against the West. It is a method by which decision-making is made more difficult, because on the one hand it is due to disinformation and on the other hand it is easy for the perpetrator to deny it when it is strategically convenient, such as the 'green men' who helped Russia to annex Crimea in 2014. Sometimes they manage to bring things to light, such as Russian interference in the 2016 US election and Russia's funding of the Wagner Group (Bilal, 2024). Therefore, this strategy benefits from this ambiguity about who allegedly did it and this allows to operate in a so-called grey zone. Not only Russia uses a hybrid strategy, the Chinese Communist Party (CCP) also uses a hybrid strategy. For instance, around Taiwan where Taiwan's allies, such as Japan, the Philippines and the U.S. are also targeted (Peterson, 2023).[28] According to Peterson (2023), there are many similarities with Russia in this situation, as China argues that Taiwan is threatened by the U.S. sphere of influence; just as Russia seizes on NATO's expansionism as a potential threat.

Yet it is also important to look more broadly at hybrid warfare than just countries like Russia and China. For example, American intelligence suggests that a pro-Ukrainian group (where no direct link to the Ukrainian government or military has been found) is allegedly responsible for the sabotage of the Nord Stream Pipelines that transported gas from Russia to Europe (Entous, Barnes, & Goldman, 2023).[29] Western countries that are members of NATO, for example, also take part in this battle within the grey zone. One example is Dutch engineer Erik van Sabben, who played a crucial role in sabotaging Iran's nuclear weapons programme by introducing a virus into the system in 2008 (Waterfield, 2024). Within the economic domain, Europe also makes extensive use of methods that fall under hybrid warfare, namely: economic sanctions (de Wijk, Bekkers, & Sweijs, 2021).[30] Sanctions that are also linked to economic power and military support according to de Wijk (2024), but would work in practice to a lesser extent than is believed in the West. For example, sanctions against Iran and North Korea have achieved a lesser result than thought.

The drawback of the sanctions against Russia became apparent at the end of 2023, according to de Wijk (2024). The sanctions were expected to hit the Russian economy to the extent that some predictions said it would be teetering on the precipice, but despite the fact that exports fell at first, Russia found an

[28] In 2020, for the first time, the Ministry of National Defence, on behalf of military theorist Gao Wei gave a definition to CCP of hybrid warfare called it: "a unified and coordinated act of war that is conducted at the strategic level, employing political (public opinion, diplomacy, law, etc.), economic (trade war, energy war, etc.), military (intelligence warfare, electronic warfare, special operations), and other such means." (Peterson, 2023, p. 2)

[29] This example also clearly shows the confusion that hybrid warfare brings. For instance, one side accused the U.S., which is said to have threatened to disrupt the project before (Mr Biden is said to have said, "We will bring an end to it."), Ukraine pointed right at Russia and others at Ukraine (Entous, Barnes, & Goldman, 2023).

[30] Earlier in this study, it was noted that a huge number of sanctions were imposed against Russia, which already started with the annexation of Crimea in 2014 (already some 16,500) (BBC, 2024).

alternative to avoid sanctions by turning to the backing of countries like China, North Korea and Iran. Putin also quickly found new outlets for gas such as China and India and began to disconnect from the western economy in particular which would only increase the prices of oil and gas for western buyers (de Wijk, 2024). It is therefore an important point raised by de Wijk (2024), questioning whether sanctions in such a form have the right effect. In it, he concludes that it is important that sanctions are imposed, but that we should be cautious in concluding that they lead to success and we should mainly look at effective sanctions that actually affect a country like Russia. Although the relationship between the Allies and Russia after the Great War in 1919 was significantly different to today's situation, Keynes (1919) already argued that one should be cautious about imposing blockades (which wanted to ban Germany from trading with Russia in wheat that was in short supply at the time) and said of it, "we are blockading not so much of Russia as ourselves." (Keynes, 2020/1919, p. 145).[31]

It is by now clear that hybrid warfare has major economic implications for western society. The damage from the attack on the Nord Stream Pipelines alone is estimated by some at $500 million (Entous, Barnes, & Goldman, 2023). Another clear example of the economic consequences is the reduction of Russian gas imports into Europe and with that, electricity and gas prices rose to record highs for most European countries (Eurostat, 2023). In terms of electricity, the Netherlands saw the biggest increase and Dutch households could see a 953 per cent rise in their bill and households in Latvia, Romania and Austria saw their gas bills double (Masterson, 2023). The cyber domain is also home to major threats that may be accompanied by major economic impacts. For instance, Microsoft claimed that Russian hackers had unauthorised access to the network of senior Microsoft executives in 2023 (CSIS, sd). Similarly, the Netherlands Military Intelligence and Security Service (MIVD) discovered Chinese spy software on their networks in 2023 (Dutch Ministry of Defence, 2024). Also, vital infrastructure such as wind farms, underwater cables and the like is at high risk and we would be relatively ill-prepared against an attack (de Wijk, 2024).

Hybrid warfare itself is not new and already has similar instances in the past, such as the proxy wars during the Cold War (see Chapter 1). Yet its threat has changed and this is mainly due to the scalability, speed and intensity of attacks (NATO, 2024). According to NATO (2024), this is due to global interconnectivity and rapidly changing technology (think digital domain).

4.1.2 The Role of Climate Change

One of the most important and often underestimated aspects of future potential conflicts and risks is the role of climate change which can make the weaker (unstable regions) even weaker – for example, through the risk of famine or weak infrastructure (UNCCC, 2022).[32] This is also because many of the conflict zones are located in places where climate change is already playing a greater role, such as the Middle East, Afghanistan and Ukraine (Middendorp, Klomp, Geertsma, & Frerks, 2024). Also, according to Middendorp et al. (2024), climate change creates more natural disasters, creating more

[31] Keynes's reasoning in this quote is mainly based on the fact that there were scarcities in many areas in Germany after the Great War that could hit the German people hard in the form of famine, for example. It would therefore hinder reconstruction. Russia, after the Russian Revolution in 1917, fell under the rule of Vladimir Ilyich Lenin who blew a Marxist wind over Russia. It thus posed a threat to the freer, democratic West. Keynes argued, "Even if there is no moral solidarity between the nearly-related races of Europe, there is an economic solidarity which we cannot disregard. Even now, the world markets are one. If we do not allow Germany to exchange product with Russia and so feed herself, she must inevitably compete with us for the produce of the New World." (Keynes, 2020/1919, p. 146).

[32] A direct example of this is that many countries are increasingly unable to manage their food supply and thus become dependent on other countries, such as grain from Russia and Ukraine (UNCCC, 2022).

challenges for local populations and the military ahead, and with those two components considered, it is essential to recognise the nexus between climate change and the security domain.

Due to climate change, the effects of hybrid warfare may be magnified or the strategy may be deployed differently as a consequence leading to complex ethical issues. An example is the Ethiopia-built *Grand Ethiopian Renaissance Dam* (GERD) on the Nile which has caused Ethiopia to enter into tension with Egypt and Sudan. This is because Egypt is largely (97 per cent) dependent on the Nile in its water supplies and, according to the United Nations, Egypt itself could even run out of water (Al Jazeera, 2023). With the dam, Ethiopia is expected to double its electricity output (Al Jazeera, 2022). This shows the complexity of the issue, because on the one hand it will have a positive effect on generating renewable energy and increasing prosperity within the country, but at the same time it increases tension with its neighbours. A dam that can be used as a weapon by blocking water transit and where climate change creates a greater impact.

Not only does climate change affect the manner of a conflict or the design of the military domain, war and other conflicts also contribute to climate change. When journalists saw the devastation of the Russian invasion in 2022 (from burning landscape or oil refineries), they asked what impact this would have on climate (Weir, 2024). According to the researchers' best estimates, it appears that military activities would be responsible for 5.5 per cent of global greenhouse gas emissions. And even though some governments describe "vague" emission-reducing measures, according to the researchers, an actual plan mostly fails to materialise.

4.2 Technological Development and Innovation

In the military domain, a pride in the advanced technologies they use is mostly evident and they like to be known for it (Smit & te Kulve, 2010). Also, innovation and progress in general within the military context acts as a lifeline in a rapidly changing world where technology is also advancing at great strides (Leach, 2024). National defence is a public good in which everyone benefits but few want to pay for (Stiglitz, 2019). Yet technological development from the military can also provide benefits in the form of civilian technologies to a 'wider public' and the past has shown important innovations such as the internet, GPS satellite navigation and blood transfusion (NATO, sd). This section takes a closer look at the added value of technological development (or innovation) for the military, society, but also the difficulties for innovating within the military as an organisation. Next to that, this section on technological development mostly looks from the NATO context (the strategic point of view), but typically uses literature from the U.S. because less is known from other governments in terms of military R&D programmes (Mowery, 2010).

4.2.1 Technological Development and Innovation Within the Military

At the end of the 1990s, the U.S. had no major challengers, like the Soviet Union before, and the U.S. was experiencing a period of large-scale technological development that had already made its appearance during the Cold War; this, according to Freedman (2013), gave the U.S. a lead over other countries, with, for instance, advanced weapons systems, sensors and integrated systems. In the Soviet Union, there was earlier talk of a 'military technical revolution' in which conventional means would have to be handled differently, and in the U.S., too, more thought would be given to deploying and combining different technologies, as well as, for example, things like the use of information warfare.

The change in technology, organisation and doctrine would also come to be known as the 'Revolution in Military Affairs' – or RMA (Freedman, 2013).[33]

The RMA provided a new narrative in which technology and its coherence matter. However, this did not mean that it is inherent that technological developments within the military domain are always easily implemented. The impetus that the military, for example, can give to innovation or the effort involved can have a large effect on the economic consequences. Andrew Hill (2015) argues that military innovation is not so much a scientific or technical problem as an organisational challenge. According to Hill (2015), military organisations are bureaucracies, which standardise, train and repeat a lot. Thus, the success of an innovation would depend on the organisation's approach rather than the type of innovation (whether it would be an 'incremental' or 'radical' innovation, for example). Military organisations would be based on traditions, values and history – or, in other words, a culture – and thus innovations would be 'not wanted' the moment they compromised the culture of the organisation (think, for example, of unmanned aircraft in an organisation centred around a pilot). Also, innovation proves difficult especially in times of peace when the pressure is less (Hill, 2015).

The military domain, according to Mowery (2010), has been a major influence on technological development in most industrial economies for generations, but nevertheless the ways through which military activity influenced innovation has changed (just as the way and scale in which military activity changed in the post-Cold War period). Especially in the post-war period (after 1945), a period of large-scale military investment, and central planning, a lot of research and development (R&D) took place in relation to this military domain (Mowery, 2010).[34] During that period, the growing complexity of technology and the cost of development were provided mainly by the military (government-sponsored) and was supported by the private sector (it would be a collaboration between the civilian and military). A major obstacle for civilian firms to invest in R&D would come from potential 'market failure'. Mowery (2010) concludes that there are mixed judgements, based on empirical work, of the effects of military R&D on the economy and could then be the subject of much research.

Just after World War II, the U.S. engineer Vannevar Bush[35] advised the president that more military research was needed in peacetime to contribute to national security just as technology added so much value during war (Smit, 2001). Yet, according to Smit (2001), not everyone shares the view that military technology development contributes to national security and, on the contrary, it might even have a negative effect on security, because it could result in an arms race (think, for example, of strategic missile systems or the development of the atomic bomb). After the end of the Cold War, a new discussion emerged within the West in which it was asked how military and civilian technological development could be integrated. This resulted in issues of how to deal with rising costs due to increasing complexity of weapons systems and how to maintain a capable defence while purchases would go down (Smit, 2001).

Moretti et al. (2021) conducted research on the impact of government-sponsored R&D including specifically military-related R&D. In it, they concluded on the basis of an extensive data analysis of OECD countries that defence-related R&D is the most important form of public subsidies for innovation and that there would be a "crowding in" effect of private R&D spending by military spending rather than a "crowding out" effect. Hence – on average – a 10 per cent increase in publicly funded R&D

[33] Already towards the end of World War II, the Americans (also the Russians) were bringing in German scientists with Operation Paperclip (see Chapter 1). It shows that technological would play an increasingly key role already during World War II.

[34] A period that was also called one of 'military Keynesianism' in the U.S. (Allio, 2014, pp. 185-189).

[35] Vannevar Bush was man who was able to combine engineering, mathematics and science with organisational skills and became a great leader. In a meeting with Roosevelt shortly after the German attack on France, V. Bush shared his vision, and this led to the National Defense Research Committee that linked universities with industry to conduct research. V. Bush was also deeply involved in the development of the atomic bomb, but he disappeared from the spotlight after the end of World War II (Meyer M. , 2018).

would result in a 5 to 6 per cent increase in privately funded R&D in a comparable industry (it would also boost industry in other countries). An increase in R&D investment would not only result in higher private investment in R&D, but would also increase productivity (Moretti, Steinwender, & van Reenen, 2021).

War and conflict impose serious demands on the military who often have to cope with scarcity, danger and difficult terrain in combat. The unstable environment, according to Haider et al. (2015), has resulted in resourcefulness of medical care which, in turn, resulted in new techniques that would later become applicable in the civilian domain. Not all of these developments on the battlefield could later be applied in the civilian sphere, but in this one can think of, for example, surgical trauma care, use of tourniquets, haemostatic agents and prehospital resources (Haider, et al., 2015).

The opportunity costs regarding military expenditure should be discussed last in this part of the study before we can move on. Despite Moretti et al. (2021) arguing that there would be a 'crowding in' effect rather than a 'crowding out' effect with regard to military R&D and the many innovations in, for example, healthcare that originate on the battlefield (Haider, et al., 2015), this does not mean that ther use of public money is being maximised. A direct investment in healthcare, for example, could theoretically have offered more innovations and societal benefits than if they originated from the experience from the battlefield during a war, for example. And even if there were a 'crowding in' effect in terms of R&D, it also means that valuable capacities and resources are deployed specifically for the military (and other related sectors) while the effect could possibly have been of greater value to welfare, for example, if investing directly for purposes such as education or healthcare.

