Closely Watched Summits: Stock Market Reactions of the Armament Sector to European Council Meetings, 1993-2005

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Abstract

Decision making in the European Union and in particular its key intergovernmental body, the European Council, is often perceived as ineffective. This is especially the case in the domain of foreign and security policy in which the unanimity requirement allegedly allows nationalist governments to torpedo attempts to build up a European defense force and a unified foreign policy position. In this paper we evaluate this claim and examine whether and how decisions made during EU summit meetings affect the European defense industry. Theoretically, we argue that investors carefully discriminate between outcomes of European Council meetings, since the successful strengthening of Europe's military component – a vital part of the intensified cooperation within the European Security and Defense Policy (ESDP) – raises profits in the European defense industry, as it increases demand for military products. Relying on tools developed in financial econometrics, we find empirical support for the view that investors indeed evaluate the substance of European Council meetings and only react to those summit decisions which consolidated EU military capabilities and the ESDP. On average, each of these sectorally substantial Council decisions increased the value of the European defense sector by about 3.8 billion Euros. This suggests that European defense firms benefitted from increased cooperation in European Security and Defense Policy and supports the view that investors carefully evaluate European summit outcomes, thereby showing that the often derided Council meetings can have considerable economic and financial repercussions.

1. Introduction

It is widely acknowledged that decision making within the European Union (EU) is still byzantine and ineffective.[1] This is especially the case for the European Council, which regularly brings together the heads of governments and, in the case of France and Poland, the heads of state of the EU member states. As the organization is not forced to publish an official agenda for these top-level summit meetings in advance, the European population is only indirectly able to assess their relative importance. Given the secrecy surrounding these summits, it is not surprising that some observers perceive the results of the intergovernmental diplomacy as hot air and with little relevance to the real problems of the Europe. Interviewed by the International Herald Tribune, Daniel Gros from the Center of European Policy Studies, described these gatherings as "a waste of time".[2]

We will examine in this article whether the gatherings of the European Council only amount to hot air, as such statements imply. Although we do not believe that the general public closely observes the high-level EU summits closely, some investors and traders might watch these gatherings intensively because of the possible redistributive nature of the decisions by the European Council. As it is well known, the European integration process strongly depends on the outcome of the intergovernmental summits.[3] This is especially true for those industries which heavily benefit from government contracts that result from intergovernmental agreements. The European defense sector, an industry with annual sales worth more than 50 billion Euros, constitutes a prime example, as it is almost completely dependent on government contracts.

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[1] See for example Hix 2008.

[2] International Herald Tribune, October 26, 2005 (http://www.iht.com/articles/2005/10/26/news/summit.php, last consulted on November, 17, 2008).

[3] Schneider and Cederman 1994, Moravcsik 1998.

The destiny of the European armaments industry has always been closely intertwined with the ups and downs of the integration project. To start with, politicians still continue to allude to the security motivations behind the EU. Admittedly, Milward[4] and others have demystified the origins of the integration process and especially its underlying political causes. Others have warned that European integration will never advance to highly politicized areas such as foreign policy or security affairs.[5] Yet, against this skeptical backdrop, the European Union has started in the 1990s to "Europeanize" the security policies of the member states through the development of common institutions, increased cooperation in defense and security matters and the built up of military capabilities. Already the Maastricht Treaty explicitly contained provisions regarding a common EU security and defense policy (Article J.4). The Treaty of Amsterdam (1997) added to this the "Petersberg tasks", with which the EU communicated its will to play a more active role in humanitarian and peacekeeping operations as well as tasks of combat forces in crisis management. For example, at the Helsinki summit (1999) European leaders agreed to create an EU-led intervention unit of up to of 60,000 combat-ready soldiers by 2003. Later summits resulted in the European Security Strategy (Brussels 2003) or the European Battlegroup Concept (Brussels 2004). Some commentators described this process as "raising the flag for Europe's army".[6]

We theorize that decisions on the EU's military component are important for the performance of European defense firms, as they impact the order books of companies operating in the defense sector. Investors should therefore carefully evaluate the outcome of EU council meetings. In our view, some of these intergovernmental meetings are not a "waste of time", but provide crucial information about crucial economic decisions. In our case, these are the attempts to further strengthen military capabilities at the European level. Traders will

[4] Milward 1992.
[5] Hoffmann 1966.
[6] Financial Times, December 10, 1999, p. 21.

therefore carefully identify those Council meetings which have been concerned with the ESDP and which actually resulted in decisions to build up military capabilities and to strengthen the defense and security component of the EU. We consequently argue that investors only expect raising profits in the defense sector, which manifests itself in an improved stock market performance of this industry, if European leaders make decisions relevant to this politically dependent sector. Hence, investors who are trading defense stocks, only care about sector-specific "good news" and not about other possible achievements or failures of the high-level political meetings.

These theoretical considerations lead us to expect that the so-called abnormal return, i.e., the return to defense firms during a summit meeting that cannot be explained by movements in other financial assets, increases, if EU summit decisions provide investors with information that they consider to be "good news" for the future profitability of the European defense industry. Such sector-specific effects of EU summit meetings have not been examined until now, and our analysis will show whether the slow, but significant Europeanization of EU member states' defense policies has any important short-term economic repercussions.

We believe that an evaluation of the short-term economic consequences of such decisions on the European Security and Defense Policy can help us understand the economic significance of the increased cooperation in the realm of European security. Hitherto, the interrelationship between supranational decisions and the economy has only garnered limited academic interest. Scholarly attention has been devoted to the economic sources of European integration and the long-term growth effects that key integrative decision have brought about.[7] Econometric studies in the latter domain have shown that the impact of the internal market on economic growth or the trade creation of the European Monetary Union were

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[7] See e.g. Moravcsik 1998.

considerable.[8] Yet, if these effects are visible in the long term, they should also be observable in the short run. Immediate responses to relevant European Council meetings should, as indicated, especially materialize in the defense sector.

Our results suggest that decisions made by EU