To delve deeper into opportunity costs, it is necessary to look at what makes an investment a good investment. According to Garrett-Peltier (2019), who looks at the jobs created by certain investments in his study, there are three aspects to look at. The first is how capital-intensive or labour-intensive an industry is – or in other words the more one has to invest in capital, the less is left for investment in wages (the military is capital-intensive). Second is about how much of the investment stays domestic and how much 'leaks' overseas. Again, many military investments disappear abroad while investments in healthcare or energy supply, for example, mainly show their benefits domestically. Finally, the level of salary is an important aspect. That means the lower the average salary, the more people can get a job for the same budget (again, the military – mainly researchers – appear to demand higher salaries than other sectors) (Garrett-Peltier, 2019). Garrett-Peltier's (2019) analysis shows that the military in the U.S. creates 6.9 jobs for every one million dollars. In comparison, for infrastructure the figure is 9.8 jobs, healthcare 14.3 and education support 15.2 jobs. Ultimately, this would mean that with the same investments made in the military elsewhere this could create an average of 1.4 million jobs within the U.S. (Garrett-Peltier, 2019).

This debate about the opportunity costs is often labelled the *guns-and-butter* trade-off. Or in other words, the choice of a government investment between the military and social domain (The Economist, 2022). Research by Perlo-Freeman (2016) (a researcher at SIPRI) shows that in 2013, countries worldwide invested on average two-and-a-half times more in healthcare compared to military expenditure (5.9 per cent of global GDP went to healthcare compared to 2.3 per cent to the military domain). The same study also found that democracies almost always prioritised investments in healthcare over the military, while this was less often the case for autocracies. Mainly Western countries increasingly prioritised healthcare over time. While military expenditure declined, investment in healthcare increased (Perlo-Freeman, 2016).

Although this trade-off mostly refers to the domestic, opportunity costs can also be placed in a larger context. In their study, Glanville and Pattison (2024) raise the (moral) question of why Ukraine is prioritised (both in attention and financial support) over conflicts such as in Afghanistan, Yemen, Syria and Tigray (the latter being the bloodiest conflict in 2022 with hundreds of thousands of deaths), but also over other international crises such as starvation, disease and climate change. Although Glanville

and Pattison (2024) find the support for Ukraine justified (given that unwarranted Russian aggression would make it a humanitarian imperative), they also put the costs in the perspective of a greater good and question whether the size of the investment does not come at the expense of activities that could save more lives or have an overall larger impact. After all, resources are a scarcity and a trade-off has to be made in this. This means that values such as self-determination have to be plotted against, for example, the right to food.[36]

In the time before the large-scale Russian invasion, military expenditure was mostly labelled a waste of resources. In 2015, the U.N. drafted seventeen new Sustainable Development Goals (SDGs). These goals would require large investments. Investments that could theoretically be largely paid for if governments globally allocated their military expenditure. Perlo-Freeman (2016) puts forward a number of examples in 2015 and could help finance measures related to climate change, starvation, education and improving infrastructure globally. A reallocating ten per cent of global military expenditure as percentage of GDP could already contribute to achieving the SDGs (Perlo-Freeman, 2016).

In conclusion, opportunity costs tend to be more complex than they first appear. Resources are scarce and, as a result, governments cannot invest in everything and have to make considered choices. Despite the fact that military expenditure can have a positive effect on other sectors within a society, it also means that a large part of the capacity is lost to it and this can be seen as less valuable, especially in times of peace. In contrast, times of relative instability show that a capable armed force adds value and even seems indispensable to protect economic and societal values. In other words, despite textbooks talking about a guns-and-butter trade-off, in practice this is much more complex (The Economist, 2022).

4.2.2 The Free Market, Cooperation and Dependence

When discussing technological development, innovation or use of technology in general, there are a number of strategic as well as ethical trade-offs that are important to go through. Considerations of strategic importance are about dependencies within certain markets, but also cooperation between certain parties. For instance, the question may be whether a certain sensitive technology should be developed by one country or in a collaborative effort and what the role of the private sector should be in this. At the same time, this also raises other complex ethical questions, such as whether private companies should be allowed to develop a potentially risky weapon when they are pursuing a profitable goal?

It is February 2022 when Russian forces opened their attack and crippled Ukraine's digital network, as much of the communication in today's warfare depends on digital communication. The billionaire Elon Musk (owner of X, SpaceX and Tesla) then supplied Starlink terminals (some 42,000 so far) to Ukraine that provide a high-speed satellite link for the troops on the ground so that they are able to communicate (Horton & Korolchuk, 2023). According to Horton and Korolchuk (2023), the Starlink terminals would provide broad support, from supporting communication between military and civilians, act as a network for the drones to supporting apps for calculating the direction of howitzer batteries. This would create a considerable dependence on a private company, but also generates corporate power, as happened when Musk decided to impose restrictions on the use of his network to Ukraine after Musk disagreed with certain counterattacks such as in Crimea (Horton & Korolchuk, 2023).

In the same phase after the start of the war in Ukraine in 2022, many tech companies also travelled to Ukraine turning Ukraine into an "AI War Lab" (Bergengruen, 2024). Such tech companies work on and

[36] This study does not elaborate on these ethical and moral principles in which a choice has to be made between different values. In Glanville and Pattison's (2024) research, one seems to look mostly from a utilitarian perspective.

provide software for facial recognition and autonomous drones, for instance, in addition to larger companies like Microsoft, Google, Amazon and Starlink working on protecting against cyberattacks or securing data. For example, the controversial U.S. company Clearview AI is said to have already managed to identify more than 230,000 Russians in Ukraine with their facial recognition tool, which they supplied to 1,500 Ukrainian officials. According to Bergengruen (2024), war has always driven innovation and there was always involvement from private industry, such as around the atomic bomb. However, software engineers are now deployed close to the battlefield itself and there is a software engineer within every battalion. Although these companies are now aligned with Western interests and can develop their technology at a rapid pace because they get direct feedback from the battle, it does raise the question of what happens when one is no longer aligned with Western interests and what happens to the technology when the battle is over (Bergengruen, 2024).

Not only does the issue between private or public interests play a question, the multilateral organisations in the West, NATO and EU also raise the question of whether they are competitive or complementary according to Mengelberg (2022). Kagan (2003) noted before that the relationship between Europe and the U.S. security umbrella was two-fold, because on the one hand, it would ensure a cohesive West and at the same time, it also created an uneven commitment to defence. Yet, even in the early twenty-first century, it was concluded that it would be up to Europe to build its military capability; even if marginally (Kagan, 2003). However, it makes sense that when Europe talks about strategic autonomy (and a European army), of which the French are a strong proponent, this scares the Americans and therefore both interests of both NATO and the EU need to be properly mapped out. An international cooperation between different organisations described by *inter-organisationalism* where organisations constantly find themselves between both rivalry and cooperation in which they "compete (rivalry) or take over each other politically, institutionally or with capabilities, but also complement (complementarity), or even become dependent on each other" (Mengelberg, 2022). According to Mengelberg (2022), a joint defence for Europe was mostly difficult and the focus was mainly on *good governance* and 'exporting' democratic ideas – using the European Defence Agency (EDA) to harmonise and operationalise capabilities, development and policy. Thus, the EDA would act as the nexus between intergovernmental defence at a European level and aims at five core tasks (EDA, 2024). For instance, the identification of joint demand and priorities at a European level is central, in which collaborative technology research and development would be enabled going forward. In this, coordination between different capacities is important, the merging of procurement is also considered the interests of national defence ministries and country residents are central. With other initiatives, such as the Strategic Compass, countries are also trying to increase their military capabilities in a European partnership. The Strategic Compass, which was updated shortly after the Russian invasion of Ukraine, centres on the urgency to invest heavily in defence, military mobility, EU-NATO cooperation, but also European resilience (including against hybrid warfare) (Dutch Central Government (Rijksoverheid), 2022). Also, the *Common Security and Defence Policy* (CSDP) contribute to unification by prescribing a common defence policy and so countries can act in a similar way (European Parliament , 2024).

Nevertheless, inter-organisationalism creates a complex situation where conflicting interests can arise between national and international interests. A clear example is the purchase of new submarines in the Netherlands which is one of the biggest projects in years of the Dutch Ministry of Defence (Algemene Rekenkamer, 2024). The Dutch Minister of Defence decided that the submarines, to replace the existing 'Walrus' classes are to be procured from the French Naval Group. According to a report by the *Algemene Rekenkamer* [Dutch Court of Audit] (2024), the decision has been taken carefully and also according to the rules, but Dutch companies such as Damen Shipyard, which together with the Swedish company Saab also made a bid for the contract, denounce it because, in their eyes, it would be at the expense of important knowledge in the Netherlands and innovation opportunities (NU.nl, 2024). Other experts argue that ultimately none of the alternative is 'truly' Dutch and that the knowledge is long lost: or in other words, we are already dependent on foreign partners. In contrast, they say it should mainly be about the pace at which it is proceeding as it has been talked about for ten years while the current fleet

is ageing and becoming inferior (Slob & Vermeulen, 2024). This example is leading in which the political domain has a great influence on both the economic and military domain. An issue in which political interests seem to be prioritised, both of the suppliers and buyers.[37] On the other hand, Germany and the Netherlands have a closer cooperation, as Germany buys frigates from Damen Shipyard, for instance, but there are also many opportunities for the Netherlands in the field of hi-tech equipment such as radar systems (Berg, 2022). In 2023, Germany and the Netherlands signed another agreement to intensify cooperation, but also coordination of equipment procurement (Henckel, 2023). Despite such successful collaborations between Germany and the Netherlands, for example, there are also other obstacles to a coordinated European defence strategy. Even if economic integration would have been relatively successful, for defence it is more challenging because countries like France prefer to keep their own arms industry exports for economic reasons while Germany, for example, favours a coordinated supranational approach (Mengelberg, 2024). That countries within Europe want to keep their own defence industry results in difficulties when pursuing coherent and integrated cooperation. According to de Wijk (2024), this would also have a sizeable impact on the affordability of collective defence. By comparison, the U.S. has 30 major weapons systems, Europe 178 (17 different tanks, the U.S. only 1). In terms of combat aircraft, there is also a big difference, as the U.S. has 6 types of combat aircraft while Europe has 17 different ones. As for frigates, Europe has 29 variants while the U.S. has only 4 (de Wijk, 2024, p. 338).

So, a major issue within Europe is strategic autonomy. However, it remains unclear how this should be shaped and whether, on the contrary, further integration between countries is required or whether each builds its own autonomy within this, but acts according to a generally agreed policy. Another important aspect of is the current material dependency. A comprehensive study by the Hague Centre for Strategic Studies (HCSS) (2023) examined the dependence on critical raw materials (CRM) for European defence. According to the HCSS, the energy transition and digitalisation have brought CRM into an increasing focus, but its defence arm is mostly overlooked. In all domains (air, sea and land) where CRM plays a role, the HCSS observes that 40 materials are or will soon become critical. This applies to equipment such as helicopters, ships, aircraft and also missiles. Many used materials like graphite and aluminium are even very risky as followed by centralisation of suppliers, or in other words there are few countries where these are sourced. Also, the countries where these materials come from are unstable or unreliable. In it, the HCSS (2024) study talks about dependence on countries like Russia, China, Democratic Republic of Congo or Kazakhstan (Girardi, Patrahau, Cisco, & Rademaker, 2023).

One another component in which dependence needs to be considered is that of the U.S. (despite the importance of transatlantic cooperation). Especially from the point of view of the U.S.'s changing focus towards Asia. In the Kosovo war, former military superpowers like France, Germany and the U.K. noted their own small capabilities, for instance, 99 per cent of the targets set would come from U.S. intelligence and the U.K. concluded it could 'claim' only 4 per cent of the bombs dropped (Kagan, 2003).

Free markets and governments are thus interconnected, this is true from national to international levels. The collaborations, relationships and interactions between different actors tend to create dependencies that can have a positive effect in many cases, but also create negative concerns. In that negative component are mostly ethical trade-offs in which, for example, a technology is central and involves potential high risks when, for instance, a collaboration breaks down. It is therefore important to observe

[37] An article by 'De Groene Amsterdam' revealed as early as 2019 that shipyards were actively lobbying. For example, an article by a one former naval officer Günther Hoffman appeared in the U.S. trade magazine DefenseNews. Hoffman argued that Damen-Saab (from the Netherlands and Sweden) and ThyssenKrupp from Germany would be unsuitable for such a task. Only France's Naval was spared. Enquiries with the Dutch Ministry of Defence revealed that the navy did not know former naval officer Hoffman. The article was taken offline (van Keken & Kuijpers, 2019).

this interaction and connection between the free market and the public sector, cooperation and dependency.

4.3 Potential of Defence and Military Expenditure

So far in this chapter, we have looked at the changing nature of warfare that is becoming broader as a result of scalability (that comes from the cyber domain, for example), and the role of climate and innovation and technological development within the military domain. The latter also creates a component of a number of trade-offs in which the free market, cooperation and dependency play an important role. This section builds on and combines previous analyses. It thereby moves towards a more practical understanding in which the potential of defence and military expenditure are considered in the context of economic consequences.

4.3.1 How to Deal with Technological Development and Innovation

Smit (2001) argues that there is no actual intrinsic difference between military and civilian technology, but rather a question of an institutional difference, or in other words: there would not be a civilian or military technology, but rather a civilian and military market. There would then also be technologies that are closely related for both military and civilian, think nuclear technology for example (Smit, 2001). This is also reflected in the previous description and use of technologies in the war in Ukraine, such as the use of Starlink satellites and the development of AI (the 'Ukraine War Lab'). In addition, innovation or technological development would depend on organisational factors rather than the technology itself and its success would depend heavily on resistance within the organisation (Smit & te Kulve, 2010). Thus, the observation that innovation and technological development depends not so much on the technical but rather on the organisational or institutional makes it relevant to look at how to deal with innovation and technological development as an organisation.

The U.S. sees that competition in terms of technological development, with countries like China, is growing and therefore innovation would be key to maintaining U.S. military capabilities states Deputy Defense Secretary Kathleen Hicks. According to Hicks, the Chinese government would lack one thing and that is the freedom in which innovation can be thought about. In terms of innovation and technological development, the private sector plays an important role. Hicks argues that for this, it is important to overcome cultural and bureaucratic barriers so as not to slow down the speed of steps taken (Garamone, 2024). To enhance and also accelerate innovation capability, the organisational aspects of the military domain that stand alongside the bureaucratic barriers (the cultural) should also be considered. The military domain is contradictory in this, because while from the organisation is expected to develop, at the same time one learns standard procedures (through a lot of training) (Leach, 2024). Yet Leach (2024) does argue that innovation must come precisely from the people on the ground. After all, these are the people who contribute the daily knowledge and experience that disappears higher up. They are the people who work with, maintain and apply the equipment every day. When innovating bottom-up, it would be important that concepts are quickly tested (by the soldiers on the ground), further developed and tested again (and continued on that footing). Not only would this require creative thinking from the soldier, but on the other hand, it would also offer many opportunities to the private sector and

academics, because in collaboration with the military domain, with efficient and targeted development (in innovation hubs, for example) (Leach, 2024).[38]

When the U.S. Air Force (USAF) started (in 2018) experimenting with a new, more open, programme (called the Small Business Innovation Research (SBIR)) for innovation in which companies were given more freedom by thinking for themselves about what kind of innovation might also have military benefits, more new, smaller, companies came to this than in the conventional form (Wong, Rathje, van Reenen, & Howell, 2021). According to the researchers, this bottom-up approach would therefore have been perceived as positive for both the USAF and companies.

4.3.2 Positioning in a Changing World

Towards the end of World War II, a divided Europe arose. While from the east the Red Army made its entry into Berlin, the Allies conquered large parts from the west of Europe. A period of two superpowers facing each other was born and it was the beginning of a bipolar world. Although there was much unrest within society, the period was also characterised by a clear relationship. Either the liberal capitalist west, or the communist east. The struggle that ensued between the two sides resulted in huge investments in technological development and innovation. In this, the U.S. drew the short straw, creating a dependence of Europe and its subordination to the American military superpower. This was compounded with the collapse of the Soviet Union that turned the world into a unipolar world and in which Europe turned safe under the security umbrella of the U.S. (de Wijk, 2024). With the war in Ukraine, the growth of China on the world stage and the declining power of the Western world in, for example, the Middle East and the African Sahel, a clear signal is that the unipolar world is no longer self-evident and Europe needs to define its place in this new multipolar world.

While on the one hand, there is talk of strategic autonomy within Europe in terms of defence, this discussion appears to overlook basic issues such as dependence on CRM and opinions are also divided within Europe. For instance, France characterises itself as a more autonomous and assertive country, but on the other hand tries to protect its own defence industry, while Germany is seen as more passive and in favour of further integral cooperation (although German passivity is now gradually turning to a more assertive stance (Vohra, 2023)). This raises questions about how to work towards cooperation while remaining independent (from both collective and individual perspectives). In short: there are a number of dilemmas that may affect the redefinition of Europe's position on the world stage[39]:

[1] *Dependence* – within the military domain there is a lot of interdependence. This is the European dependency on the U.S. (materially, but also their share within NATO), but also the dependency on CRM underlying the production of many key components for a capable defence (from weapons to vehicles).

[2] *The boundary* – with hybrid warfare, the boundary of the task of defence is blurred, as this allows almost anything to be used as a weapon that at first glance does not appear to be a weapon. In this, the cyber domain (from sensitive data to social media platforms), but also vital

[38] A clear example that the organisational structure of an army affects adaptability is the power structure and hierarchy in the Russian army that caused Russian pilots, for example, to receive little information about their targets and, as a result, be insufficiently prepared. It resulted in the loss of valuable pilots who had gained a lot of experience in, say, Syria (Vandergriff, 2018). An opposite idea is the originally German *Auftragstaktik* (or Mission Command) in which soldiers have free interpretation and are counted on their own abilities - one is offered more responsibility (Vandergriff, 2018).

[39] The next chapter (see Chapter 5 – Novum Modus Operandi) explores some of these issues in more detail.

infrastructure (think electricity supply) plays an important role. It is important to define a boundary to where the task of defence lies and to where one should act.

[3] *A balance* – based on point two, a balance needs to be struck as to which tasks belong to the private sector and which to the public sector. This involves considering whether it is ethical and responsible to depend on, say, a Starlink in Ukraine, but also whether AI developments in Ukraine that often raise controversial issues should be in the hands of for-profit companies. That balance must be sought not only for the distinction between the private and public, but also a balance between cooperation, integration of and dependence between different countries. Both within organisations like the EU and NATO and vis-à-vis countries outside those organisations.

[4] *Innovation* – to increase the economic impact of military expenditure, consideration should be given to how defence can contribute to technological development and innovation. This could include thinking about a different design of defence as an organisation, but especially in terms of technology.

[5] *Power politics* – with the changing world in which countries like China and Russia are reaching for resources from power politics, Europe should also take action in this. This means saying (partly) goodbye to its moral politics to a certain extent and realising that if Europe wants to compete on the world stage, it must have both economic and military power.

[6] *Climate change* – climate plays an important role in the world and requires a challenge from the military domain as well. For instance, defence must become more responsive to possible natural disasters and potential conflicts that may arise or escalate as a result. It should also consider innovation from the military domain that can have a wider application (the military domain has shown its ability to innovate under complex and challenging situations). It could also give defence a greater societal role.

4.3.3 Economic Consequences in a Broader Perspective

In this chapter, we looked at a broader perspective on the economic consequences of military expenditure to have a better understanding of its non-tangible effects. This analysis builds on the previous chapter in which a positive effect was found between the relationship of economic growth and military expenditure when considering the measurable: the fiscal multiplier. Taking a broader perspective, it clearly emerges that the economic consequences of military expenditure are broader than what the economic numbers show. For instance, the terrain in which 'the battle' can take place has expanded and almost anything can be used as a weapon; climate change plays an important role and defence can make a major contribution to innovation and technological progress in many civilian areas (including materials, healthcare, and communication). A concrete example of impact on the economy as a consequence of conflict in the military domain (which could potentially also be partly resolved if there are better defences) is the unrest on the Red Sea which serves as an important route for much of the world's trade; as a result, container prices are shooting up because ships now have to pass through the Cape of Good Hope (van de Pol, 2024). It should also be considered that when one's military expenditure depends on the geopolitical context, it can be less effective than when one consistently ensures a certain level of its defence with which key objectives can be achieved. For instance, the price of a 155-mm artillery shell has gone up to as much as $100,000 during 2011-2022, which is more than a doubling in price (Peck, 2024). This shows the problem of shorter- and longer-term thinking, because perhaps an earlier but more consistent military expenditure could thereby ensure that procurement is more effective, as prices were

lower.[40] According to Beeres and Bogers (2024), due to the increased tension, more is being invested in defence (looking at the Netherlands in this case) from 2014 onwards and this is mainly used to purchase equipment. However, it would be a difficult pillar for military strength, as it would not automatically lead to increased combat power; after all, defence has been cut for years and a restoration of military capabilities requires a longer period of reconstruction. Therefore, it is not efficient to make large investments in the shorter term after which military spending is later cut back again: that would require structural and longer-term investment once again to give defence the battle strength they need (Beeres & Bogers, 2024).

In summary, the current geopolitical context is forcing governments to increase their military expenditure. The reaction shows the shorter-term perspective, as in just over 10 years ago, the national defence of Germany and the Netherlands were still being stripped. This has major effects, because although cuts are quickly realised, the opposite is true of a build-up. That requires training, production and development (among other things). Also, if acting from a strategic shock (as already noted in Chapter 3) would result in a more negative impact on the economic consequences; just look at the rising price of equipment. A capable armed force therefore requires a longer-term vision and also perspective and consistency on military expenditure.

[40] In Chapter 2, Figure 19 military expenditure adjusted for inflation (the HICP) showed that while investment increased substantially, purchasing power increased significantly less. In other words, with the rising prices of equipment, less effective procurement was possible in the current context. However, it is essential to bear in mind that if assets were acquired earlier, they also had to be maintained which also involves costs.

5 Novum Modus Operandi

A Less Fragile Perspective on Military Expenditure and the Economic Consequences

In the final part of this study, a *novum modus operandi* is written, or synthesis, in which, on the one hand, a final critique is given whereupon the current modus operandi is refuted, and novel points are made. This novum modus operandi is written from the different domains and combines, or reasons, from the previously provided literature and analyses. New arguments from either practice or literature are also provided for the reasoning.[41] Still, I cannot completely escape from my subjectivity, because, after all, I myself am part of the *unit of analysis* as Karl Popper would point out.

5.1 The Unpredictability and Asymmetry of War[42]

Much of European thinking and vision of Europe's future is of an inductive nature. That is, based on the knowledge of the past to the present, we make predictions for the future or act in line with what we know from the past. Writer Nassim Nicholas Taleb (2008) describes this with the turkey problem. A turkey that is well cared for and fed every day will, based on data, have an increasingly strong conviction and growing confidence that humans are taking diligent care of it, but when Thanksgiving arrives, its conviction will be harshly undermined (a Black Swan event). It was Europe that after the end of the Cold War no longer felt the threat of large-scale conflict on its continent[43] and believed in Kant's idea that republics, or civilisations, do not wage war. In line with Taleb's turkey problem, the problem of inductive knowledge can be illustrated using Figure 21 in which time is plotted against a variable. A variable that can be interpreted in multiple ways. Either the costs saved with defence cuts or scaling down. Or the growing confidence that war was actually outdated with the end of the Cold War. And so there are a number of other applications where the below holds true, and where the Russian invasion of 2022 – some will already mention the annexation of Crimea in 2014 – reveals the limits of inductive knowledge the hard way.

The question that then arises is whether we can learn from the past at all and especially whether we can make predictions for the future based on that past. Karl Popper argues that: "if there is such a thing as an increase in human knowledge then we cannot anticipate today what we will only know tomorrow" (Popper, 1967, p. 12). So thus, humanity seems to have no choice but to learn with hindsight, but this brings with it a certain danger, namely that by learning through observation one may come to the wrong conclusion or thoughts. After all, the turkey felt safest on the day it was slaughtered because, based on the data, its confidence was growing. In addition, the naivety and problem of inductive knowledge has to do with the understanding of the problem, event or stressor itself. This requires looking at asymmetry on the one hand and the idea that many things are non-linear on the other.

[41] In this research, I have taken great care to provide references to the sources used. My personal vision (based on the literature) plays a major role in this chapter. If no obvious references have been applied in the text, it implies that it is my own perspective. In the epilogue, I elaborate on my vision and utilisation of literature.
[42] Much of this paragraph has its origins in Nassim Nicholas Taleb's five-volume *Incerto* series which researches this theme and, for me personally, is very inspiring for the whole research.
[43] In the months before the war, then British Prime Minister Boris Johnson still stated, "the old concepts of fighting big tank battles on the European landmass ... are over." (Sabbagh, 2023).

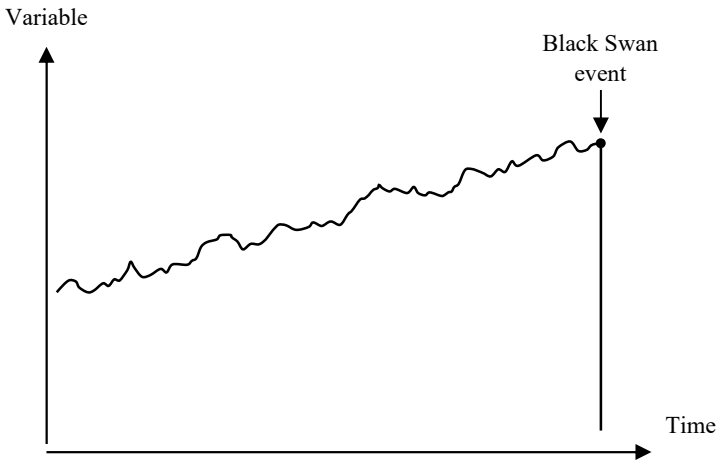

Figure 21: The Turkey Problem (own work – based on work of Taleb (Taleb, 2008, p. 55))

The concept of non-linearity is underestimated by many, but it is at the heart of a fragile system. This non-linear idea is described by Taleb as the difference between a thousand small stones with the total weight of a large stone (the impact of a thousand different, small stones being thrown one at a time (for example) will be different from the impact of one thousand-kilogram stone being thrown, i.e. non-linear) (Taleb, 2009).

Figure 22 illustrates the idea that loss increases disproportionately as the size of an event increases. This fits into many concepts that can be defined as being fragile. Taleb states that: "For the fragile, the cumulative effect of small shocks is smaller than the single effect of one proportionally large shock" (Taleb, 2009, p. 265). Practical examples of this include project budgets, but also the structural requirement as a structure increases in size, climate change or the risks of nuclear power generation.[44] If this concept can be stated in the thinking of the study, it is that the gains and losses of both the concept of war, and both the reduction and deconstruction of armed forces are non-linear. Whereas war will become more destructive with an increase in a major event or in the intensity in the use of resources, it can be reasoned based on Figure 22 that with the saving of armed forces, a gain can be observed when there is no large-scale conflict threatening the country's sovereignty (say the post-Cold War period), and it can be also said to be an exponentially increasing loss the moment unrest rises and sovereignty comes under serious pressure (Taleb, 2013, p. 263).[45]

It is relevant to examine where many of these asymmetric risks are located when looking at the probability of a given outcome. That is in the tail of a (Gaussian) normal distribution (either a positive extreme or a negative extreme). These rare events are also known as tail risks, or commonly known as Black Swans (an event of rarity, hard predictability (beforehand, not afterwards) with large consequences (Taleb, 2008, p. 2)). Figure 23 illustrates where these tail risks are located. In this figure, the normal distribution is already in the negative and shows the probability around a given outcome. Not only the potential threat or consequence (of such as war) arising from instability can be placed in this, but also the consequences of climate change, for example. John Quiggin (2017) therefore argues

[44] Another imaginative example by Taleb is that if one thinks in the "linear" that a human being would die after a day simply by walking around and moving around, because if the damage of a step were linear to a jump or fall from a height of 10 metres, then that person would have already died due to the cumulative injury.

[45] The fiscal multiplier analysis (Chapter 3) also showed that when military expenditure is based on a strategic shock, the economic consequences are more adverse than when military expenditure is based on the economic regime (its place in the business cycle).

that with regard to climate change, tail risk plays a much bigger role than just probability implies. A key factor in this is the non-linear property of consequences (Quiggin, 2017).

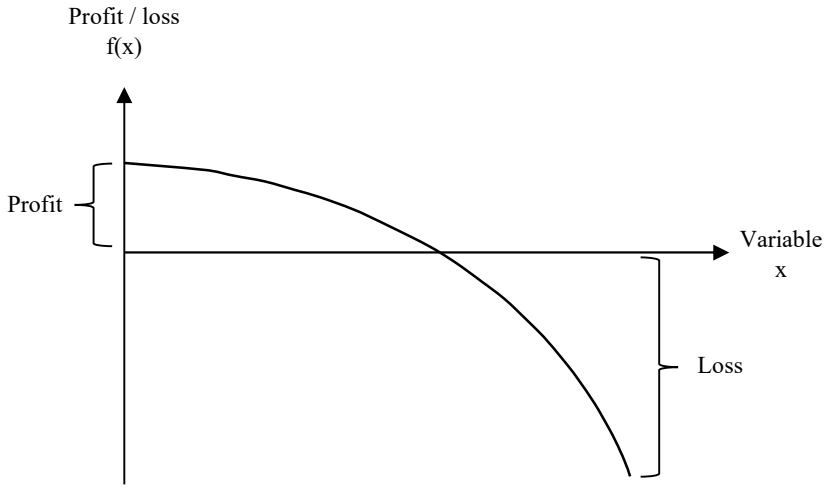

Figure 22: Non-linearity of profit / loss, f(x) as a consequence of variable x (own work – based on work of Taleb (Taleb, 2013, p. 269))

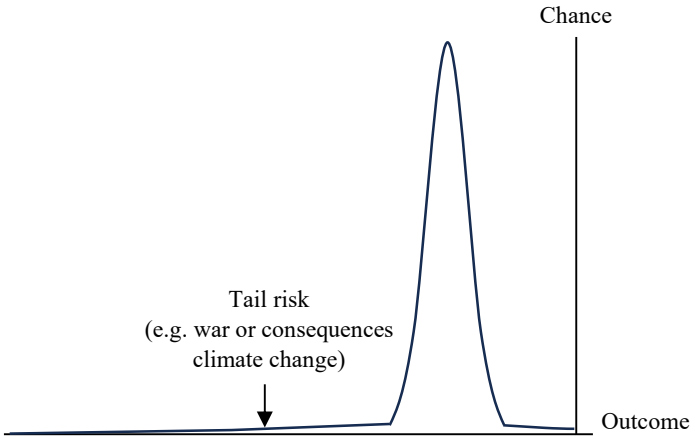

Figure 23:Illustration of a tail risk of an event with a negative outcome (own work – based on work of Taleb (Taleb, 2013, p. 431))

Obviously, within the asymmetry, a negative event is a rare event (tail risk or Black Swan). But with that, this should not mean that if the probability is small, the event may be ignored in decision-making. Yet this is often forgotten, and for this it is important to both better understand and distinguish the concept of the median and the expected value. The median indicates the middle value; however, this is less relevant in asymmetric events and outcomes. The probability of a positive event may have a much higher probability than the negative. Despite the probability of the positive event being much higher, the overall outcome can still be negative because its impact is much higher – it is non-linear as we stated earlier.

To better understand the concept of asymmetry and the non-linear effect of an event, in this case war, it can be supported with an example. In this example, we take a time interval of a thousand years where a war may occur once every thousand years. With event A, no war takes place and based on the relatively

small probability, this would allow ten million euros per year to be saved on defence (say by abolishing tanks, for example). With event B, however, a disaster occurs, namely a major war. The costs quickly run into billions, not to mention all the lives and suffering involved – say a hundred billion in this example.[46] Because, based on the probabilities, it is unrealistic that a war will take place soon, it can be argued that annual cuts in defence spending are interesting, but this can be questioned when looking at the total expected value and the 'gamble' might even be discouraged. Indeed, the total expected value is, approximately, minus 90 million euros (see Table 7) (Taleb, 2009, p. 96).

Table 7: Example chance versus expected value (Taleb, 2009, p. 96)[47]

Event	*Chance*	*Result*	*Expected value*
A. No war	999/1.000	€10.000.000	€9.990.000
B. War	1/1.000	-€100.000.000.000	-€100.000.000
		Total	-€90.010.000

A question that will rise to many upon our observation is then twofold. On the one hand, the question may be what exactly we then have in terms of data and past knowledge and experience, but also, on the other hand, how we can then deal with this and how we, as a society, can be less fragile to the uncertainty and chance we face. On what we would then do with this data of the past, Taleb says:

"The problem is that we draw too far-reaching conclusions from trivial events in recent history, such as 'this has never happened before', but do not care enough about history in general (things that have never happened in a particular field often end up happening). In other words, history teaches us that things that never happened before do happen. We can learn a lot from it outside the narrowly defined time series; the broader the view, the better the lesson. In other words, history teaches us to avoid the kind of naive empiricism that consists of learning from isolated historical facts." (Taleb, 2009, p. 104) [48]

5.2 Considerations

Earlier we noted in the timeline (Chapter 1) that Europe owes part of its thinking to Greek philosophy and rationality that was reinforced by the Enlightenment with, for example, Immanuel Kant's idea that republics do not wage war among themselves as there is no impulse to do so (only in the case of self-defence). Only monarchies, or other autocrats, would have this impulse (de Wijk, 2024).

Another component observed by de Wijk (2024), as well as Robert Kagan as early as 2003, is that after the end of the Cold War, Europe no longer recognised the political realism in which both military and economic power mattered (de Wijk, 2018). In contrast, Europe relied on its economic power and the U.S. functioned as an ephor.[49] With the U.S. as ephor, Europe could pursue a new goal in which its moral value was at the heart of foreign policy. They were convinced to spread it around the world; hence

[46] These costs are still optimistic, just look at aid to Ukraine, increased defence spending by countries and the estimated costs of potential future reconstruction of the country. Two years after the invasion on 22 February 2022, the World Bank, United Nations and European Commission already stated that the cost of reconstruction is estimated at $486 billion to rebuild Ukraine (World Economic Forum, 2024). The U.S. alone has released $175 billion for Ukraine since the start of the war until April 2024 alone (Masters & Merrow, 2024).
[47] This example could also consider an example with a hugely small probability, but whose outcome is catastrophic (or too infinite amount of damage).
[48] Own translation from Dutch to English.
[49] Ephors are five chosen civic magistrates in Sparta who were tasked with 'overseeing' the realm and enforcing the law, as well as duties such as mundane affairs (Cartledge, 2016).

Kagan (2003) calls this Europe's new *mission civilisatrice*, to the frustration of countries like China and Russia (and increasingly others) who saw this as Western meddling (de Wijk, 2024).

That the increasing reliance and dependence on rationality has affected our actions is obvious. A number of thinkers were therefore critical of the idea that we humans are fully rational and think we can understand everything about the world around us. Karl Popper, for instance, wrote that, specifically in the social domain, people thought they could capture everything in laws, tendencies, rhythms, or patterns (Popper, 1967). Russian writer F.M. Dostoevsky called the idea that a civilisation would become more civilised through reason and theories 'pure sophistry', for how then did one explain the bloodshed of Napoleon's war? (Dostoevsky, 2018/1864, pp. 36-39) Keynes, too, in his work *The General Theory of Employment, Interest & Money*, argues that much of what happens around us is due to 'spontaneous optimism' rather than 'mathematical expectations', and in speaks of an *animal spirit* (Keynes, 2017/1936, p. 139). According to the philosopher Friedrich Nietzsche, the balance between what Nietzsche calls the *Apollonian* and *Dionysian* would be disrupted and too much, in which he sees Socrates as the culprit, was focused on the Apollonian (Taleb, 2013, p. 251). The Apollonian (derived from the Greek god Apollo) represents the rational, reasoned, considered – the visual arts, while the Dionysian (derived from the Greek god Dionysus) represents the unknown, dark, untamed – that which is difficult to put into words (Nietzsche, 2017/1886).

Much of contemporary thought is thus based on rationality that results in a narrative based on the idea that mankind, and the organisations in which they function, operate as predictable and thoughtful actors, but in which, as Keynes calls it, the animal spirit is perhaps a little too often forgotten. So, we need to observe the non-rationality of human beings and their use of power. Or in other words, we are obliged to look not only at the Apollonian, but also at the Dionysian. On this basis, I will thereby discuss a number of points in which one should look critically and consider them:

[1] Why Efficiency Usually Is Not Efficient in the Longer Term

A major aspiration for many companies today is efficiency. It is important to distinguish between two forms of efficiency, where the first form consists of maximising output based on a given size of resources and where the second consists of predefined output minimising the number of resources. In one, efficiency is achieved from an input point of view and the other from an output point of view. The very definition of the term introduces a contradiction. These are mostly trade-offs because what do we label as efficient.

It should already be clear with a simple example that efficiency is a concept of contradictions that can be traced back to larger issues. The concept of efficiency can be reasoned from different perspectives. First, from social issues and interests. For example, something may be environmentally efficient but at the same time very expensive. So, for, say, a private company that has to make it, this product would not be efficient due to high costs.[50] Hence, there is a difference between private and social efficiency. The second component from which efficiency can be reasoned is from personal interests. Think collectivist versus individualistic, national interest versus international interests or other multilateral relationships. For example, import tariffs, for say electric cars, may be efficient from the perspective of the country importing them – it makes money and protects its own market – while it may be seen as inefficient for the party that has to pay the tariffs.

[50] Faced with a rising European car market, Ford decided to launch an affordable competitive model in 1970: the Ford Pinto. Normally, the development of a car took 43 months, but to reduce costs, only 24 months were set aside for the Ford Pinto. Within that design process safety standards were not at the forefront and ethically disputable choices were made to cut costs (van de Poel & Royakkers, 2011).

With a more precise understanding of the definition of efficiency, we can examine the efficiency of military expenditure. For that, in a theoretical concept, the level of military expenditure is plotted (on the x-axis), as input, and the marginal benefits and costs (on the y-axis), as output (see Figure 24).[51] This simplified concept does not consider any non-linearity. In this figure, the marginal security benefit decreases from an increase in military expenditure.[52] This would therefore mean that the first tank would provide a higher marginal benefit than the hundredth. In addition, the marginal opportunity costs are also shown in this figure; these costs increase as military expenditure increases. By opportunity costs we mean what could be gained if the money were used for other government spending, such as education, healthcare, or infrastructure.

When the marginal opportunity costs equal the marginal security benefits, we can refer to efficiency. At this point, one speaks of an 'equilibrium'. When you are on the right side of this equilibrium, one can speak of overperformance, because the marginal costs exceed the marginal benefits. On the left side of the equilibrium, the opposite is true. In this, there is underperformance and security cannot be guaranteed. In this theoretical concept, the U.S. could be placed on the right side of the equilibrium which, as a unipolar superpower, understood the importance of military power and also strove to protect the "free world". On the other hand, regarding the EU, people spoke of 'strategic underperformance' (Osinga, 2021)[53] – or in other words the U.S. was the EU's ephor.

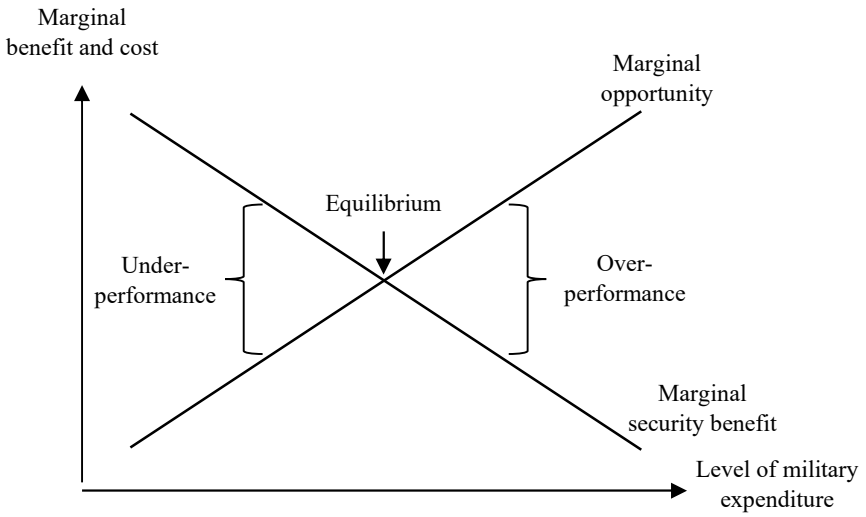

Figure 24: Trade-off between marginal opportunity cost and marginal security benefit based on level of military expenditure (own work)

The opportunity costs raise a complex and fundamental discussion. Germany, for example, faced a difficult choice at the time of the Covid-19 pandemic and the war in Ukraine in which they either had

[51] Regarding this model, I owe much of the insights and inspiration to Dr Servaas Storm with whom I have worked intensively and with whom I have had many interesting, as well as great, exchanges of ideas. Dr Servaas Storm also taught me the two forms of efficiency that are mostly overlooked (see definition at the beginning of this section about efficiency [1]). Dr Servaas Storm challenged and supported me to develop my personal conceptual ideas here in a practical and rational manner.

[52] In Chapter 3 the fiscal multiplier was determined. In it, the literature review showed that the benefits of military expenditure are not linear. That is, as military expenditure increases, the benefit becomes smaller, to a point where it might even experience a negative effect.

[53] On this, Kagan (2003) also said that it seemed that Europe took a "strategic holiday": "Many Europeans took the end of the Cold War as a holiday from strategy. Despite talk of establishing Europe as a global superpower, therefore, average European defense budgets gradually fell below 2 percent of GDP, and throughout the 1990s, European military capabilities steadily fell behind those of the US." (Kagan, 2003, p. 25)

to cut their budget or give up their 'black zero' or *schwarze Null* in which they strive for a balanced government budget – no debt (Schultheis, 2023). A choice in which Germany to invest in defence, for example, would have to cut back on healthcare or education to maintain schwarze Null and therefore Germany chose debt to avoid having to cut back on other areas due to a crisis (Schultheis, 2023). Although military expenditure has greater support in times of instability, as is clearly seen with the war in Ukraine, this is to a lesser extent during times of relative stability (for example the post-Cold War period). Regarding the opportunity cost of military expenditure, both Europe and the U.S. look at it differently, but it is important to realise that it goes beyond initial thoughts (a trade-off between, say, investment in infrastructure versus new weapons). When a country makes over-investments in the military, it can also harm the military in the longer term.[54] An influential U.S. Air Force-supported think-tank (RAND Corporation) drew attention to two risks in a 2021 report. The U.S. needed (at the time the report was written) urgent investment in infrastructure (think of ports and roads) which if it ended up going to defence would be at the expense of longer-term growth prospects, but in addition, military expenditure would also contribute to debt burdens. Both with the former and the latter, the military strength will be affected in the longer term as it would reduce welfare (The Economist, 2022). The opposite is also true. For that, just think of (western) European countries in the post-cold war period that, within the discussion around opportunity costs, chose for example healthcare over military expenditure[55] and discovered their weaknesses as a result of the recently increased turmoil in the world. The answer to the discussion around opportunity costs is not straightforward. However, it can be argued that in the consideration of Figure 24, the opportunity cost of military expenditure up to a certain level can be justified (and, according to this concept, even required) to reach equilibrium. Concretely, then, this means that a capable armed forces requires sacrificing other public domains when avoiding debt.

However, the above conceptual visualisation also brings further challenges. Based on today's knowledge, it can be concluded that the level of military expenditure in the EU was too low: the marginal costs were considerably lower than the marginal security benefits. There is thus a potential danger of hindsight bias in this and in which striving for equilibrium is practically impossible.

Now that the concept of efficiency has taken on a deeper meaning, but has also received its initial comments, we can go deeper into why efficiency is unsuitable for the longer term. To do so, we need to go back to the asymmetry of non-linear events. This is because efficiency relies on past knowledge and optimises this knowledge to anticipate the future. With that, efficiency is by definition well adapted on average, but that also means it is fragile to abnormalities. As has been argued and observed many times in this study, it is wrong when one thinks one can explain the unpredictability of the world and focuses too much on the Apollonian. As such, the concept of efficiency also belongs to the Apollonian.

[2] How the Focus on Efficiency Makes Us More Fragile

Since the concept of efficiency is applied from the socially engineered, rational, apollonian world as Nietzsche would call it, we need to elaborate on the Dionysian side notes we want to add to this concept. For this, we need to make a foray into the economic domain in which people often talk about *economies of scale* in which it is assumed that the (production) process, or similar, becomes more efficient as the

[54] That there is a difference of efficiency in the shorter- and longer-term is also evident in the development of emission-reducing technologies, according to González (2008), because despite the fact that technologies that require a significant upfront investment do have a major potential for cost reduction due to learning effects and the like, this is often not the most attractive to investors initially. This would be due to cheaper alternatives and easier implementation (e.g. due to available permits) (González, 2008).

[55] In the post-Cold War era, military expenditure remained roughly the same worldwide for a long period, with an average of two and a half times, in 2013, as much being invested in healthcare (mainly in democratic countries). Within the western world (western Europe), a trend was mainly seen in which military expenditure was reduced while investment in healthcare increased (Perlo-Freeman, 2016).

organisation or the number of customers increases in size. This can be thought of, for example, an online service becoming more efficient as the number of users increases, or the merger of several banks under the assumption that this would reduce intermediation costs as they become larger in size. The latter proved to be of a euphemistic nature concluded Mr Andrew G Haldane of the Bank of England in 2012. In it, A.G. Haldane opens with the work of J.B.S. Haldane (who are not related) *On Being the Right Size*, in which the evolutionary biologist writes about how an animal's strength, robustness and structure grows non-linearly with size.[56] According to A.G. Haldane, in 2008, banks were said to be too big and "collapsed under their own weight". The structure appeared to be such that the banks were too-big-to-fail (TBTF), meaning that the impact of organisational failure was such – of systemic importance – that the government was compelled to step in and bail out the, in this case banks. That these banks are TBTF, according to A.G. Haldane, would mean that this is known to credit-rating agencies, and they therefore give them higher ratings. Ultimately, this leads to lower interest rates and higher profits for the banks. A.G. Haldane calls this an *implicit subsidy*. Figure 25 shows in the left panel the economies of scale where this implicit subsidy is not foreseen. Thereby, clear economies of scale can be observed, but in the right panel, this implicit subsidy is considered and even negative scale of economies can be seen. In other words, as the banks get bigger, efficiency would decrease (Haldane A. G., 2012). Both A. G. Haldane and evolutionary biologist J. B. S. Haldane grasp the non-linear.

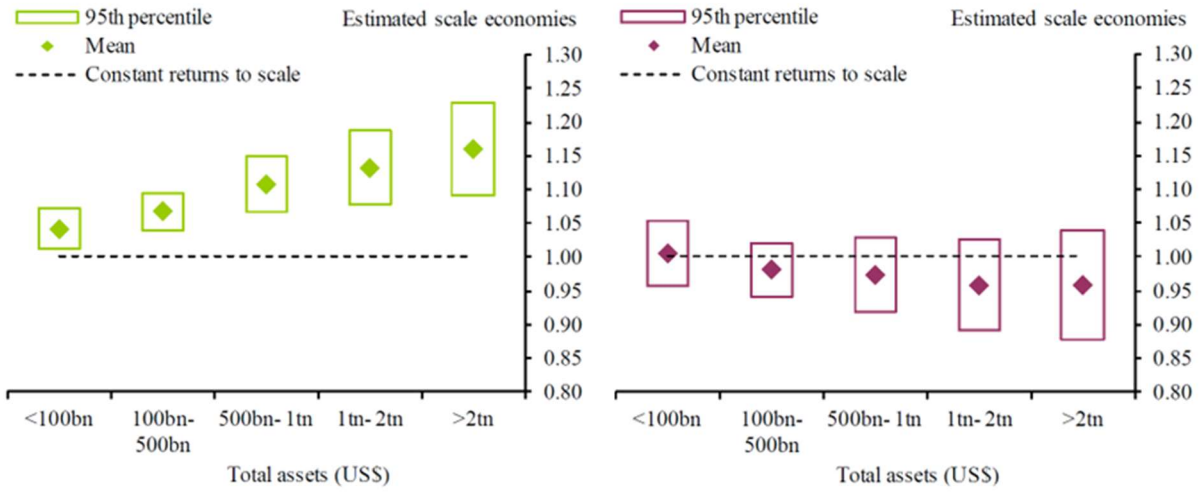

Figure 25:Economies of scale: assuming no implicit subsidy versus implicit subsidy-adjusted (Haldane A. G., 2012)

Although Haldane's observation is in the economic domain, and to be specific relates to the banking system, it illustrates a line of thought that may be applicable in other domains or the connection of domains as well. A legitimate, but complex, issue that can be raised here is whether NATO and the EU have become too big. Since its inception, NATO has grown from 12 to 32 (see Table 8) members and the EU from 6 to 27 (see Table 9). This is mostly from the point of view of, in NATO's case, improving the security situation now, from the invasion of Ukraine, mainly with an eye on Russia, and for the EU it mainly concerns the economic aspects – although the security interest here also plays an increasing

[56] "Gravity, a mere nuisance to Christian, was a terror to Pope, Pagan, and Despair. To the mouse and any smaller animal it presents practically no dangers. You can drop a mouse down a thousand-yard mine shaft; and, on arriving at the bottom it gets a slight shock and walks away, provided that the ground is fairly soft. A rat is killed, a man is broken, a horse splashes. For the resistance presented to movement by the air is proportional to the surface of the moving object. Divide an animal's length, breadth, and height each by ten; its weight is reduced to a thousandth, but its surface only a hundredth. So the resistance to falling in the case of the small animal is relatively ten times greater than the driving force." (Haldane J. , 1926, p. 2).

role. However, it should be borne in mind that it is questionable whether this has only advantages and can actually be labelled more efficient. As organisations grow, they also become bigger and clunkier, requiring more compromises and different points of view. In this, it should not be forgotten that, especially with today's security situation, we have fundamental differences and power politics play a key role within the organisations. This is often forgotten due to the greater importance, or too, the greater threat from Russia.[57] Countries like Hungary (both a NATO and EU member) and Türkiye (a NATO member only) undermine the fundamental core values of this partnership and their governments have autocratic characteristics. For instance, Hungary has also mostly thwarted aid packages to Ukraine, but has also made the NATO admission of Finland and Sweden more difficult (Dempsey, 2023). Türkiye also uses its power within NATO to push national political interests into the partnership. For instance, Türkiye argued that Sweden and Finland were both protecting members of terrorist groups and this ultimately resulted in a 20-month delay of Sweden's admission to NATO (Hayatsever & Gumrukcu, 2024).

Table 8: NATO member states and year of entry (own work) (NATO, 2024)

Year	*Event*	*Countries*		
1949	*The 12 founding members*	Belgium	Iceland	Norway
		Canada	Italy	Portugal
		Denmark	Luxembourg	United Kingdom
		France	Netherlands	United States
1952	*The accession of Greece and Türkiye*	Greece	Türkiye	
1955	*The accession of Germany*	Germany		
1982	*The accession of Spain*	Spain		
1999	*The first wave of post-Cold War enlargement*	Czechia	Hungary	Poland
2004	*The second wave of post-Cold War enlargement*	Bulgaria	Lithuania	Slovenia
		Estonia	Romania	
		Latvia	Slovakia	
2009	*The accession of Albania and Croatia*	Albania	Croatia	
2017	*The accession of Montenegro*	Montenegro		
2020	*The accession of North Macedonia*	North Macedonia		
2023	*The accession of Finland*	Finland		
2024	*The accession of Sweden*	Sweden		

The observation of an animal's growing robustness, as J.B.S. Haldane describes it for evolutionary theory, as well as the robustness associated with ever-expanding financial institutions shows that robustness is a complex concept that must be treated with utmost carefulness. After all, robustness is not necessarily not fragile. The opposite may be true. These systems, or beings, are robust against the known, the manageable – both negative and positive shocks. In short, there are limits to the concept of robustness. For instance, the structure of a building is robust to both negative and positive shocks for what it is calculated for (natural elements and other loads), but can still be fragile against asymmetric

[57] In this, we have to be realistic and state that before the war, countries like the Germany fiercely criticised the EU and became more Eurosceptic after the Covid-19 pandemic (Leonard & Puglierin, 2021). Countries like Ukraine were mostly accused of corruption (in 2015 The Guardian published an article with the title "Welcome to Ukraine, the most corrupt nation in Europe" in which researchers argued that even healthcare was corrupt (Bullough, 2015)) after which there is now talk of accelerated admission and countries like Hungary are using power to safeguard their own (more pro-Russian) interest (Foy & Miller, 2024).

risks, such as fire or flood (or similar). It is then a wrong perception when we would confuse robust with not fragile and that by thinking that the risks have been extensively analysed and factored into the design this means that the building becomes indestructible (in this we can think back to the turkey problem in the beginning of this chapter). Although the earthquake in Japan (March, 2011) had a magnitude of 9.0, the reactors of the Fukushima Daiichi nuclear power plant were automatically shut down (i.e. it was responding properly) and it was the following tsunami that caused the disaster. The walls that were supposed to protect the nuclear power plant proved too low for the huge waves and the water destroyed parts of the structure and flooded into the diesel generator rooms (Gil, 2021). By believing that with increasing growth, the efficiency and robustness of the building (the institute, organisation or collaboration) grows[58], or centralisation, also means that the consequences of when things do go wrong will become non-linear and thus all the more disastrous.[59]

In the issue around being the right size, the goal should be clear beforehand, because depending on that, an organisation can also be too small. Countries like the Netherlands or Belgium may be relatively powerful, but in absolute terms this may be different and cannot exercise the same power as a Germany, France, the U.S. or China (and are thus at a disadvantage). Therefore, a distinction must be made between economic and military power, because although Russia's economic power is relatively low they do compete on the power politics stage through their nuclear capability. Against such threats, such as the nuclear power of a country like Russia, the smaller countries that are in a significantly weaker position should take measures (e.g. by joining NATO). So, this means that depending on the objective, the right size has to be determined and, despite the fact that we have mainly focused here on organisations that are too large, some organisations should not be too small either.

Table 9: EU member states and year of entry (own work) (European Commission, sd)

Year	*Event*	*Countries*		
1958	*Founding fathers*	Belgium	Germany	Luxembourg
		France	Italy	Netherlands
1973	*First enlargement*	Denmark	Ireland	United Kingdom *(until 2020)*
1981	*Greece joins the EU*	Greece		
1986	*Spain and Portugal become members*	Portugal	Spain	
1995	*The fourth enlargement*	Austria	Finland	Sweden
2004	*Largest enlargement so far*	Cyprus	Latvia	Slovenia
		Czechia	Malta	Lithuania
		Estonia	Poland	
		Hungary	Slovakia	
2007	*Romania and Bulgaria join*	Bulgaria	Romania	
2013	*Croatia joins the EU*	Croatia		

[58] About this, Hayek said: "man does not and cannot know everything, and when he acts as if he does, disaster follows." (Hayek, 2005/1944, p. 20)

[59] Robustness can also be translated into a form where what is destroyed recovers, possibly at great cost (Taleb, 2021).

[3] The Dangers and Shortcomings of Centralisation

The danger that lies in organisations or alliances is one of centralisation. Earlier, its fragility was noted and it was argued that the efficiency of organisations that are larger (or economies of scale) are prone to chance and uncertainty and may actually (or implicitly) become more inefficient. It is also interesting to look at the dynamics, accountability, and policy structure that such larger organisations entail. In this context, one can think of partnerships such as NATO and the EU. In this, it is important to note that I am thereby not arguing that such collaborations are completely ineffective (and wrong), quite the contrary. The focus and criticism here is on the composition of these alliances and the realism lacking in them.

Earlier (in Chapter 1), Friedrich Hayek argued that centralisation and 'planning' carry a potential risk. Indeed, according to Hayek, planning is inherent in the centralisation of power[60], because in order to achieve the set goals, it cannot be otherwise than that every decision comes to full agreement (Hayek, 2005/1944). Although Hayek speaks mostly about individuals in this, but also sees the situation in extremes. What one can learn from Hayek's thinking is that there is a trade-off between the centralisation of decision-making power and planning with which competition (in the more extreme) will be threatened – namely, one has to reach consensus and compromise is more difficult in this.[61] With this, Hayek is not saying that governments or governing bodies should do nothing, but they should set the 'rules of the game' where they are needed. One component where centralised decision-making and consensus on a larger scale could be effective is, for example, on nuclear weapons. In a new world in which the U.S. is not the only nuclear superpower, but in which more and more countries – from China to Iran – are gaining access to nuclear weapons, this forces more countries to think about expanding their nuclear arsenals themselves. For instance, some South Koreans would be in favour of developing nuclear weapons themselves against the threat from North Korea, despite being under the security umbrella of the U.S. they ask themselves if the U.S. would intervene in the face of the threat or a possible attack (the same would be true for Europe in the face of the threat from Russia) (The Economist, 2024). A form where the power of the nuclear weapon is no longer centralised (with the U.S.), but instead falls under many different regimes and where the interaction between these different actors can escalate a situation. Also, the mutual threat creates an interaction in which both sides keep expanding their arsenals to participate in the game of power politics.

The Covid-19 pandemic also showed a strong centralisation of decision-making power within governments within Europe by which local governments were mandated by national governments (Greer, Rozenblum, & Wismar, 2020). Greer et al. (2020) argue that centralisation undoubtedly has advantages at the time when this concentrated form of power is exercised effectively, but also see a lack of political leadership and trust from society while decentralisation, on the other hand, would bring coordination problems, but would also bring diversity to the system so that any mistakes would have a lesser effect (or, in other words, the overall system becomes less fragile).

In this, a form of central planning resembles *Taylorism* where a clear distinction is made between planning and doing and where a top-down approach is used (Freedman, 2013, p. 462). This central, top-down approach also calls for *interventionism* to maximise efficiency and increase effectiveness. A danger hidden in this approach is that it lacks *skin in the game*, or in other words people do not feel the consequences (not in my backyard) and cite unpredictability when things go wrong, but claim success

[60] Something Hayek looked at differently at the time of war. Hayek too recognised that some fundamental values should be left behind when a greater interest presents itself.

[61] This view can also be made regarding the arms industry. Europe is seeking more standardisation of used equipment to increase effectiveness and efficiency within partnerships. A counter-argument in this could be that this results in monopolies and reduced competition. Yet this market already appears to be highly concentrated after the end of the Cold War. For instance, the number of leading defence companies within the U.S. alone would have fallen from 51 in 1990 to 5 (Lockheed Martin, Raytheon, General Dynamics, Northrop, Grumman and Boeing) by 2022 (Stacey, 2022).

– in the form of good governance – when things go right.[62] According to de Wijk (2024), the war in Afghanistan also showed that although we (as the West) wanted to safeguard our values from the growing threat (a form of interventionism), at the same time we were unwilling to engage in the kind of combat that involves greater sacrifice. In contrast, a decentralised, bottom-up approach not only makes the system as a whole less fragile through the variation and reduction of interventionism on a larger scale, but also allows people to regain skin in the game and be in touch with what they do and experience the consequences (positive and negative) of that in a more direct way.

5.3 What to Do?

A valid question, when one criticises, is what the solution is, but in this I must partially disappoint the reader. There is no exact solution. After all, that would also not be in line with the picture I outlined earlier. However, there are a number of points in which one can act or at least think about which can change the view on military expenditure and follow a novum modus operandi. A central theme here is what bears a place in the title of this study, namely economic consequences. Economic consequences, which I hope has taken on a broader meaning in this point of the study. A first step in my development of the novum modus operandi is to work through, as Taleb describes, *via negativa*. The idea belongs to the Greeks. Working via negativa does not find its way along posing what needs to be done, but eliminates that which does not work, the fragile. Or in other words – to stay with the Greeks – working like sculptors who cut away the surplus, the negative, to arrive at the beautiful (Taleb, 2013).

The first thing to conclude is the fundamental mindset for how defence is viewed. A view that mostly depends on more recent experience and knowledge. It is leading with the fact that after the end of the Cold War, people significantly downsized the armed forces within Europe with the idea that they would be used purely for peace and humanitarian missions, such as those in Afghanistan. Therefore, to see the structural importance of the need for military expenditure, in the longer term, the nature and core purposes of the role and function of defence must be considered. In doing so, it is essential to realise that conflict development is non-linear and cost-saving measures, based on a small probability of a conflict or disaster to develop, do not outweigh its costs. In other words, one should not confuse probabilities with expected value.

That the non-linear nature of war, or any other disaster, by itself may be a valid reason to think carefully about the level of military expenditure may be clear. In doing so, it is essential to mention that a higher military expenditure is not directly associated with a reduced probability for escalation in a conflict, unless one assumes the strategy of deterrence and believes in a world of power politics. Also, as we concluded earlier, continuing to increase investment may not necessarily be right or effective. Institutions, companies or things in general can also become inefficient as the size increases. What this study then does point to is that there must be a proper trade-off in which the investment can protect or support social value, to a certain extent.

For this idea, the role of defence should also be reorganised. The armed forces deserve a modernisation that broadens *the fight of combined arms*[63] and adapts its processes to the new era. With this, a social role for defence also bears itself out. This does not mean that the main task of the military should be forgotten, namely combat. But above all it means that the organisation should step out of its own domain

[62] Interventionism can be interpreted by an example in Taleb's book *Antifragile* (2013) in which he argues that putting out small forest fires too early will contribute to a larger and more extreme forest fire since the combustible wood has been saved. It makes the total more fragile through interventionism.

[63] Or in Dutch, "*het gevecht van verbonden wapens*". Wording by Mart de Kruif, but in my opinion a good concept that deserves wider use in today's way of warfare beyond the battlefield. it embodies an aspiration at tactical brigade level for synergy within the Royal Army, or in other words combining different capabilities and the ability to work effectively with complex resources (Sijbrandi, 2021).

– again, domain thinking is a core problem that has been identified many times in this study – and thereby create a greater social interest, but above all social value.[64]

A deeper social, and more active role, for the military also means that their employability is enhanced, as they get the chance to perform and practice their role more actively. It also naturally makes the organisation bigger without having to think (to some extent) about a crowding-out effect or opportunity costs since it is a more integrated approach. It is a combination of effectiveness and efficiency. Through this line of reasoning, therefore, a new appearance on defence investment logically presents itself, as it makes the economic consequences more directly visible.

However, the question that remains unanswered for now is how this new vision contributes to the danger of the non-linear and how to become less fragile. This question remains, again, largely unanswered because the future cannot be predicted. What awaits us remains unknown, but what can be achieved in this is to eliminate via negativa. Therefore, the following points should be considered to develop a less fragile situation for the longer term:

[1] *Amor fati*: Or in other words 'embrace fate' as Nietzsche states in his work *The Birth of Tragedy*. We have too much put our focus on the Apollonian (the rational) and lost sight of Dionysian (the unknown), but it is important that the balance remains – one cannot exist without the other. So that means we cannot predict everything and capture it in (mathematical) models. We will learn to accept a world with chance and uncertainty.

[2] Redefining the role of the armed forces: as Seneca said, something that exists in motion never stands still. A fundamental organisation that protects our democratic, capitalist societies should never stand still and be careful not to act in patterns, rhythms, laws, or tendencies based on what has happened in the past. The armed forces must, and deserve, to constantly renew themselves and redefine their role with which social value remains greatest. On the other hand, the armed forces must continue to safeguard and recall its core mission to counter its fragility. Therefore, the fundamental function of protecting our thinking, the combat mission, must constantly be at the centre.

[3] Decentralisation and a new vision of what is efficient: the cooperation between the U.S. and Soviet Union during World War II shows us that when a greater good presents itself, people with fundamentally different thinking can work together. It may be a fair question whether, in the spirit of this, NATO and the European Union are becoming too big, as they seek to serve the interests of the day, but in doing so could possibly be the turmoil of the future. An alliance like NATO is based on consensus[65], but as it grows it will also become increasingly difficult to reach consensus – after all, all members have to think the same way about it. With Russia as the biggest threat in the current zeitgeist, this is easier than when there is relative stability and the differences between, say, a Netherlands and Hungary become clear again. As mentioned earlier, the centralisation of power not only poses a risk, which Hayek described in *The Road to Serfdom*, but also makes institutions less efficient. In this, too, the inconveniences grow non-linearly. It is a false conclusion with this argument to say that I am against further cooperation and integration

[64] There are many proposals through which defence can serve a larger societal interest, besides the obvious technologically innovative aspect. One of these aspects I discussed at length with my adviser Mart de Kruif during one of our talks. His idea is to apply defence as a social safety net and use it as a learning tool for young people facing youth welfare (this could take pressure off the, mostly overburdened, healthcare system). Other thoughts include the wider use of defence in care during any crisis, think of a pandemic. After all, defence is one of the few organisations with broad logistical experience in this. Many gained in missions such as Afghanistan.

[65] I will not comment here on concrete steps or actions to be taken in this in the contemporary spirit of the times. For example, other writers like de Wijk already argue that a different voting system should be considered where not every party has to agree to a proposal, but only a majority (de Wijk, 2024).

of Europe. On the contrary. We need people like Adenauer and Schuman who seek reconciliation.

[4] What Keynes already understood in 1919: already in the discussions around the Treaty of Versailles, Keynes observed, on the one hand, that people were not acting rationally, but from emotion or impulse (a description that may be akin to the later animal spirits) and he also saw that people were thinking from their own domain, namely the political. Keynes saw that political interests were put first, but that this underestimated the economic consequences. He predicted a Europe that would continue to live in the violence of the past when people thought in hostility. What Keynes wrote in *The Economic Consequences of the Peace* is a great inspiration for this study. A less fragile world for the violence of the past and the present thus requires people to have the courage to step out of their domain and thereby recognise the nexus.

When we consider the above four points, we can draw a new conclusion. To do so, we must go back to the normal distribution shown previously in this chapter (also shown in Figure 26). In this normal distribution, we see that the probability of a given outcome centres around a certain point. In the current composition of military expenditure, we focus on the measurable, the predictable, or in other words that for which we consider the highest probability, but ignore any Black Swans (or tail risks). When we add randomness to the initial distribution (i.e. we recognise the Dionysian alongside the Apollonian), we see that the peak of the initial distribution spreads to the uncertain, to the outcomes whose probability is considered small but whose impact is considered large. When we recognise the fact that the probability of certain outcomes is small, but the impact huge, it implies that the unthinkable (like a war in Europe was considered unthinkable before the 2022 invasion) is in fact considered. For military expenditure, this means that the allocation of focus and budgets must also be spread out and more attention must be paid to the uncertain (from traditional warfare to responding to large-scale disasters) despite what is considered realistic in the current zeitgeist (we recognise that the world does not stand still – there is no such thing as equilibrium, the world is not static, but dynamic. This requires people, as well as organisations, to step out of their domain, take responsibility (or skin in the game), reflect on what we mean by efficient (do we focus on minimising inputs and thereby achieving the maximum or do we strive for a set output and minimise inputs to do so), and focus on the longer term in which we need to be realistic about the possibility of particular events.

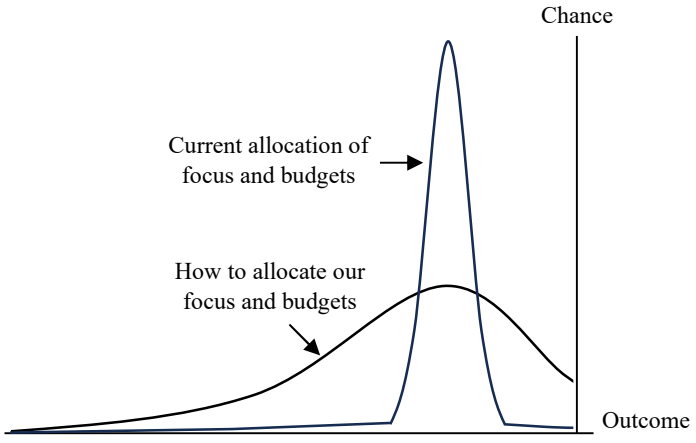

Figure 26: Illustration of a tail risk of an event with a negative outcome (own work – inspired on work of Taleb (Taleb, 2021, p. 431))

6 Conclusion and Recommendations

This study looked at the economic consequences of military expenditure. The aim was to arrive at the following main question and sub questions:

What are the economic consequences of military expenditure in Germany and the Netherlands?

1. How did military expenditure evolve from the early twentieth century?
2. What is the fiscal multiplier of military expenditure of Germany and the Netherlands?
3. What are the broader consequences of military expenditure of Germany and the Netherlands?
4. How does a novum modus operandi in terms of military expenditure look for Germany and the Netherlands?

A first, fundamental step was taken by answering the first sub-question which looked at military expenditure and economic consequences from the start of the Great War (1914) to the contemporary situation with the war in Ukraine. This part was not explanatory, but descriptive; not discovering laws, rhythms, tendencies or other patterns, but drawing lessons from a broader context of history. An important first conclusion appeared to be the relationship between different domains: political, economic and military. An event in one domain can, in fact, have a major effect in the other. Consider, for example, the war in Ukraine after the Russian invasion in 2022. Whereas in Russia the conflict manifested itself from the political to military, this required a military response from Ukraine that manifested itself to the political and economic. Also, the economic cooperation that emerged within Europe after World War II (with the Marshall Plan, for example) led to political fraternisation (think organisations like NATO and the EU). In addition, history teaches that alliances can be temporary and these can come about despite fundamentally different values, to serve a greater good. For instance, the capitalist free West, the U.S. and U.K., were able to team up with the communist Soviet Union to bring Nazi Germany to its knees. But during the Cold War the relationship broke down while, on the other hand, Germany, long feared within Europe, sought rapprochement and is today considered an important ally of many European countries. So, the world never stands still and is always on the move. Europe also discovered this, relying on the military power of the U.S. after the end of the Cold War and investing mainly in economic power itself. With the shift from a unipolar to a multipolar world in which China made its entry, the turmoil in the Middle East, the African Sahel increasing and the war in Ukraine, shows that stability is not a given – the world is not static but dynamic.

The strategic interests from different domains are specifically dependent on the spheres of influence of time and space. This affects countries' perspectives on military expenditure and the economic consequences they see in it. The topic is therefore far from generalisable. A categorisation is important in which similarities are sought in the current zeitgeist. By looking at geography, alliances, economic and military similarities, a categorisation is made of countries that are both NATO and EU members and fall into one of the four European regions: North Europe (NE), Central East Europe (CEE), South Europe (SE) and Western Europe (WE). This shows that WE is the largest both economically and militarily, containing Belgium, Germany, France, Luxembourg and the Netherlands. Yet differences can also be observed within this group. For instance, France's military expenditure remained relatively high in the post-Cold War period while countries like Germany and the Netherlands cut back significantly. France's

military posture is also relatively assertive compared to Germany; after all, France is also a nuclear superpower. Economically, it can be seen that Germany and the Netherlands export relatively much compared to what they import. In terms of their trade balance, a surplus can be observed. In this study, it was decided to select Germany and the Netherlands as units of analysis. Although this does not mean that the further parts of the studies focus purely on these two countries, the final conclusion and core analyses focus mainly on these countries.

Both the qualifiable and quantifiable (or, in other words, the non-measurable and measurable part) of the economic consequences of military expenditure are examined. The latter, measurable part, is examined by studying the fiscal multiplier. The fiscal multiplier belongs to the Keynesian perspective on the economy where the fiscal multiplier indicates how much value added a euro of public investment to GDP. The fiscal multiplier of military expenditure was specifically examined and the analysis consists of two parts. In the first part, the existing literature is analysed in detail. The literature shows that despite the growing number of studies, more complex methodologies and growing number of datasets available since the 1970s, economists are still not unanimous and three basic conclusions can be drawn. The fiscal multiplier is either positive, negative or it is more nuanced. Economists argue that the place of the economy in the business cycle or economic regime (the economy is either in recession, expansionary or average) affects the fiscal multiplier. Also, in more developed economies, the fiscal multiplier will be larger than in less developed economies and in addition, the size of the fiscal multiplier depends on the type of military expenditure. The fiscal multiplier was estimated for Germany, the Netherlands, Belgium, France and the U.S. in the second part of Chapter 3. A statistically significant relationship between military expenditure and GDP per capita was found and the fiscal multiplier ranges between -0.179 (for Germany) and 0.672 (for France). The simplified and intuitively followable method shows corresponding observations with the existing literature. Nevertheless, we conclude in this study that the fiscal multiplier of military expenditure is insufficient to determine the economic consequences of military expenditure as a whole, as there are too many components that cannot be expressed numerically.

Noting that the fiscal multiplier does not provide sufficient insight into the economic consequences of military expenditure, this study looked at the intangible effects of military expenditure and put military expenditure in a broader perspective. In the current geopolitical context, on the one hand conventional warfare is back on the European continent with trenches and tanks, but less ostentatiously there is also a major battle taking place called hybrid warfare. Hybrid warfare aims to achieve political interests by, for example, disrupting a society in less ostentatious ways. Think, for example, of attacks on infrastructure or the cyber domain. Although hybrid warfare is something of all times, the scalability resulting from digitalisation, among other things, makes the threat and impact larger. Hybrid warfare therefore entails major economic consequences. It calls for better security of infrastructure (think underwater internet cables or gas and oil pipelines) and the cyber domain, as attacks on these can cause both material damage and a sense of unsafety within society. Climate change also plays an important role in this. It makes already weaker regions even weaker as a changing climate reduces the availability of food, for instance, causes refugee flows or can be misused as a weapon (by restricting food transit, for instance). This idea of hybrid threats shows that more and more can be used as a weapon and also requires a significant substantiation of the military domain. This requires renewed interpretation and innovation. The rise of superpowers like China and the changing focus of the U.S. also calls for a different design and more innovation from the military. In this, many Europeans are thinking about strategic autonomy. This study concludes that in this, a balance must be sought between the public and private domains, that dependency must be considered when it comes to critical materials (such as aluminium) and how best to organise cooperation between different countries (as well as markets). Looking at innovation, it appears interesting for the military domain to set this up from a bottom-up approach involving small- and medium-sized enterprises as well. This is an important but challenging step in an organisation that, depending on the type of innovation, can be relatively resistant to it (due to its culture). Technological development and innovation could have a positive impact on the economy when the private and public spheres work closely together. And instead of a crowding-out effect, there

would rather be a crowding-in effect of public defence spending on private R&D expenditures. Yet the opportunity costs of military expenditure must also be taken into account, because despite the benefits associated with it, resources are also allocated that could otherwise be used, for example, for healthcare or education (just think of the jobs the military brings).

In order to answer the main research question, we need to look at the *novum modus operandi*. Coincidence, uncertainty and risk is central to this and instead of telling people what to do next, the thesis works *via negativa* meaning we eliminate what does not work. It is a method that is consistent with the way of working in this research, in which no rhythms, laws, patterns or tendencies are described and it is accepted that we live in a non-makeable world. History (or descriptions from the timeline) teaches us to look more broadly and note what has mostly not worked. When one relies on inductive knowledge, the risk arises that he or she goes down at the moment when trust based on data is highest (the turkey problem). It is often overlooked that when the risks are small, or cannot be expected in the current zeitgeist, it does not mean that it will not happen. In fact, when relying on this inductive knowledge, the system becomes more fragile and the impact of tail risks (Black Swans) becomes ever greater.

The consequences are not only asymmetric in terms of probability, but also asymmetric in terms of impact, or in other words, the risk is non-linear. The probability of war is small, but the consequences can be catastrophic. Although it is not established that the probability of war disappears by increasing military expenditure (unless one believes in the principle of power politics), this asymmetry can be clarified for the reader with a simple line of thought. When the probability of war is nil, say once in a thousand years, savings can produce a good profit with which a lot of money can be invested in other societal issues (such as healthcare) while the military apparatus breaks down into an organisation that can no longer defend its country. However, when an all-destroying war takes place, even if it is just the destruction of democratic thought, this cost saving over the remaining 999 years will be disproportionate to the loss. In other words, one should not confuse probabilities with expected value.

In the current modus operandi, a trio of trade-offs have been identified that may be adding to the fragility at the moment. That is the focus on efficiency of many organisations, but reasoning this mostly from a shorter-term perspective and neglecting the excessive risks in it. The focus on efficiency also causes organisations to grow because people believe in economies of scales. However, people forget that as organisations grow, they also become more difficult to manage, and especially when tail-risks are considered, organisations can even become inefficient (as is shown by the example of very large banks). It should therefore be considered what is the right size to achieve the greatest effectiveness.

A final consideration to be made is the issue regarding centralisation that comes with the growth of organisations. With this observation, as well as the study in general, four issues have been identified that, *via negativa*, need to be eliminated. The first step is to learn to accept fate, or as Nietzsche states, the Apollonian and Dionysian should be balanced. We must learn to accept and accommodate uncertainty, chance and the fact that we do not live in a makeable world. Also, on the one hand, the core mission, the battle, of the armed forces must be guarded, but at the same time we must also continue to actively renew the role of the organisation and bring it in line with a constantly changing world. To this end, decentralisation serves an important role in which innovations and decisions are made from the ground up (bottom-up). This does not mean less cooperation, but making sure people get skin in the game again by being in proximity, but also making the overall system less fragile, because in this way the fragility of a component no longer means systematic fragility as seen in a centralised composition. The last point is one that Keynes taught us with his experience of the conversation surrounding the Treaty of Versailles in 1919 in which he noted that one could have an impact on the other. Or to be specific in this case, that if political interests were placed above economic interests, it would have a major (negative) impact on the economy. Therefore, we need to step out of our domain thinking and emphasise the relationship between different domains and include this nexus in our actions.

By answering the four sub-questions, an answer to the main question can be formulated by putting these sub-answers together and connecting the nexus. Considering the economic consequences of military expenditure changes something in our view of the level of military expenditure. It no longer limits itself to a political, economic, or military perspective, but focuses on the nexus between different domains. This sounds contradictory, because when I talk about economic consequences it suggests that this relates to the economic domain. My hope at this point is that the reader understands the broader, deeper concept of economic consequences. This is because it is not limited to the consequence of economics, but is the consequence of all domains. The economic consequences of military expenditure have been shown to be significant and these go far beyond measurable values such as the fiscal multiplier. Indeed, military expenditure underlies the defence of democratic order in a world where not every individual is privileged to live in. Immanuel Kant's observation that republics do not wage war among themselves because there is no reason to do so may be correct, but our world does not consist solely of republics.

When the economic consequences of military expenditure for Germany and the Netherlands are concretised, it can be divided into two components. The first component is of a fundamental nature. Military expenditure (if the balance is right for building a capable armed force) ensures that we can protect our values, our Western democracy and our trade. Consider, for example, the protection of ships in the Red Sea (which has an extra substantial impact for trading countries like Germany and the Netherlands) and protection against terrorism, but defence is also the organisation that helps in an emergency situation (e.g. a flood). These are all risks that carry huge economic consequences. They are mostly low-risk situations, contain chance and are difficult to predict. Therefore, the value cannot be measured and can often only be explained in retrospect. That is what makes it so difficult. The secondary component of defence that again is often difficult to measure, or at least economists disagree on due to (for example, the crowding-out effect), is that military expenditure can have a positive role on technological developments, unemployment and boosting the economy from a Keynesian perspective.

While the answers given above are still general, mostly due to the complexity of the subject, a number of concrete policy recommendations for Germany and the Netherlands can be given based on the thesis that concern military expenditure and its economic consequences:

[1] The first step for policymakers is to add chance, uncertainty and risk to their perspective on military expenditure. This means that even though the probability of a war or escalation of a conflict is small, this does not mean that it is not present and that in order to guard the fundamental values of our society, as well as the economy, it is important to be able to protect this at the base. This means broadening the stage on which to act, as the current form of hybrid warfare ensures that more components within society (such as the cyber domain or critical infrastructure[66]) are targeted. The values of trade should be protected, but defence should also play a role in defending against natural disasters. It results in an observation that a 'base' is always required for military expenditure to meet these fundamental requirements. In this, an observation of relative peace, as observed after the Cold War, should not affect this perspective.[67]

[2] The scalability of the cyber domain results in a broadening of the space for battle and the boundaries between conventional and hybrid warfare have become blurred. This results in the need for policymakers to properly weigh up what belongs to the military domain and what belongs to the private sector. This should include the potential of a technology. That means looking at the position of power it creates, ethical issues it raises and whether it can be used as a weapon. Concerning hybrid warfare, almost 'anything' can be used as a weapon. Policymakers

[66] It was also found in this study that social media platforms are related to hybrid warfare and are a source of autocratic regimes to propagate, as well as spread fake news with in the West.

[67] To a certain extent, one can attach the idea of: *Si Vis Pacem Para Bellum* ("If you want peace, prepare for war.") to this, but, on the other hand, must be careful with this and shape it mostly from a defensive perspective.

should be careful here in terms of their actions and safeguard the fundamental value of individual freedom.

[3] As long as politicians or policy makers reason and act from their own (economic, political, or military) domain, this will almost always have a negative effect on the (broadly defined) economic consequences of military expenditure. For instance, when politicians act out of their own political interest, they will mainly focus on the shorter term in which it is a matter of getting the most votes, thus at the expense of the future. Similarly, when looking only at the economic or military domain, this will come at the cost of economic consequences (for example, when reasoning from the economic point of view, one will come to the conclusion that the *return on investment* of military expenditure is low and the money can be spent more efficiently (in the shorter term), from military reasoning it will mostly be from a security perspective which may result in significantly higher investments in which the economic aspect could be forgotten). One should at all times focus on the nexus between the different domains which means that an action in one domain can, and probably will, affect the other domain. An economic view of the military apparatus will paint a numerical picture, while a view from the military will mainly focus on the security interest. A balance and relationship to each will have to matter, and domain thinking will thus lead to systematic fragility. This requires a long-term vision from everyone which means concessions will have to be made in the shorter term which will benefit society in the longer term. A difference between short-term and longer-term vision may therefore result in different observations.

[4] A difference between shorter- and longer-term vision requires thinking about the composition and growth of different cooperation, alliances and other relationships vis-à-vis countries. Considering Germany and the Netherlands as a unit of analysis, this study argues that, based on both shorter- and longer-term views, further (military) integration of Germany and the Netherlands should be intensified.[68] Germany and the Netherlands already cooperate within the context of the EU and NATO. Both organisations have grown considerably (in terms of number of member states) in the period from their inception to the present. A growth and cooperation that was reinforced by the growing Russian threat. The intensification of a cooperation that shows that fundamental differences fall into oblivion when a greater interest or threat arises. That these different views are in danger of being forgotten reduces fragility in the shorter term, but actually increases fragility in the longer term. For this reason, it is necessary to look at the longer term when it comes to the fundamental differences that can lead to divisions and consider the composition of organisations like NATO and the EU, otherwise internal conflicts may grow to the point where these threaten the continued existence of these very organisations.

[5] A key question raised by point four is what this composition of NATO, in particular, should look like and how its fragility can then be reduced. For this, decentralisation of decision-making and greater autonomy of alliance members should be considered. This means lower-level decision-making and greater independence. With centralisation and interdependence, systematic fragility is increased. As an organisation grows, inefficiency also increases and the damage caused by any asymmetric event also increases non-linearly. A decentralised idea provides a difference in the approach, which is more direct, because it is bottom-up rather than top-down and people are in more direct connection with what they are doing which also makes them experience *skin in the game*. Also, a decentralised approach ensures that while the stand-alone components have their own fragility, this does not directly mean that this fragility is systematic. Independence from raw materials, for instance, also plays an important role in this and should be looked at carefully. Innovation and technological development are also an important component within

[68] This is an idea that Lieutenant-general (retired) M. de Kruif, Lieutenant-general (retired) Ton van Loon and Major-general Ludy Schmidt were all in favour of.

this, which can have a major effect on reducing fragility via a bottom-up method, but can also have positive effects on the economy and offer new opportunities to private companies (since there would be a crowding-in effect rather than crowding-out).

[6] Based on the above reasoning, this might suggest that I am pleading against alliances like NATO and the EU. On the contrary, I argue that the collaborations should be intensified. Only the composition of these collaborations should be critically examined by policymakers. Indeed, intensifying collaborations create greater mutual understanding, think for instance of the cooperation between German and Dutch army corps (countries also become more mutually accessible for communication). One just has to think carefully about what these intensifications will look like, and for this one has to dare to face differences in values and visions. On this basis, the right intensifications can be realised. For instance, with one partner this intensification may be more effective in the field of research and with another partner an intensification of joint production or purchase of goods. Even more specifically, a European framework within which countries are free to act could be considered, for example. Several initiatives for such actions have already been discussed in this study. By merely establishing a framework, countries retain their freedom. An additional advantage is that it can increase the efficiency of an organisation as a whole as similar standards are implemented, thus improving mutual interaction (e.g. in terms of equipment). Centralised decision-making can also help reduce fragility, such as reducing dependence on critical raw materials. At 'lower' level, it is then up to the countries themselves to possibly enter into closer cooperation and further integration (of, for example, armed forces units) can be considered. The only important issue here is to maintain flexibility within the frameworks in order to be able to act quickly in a constantly changing world.

[7] The economic consequences of military expenditure are broader than the numerical findings reported in this thesis. We do not live in a measurable or makable world in which, on the one hand, policies or estimates of fiscal multipliers exactly match reality. The economic consequences of military expenditure can, however, be captured in more complex, non-measurable concepts such as protecting what is worth a lot to us, acting as an organisation that can always be reverted to and which creates a sense of social security, but also ensures technological developments. It is therefore important to keep this component of technological development and innovation in mind in military expenditure. This is a side-effect that is not easily captured in figures, but can be of major economic value. In addition, it also means that military expenditure should not be seen only as security investment with high opportunity costs (Without the protection of the free world, many of the opportunity costs would even come under great threat).

[8] A key question for policymakers then is how much to invest in the armed forces. To this question, this study cannot offer a concrete answer, but only a view that is in line with the earlier narrative. For this, one should realise that measures such as a two per cent norm are nothing more than an agreement between members to make a relatively equal contribution, but this does not add any further direct value. After all, one has to look at output and not input, and in this there is no 'one size fits all' solution for military expenditure. It is about quality and not quantity. Each member of the alliance should therefore look at what is needed. This requires looking more broadly and not just at what people consider to be the most viable, because then visions emerge that are temporary (fragile) in nature. This means that military expenditure must be based on what is required to defend the fundamental values of society and requires a consistent investment that focuses on the longer term, because if you only act when the moment demands it, the costs will be high (with growing demand also comes a scarcity of resources) and high risks because then you are at your most vulnerable.

We live in a world full of uncertainty in which we must learn to accept this. When people start believing that we live in a malleable and understandable world, the risk arises that our fragility increases and we

become the turkey who, based on the data, gains increasing faith in human rationality and are surprised when chance strikes in the form of disaster. That human rationality is sometimes far from it is evident with warmongering, revenge, racism and other atrocities that this world has. The war in Ukraine that erupted with the Russian invasion in February 2022 shows that in the post-Cold War period, Europe had become naïve and viewed a war on the largely united European continent as unrealistic. Focusing on economic power, in which the military seemed to be needed only in peace and humanitarian operations, entrusting its fate to Europe's security umbrella; the U.S., acting as *ephor*. Perhaps this made Europe the world's turkey. The war in Ukraine has awakened many, but one must be careful not to look back into the contemporary context and interests, but dare to accept and anticipate longer-term risks to protect the democratic, capitalist world for a longer time. The world in which U.S. support for Europe can no longer be taken for granted and in which a shift between superpowers can be seen, Europe needs to redefine its position. Germany, as the largest economy, should take on a more assertive role. The Netherlands should act as a connector, but also value the cooperation with Germany in which relatively many similarities can be observed. This study fits into a broader framework in which one also reflects on the fragility of our economic perspective, climate change or the political discontent of many European countries.

For Further Research

This study shows the principles of the economic consequences of military expenditure, but in it, many questions also remain unanswered. Therefore, more research needs to be conducted on policy advice in the future. Specifically, for Germany and the Netherlands. This could include the question of the level of military expenditure or a more practical design of an approach to innovation or the design of growing organisations such as NATO or the EU. It should be constantly borne in mind, however, that there are limits to what research can achieve when it comes to predictability, malleability and the influences of chance.

The Importance of this Study

From a Technological and Academic Perspective

This study investigates a relatively unusual area within TU Delft, but also to be more specific the Faculty of Technology, Policy and Management (TPM) within which I myself follow the Master's programme Management of Technology (MOT). This 'novelty' makes it important to explain the added value to and connection with this study.

In the larger image, TU Delft states as its motto (of the institution's strategy): "impact for a better society" and connecting to social themes (TU Delft, sd). This study is fully in line with this motto and, unfortunately, due to the war in Ukraine, a current social theme. The latter makes my research more widely accepted in the contemporary context, but I suspect that without the war in Ukraine and rising geopolitical tensions, this would have been different. Or to put it another way: a few years earlier, one might label research in the direction of war, possibly higher investment military expenditure or power politics at TU Delft as a grey zone. In my view, this would be the wrong attitude, because the very thing that involves so much suffering and grief should be investigated. It needs to be looked at, thought about and discussed in order to have an impact for a better protected society. After all, just because it is a less beautiful component of our kind of society does not mean it is not there. It deserves at least an equivalent approach as climate change amassed within academic circles.

Within many TU Delft departments, such research will focus on the technological domain, but for the TPM faculty the task lies in combining the various domains. In my opinion, a fifth theme should be added to the existing ones (Climate & Energy, Digital Society, Health & Care and Resilient Cities & Mobility) when talking about finding solutions to 'global challenges' and a 'more resilient future' (TPM, TU Delft, sd). This study revealed that the threat is located in all these themes, is associated with climate, for instance, and is an area that has been looked away from for many years.

The study was conducted as part of the MOT's master thesis programme, which looks at an issue within a technological, international and competitive framework. In this issue, according to the programme, technology needs to be understood, but the connection to the other domains is also especially essential, and the organisational structure, interests and goals need to be properly considered (TU Delft [MSc MOT], sd). This study works mainly from a strategic perspective in which the different domains (the political, economic and military) are examined, but in which interaction (the nexus) is also central. In this fast-changing and challenging field of research, technological development, but also especially the use of technology in the strategic geopolitical context, mostly proves to be an important aspect. This technological background therefore makes this research more innovative than when approached from, say, international relations or the security domain. Where technology often appears there as a secondary effect, in this study the technological is more in the foreground.

Looking at the various levels within TU Delft, the study into the economic consequences of military expenditure offers an innovative insight that argues for more research in this area from TU Delft. Although war has only victims, it is also the task of a university to learn more about this, to investigate ethical considerations and to teach students about this topic, so that the awfulness of war may never be forgotten.

Epilogue[69]

This study on the economic consequences of military expenditure offers an innovative view of this subject that is mostly examined from existing fields. My hope is that I have been able to provide the reader with a novel definition of the term 'economic consequences'. In fact, it goes further than it may seem at first glance. I personally discovered this amongst other things by reading *The Economic Consequences of the Peace* by John Maynard Keynes, which was a great inspiration for me and partly underpins this study. Keynes showed something that many can learn from. The economist-philosopher (in my opinion, labelling him only as an economist is doing him short) showed that decision-making in one domain can have a negative effect on another. That it is not about everyone's own interest, but the whole, the interaction or nexus that I have tried to highlight many times in this study. In addition, Keynes showed courage by retreating around the Versailles Treaty talks and then voicing his criticism even if it was directed personally at government leaders like Lloyd George, Clemenceau and Wilson – Keynes had skin in the game.

This study also reveals much about the fragility of our contemporary thinking that has its origins partly in the Enlightenment. A time when people found faith in rationality, predictability and the manufacturability of things. The Russian writer Dostoevsky (in his book *Notes from the Underground*) already criticised this, in my view largely correctly, by asking how one can explain wars when Napoleon waged them when one would not expect it from rationality and the fact that war does not belong to a civilisation (the history that followed shows us many similar cases today). That irrationality (or impulsiveness and inexplicability) Keynes would later label as an *animal spirit* in his *General Theory*. It is not true that the views that have emerged and developed in the last few centuries are a bad development, but in my opinion we have come to attach too much value to these in particular. Do we attach too far-reaching conclusions to this and in doing so, we become especially fragile as a society. As Nietzsche stated in his work *The Birth of Tragedy*, the Apollonian and Dionysian should be in balance. In this, I think we as humans should be careful with social science and realise that it cannot be captured in laws, patterns, tendencies or rhythms, because if we believe that knowledge is increasing we cannot predict what will happen tomorrow Karl Popper would conclude. In addition, Popper would argue that we ourselves are the *unit of analysis* and thus complete objectivity is difficult.

Regarding the latter, I discovered during my studies that this topic calls for a critical look at the literature that is mostly politically based. Also, a lot of new literature and other sources such as news platforms have recently been added in a short time due to the Russian invasion of Ukraine. In order to handle the literature carefully, I have distinguished between two categories in this in which it depends on the topic which source is appropriate. Thus, for the descriptive components, as in the timeline and numerical components, I used a broader spectrum; think of news sites, for instance. The politically sensitive component was of lesser significance in this part. In contrast, for answering more complex issues and politically sensitive (or more subjective) components (such as the novum modus operandi), I tried to focus more on books and mostly works in which a better interpretation can be extracted from them and it is clear to anyone which view is described (Keynes, Nietzsche, Hayek and Taleb, for example[70]). The study made extensive use of research papers and other academic sources in some sections (such as fiscal multiplier), but to a lesser extent in others due to the novelty and divergence of the study. In these, mainly (mostly philosophical) books have been used, as mentioned above, as sources and academic

[69] This epilogue consists of a personal reflection in which, on the one hand, I look back on my research and give my personal vision of it, while at the same time looking at the whole process.

[70] The work of the greater thinkers (Keynes and Nietzsche, for example) has been used repeatedly in this research. In my personal view, this provides the most informed and accessible development of my theory. Many readers are familiar with these thinkers. In addition, their theory has laid a foundation for much subsequent research, which is why I feel it is important to seek it as 'close' to the source as possible.

sources have been used that mostly stem from other academic topics, but whose conclusion fits the discussion. Studying the literature showed me personally clearly that Popper was right and that in order for us to be the unit of analysis ourselves it is difficult to remain completely objective. Just my own position within (western, Dutch) society, the fact that I study at TU Delft and that what I read had also attracted my interest in some form shows that I am biased and cannot possibly generate complete objectivity.[71] I therefore resent appearances as to whether that is fully possible; especially in such topics. Personally, I think I have formed a study with vision, substantiation, but also to have written something I can personally stand behind.

This research holds no boundary I have come to find out and I therefore often lost myself in different topics. Still, I think I managed to capture the most important things in the text, although there would still be plenty of components that could be valuable additions (think China or the emerging unrest in the African Sahel, for instance). On the other hand, I hope to have achieved another goal with my research and that is a line of thought on the economic consequences of military expenditure with which to think about a less fragile society. I personally therefore think that the Russian invasion of Ukraine makes the topic, and thus my research, more relevant, but in principle it should neither weaken nor strengthen my point for the reader who has grasped the profound meaning.

Many hours were put into this research, the days were long and sometimes endless. On the other hand, this period has gone too fast to fulfil what I am aiming for (although the foundation has been laid). I still see a lot of potential for me personally in terms of research in this area. I would therefore describe this final phase of my studies as my greatest intellectual personal development. For my own personal ethics, I have also learned a lot about fragility and how to deal with it. That the writing process is not linear, it is mostly asymmetrical, we humans are bad at predicting the future, that you have to learn to accept chance and uncertainty and learn to live with it (*amor fati)*. And that, above all, we need to discuss and keep the conversation going among ourselves, look at the longer term and step out of our domain.

"The more I read, the more I acquire, the more certain I am that I know nothing."

– Voltaire [72]

Stijn Bernd Bot
August 2024

[71] An observation that I think is too often overlooked by scientific circles and also ties in with the observation by Servaas Storm and Ro Naastepad (previously mentioned in this study) that economists "should give up false scientific ("naturalist") pretences and stop claiming that economics is a nonpolitical subject." Otherwise, the real-world relationship will be destroyed (Storm & Naastepad, 2012, p. 234).

[72] "*Plus je lis, plus j'acquiers, plus je suis certain de ne rien savoir.*" – This was one of the first quotes Storm shared with his students during the *Economics & Finance* specialisation. A quote that has stayed with me and showed itself many times during my research.

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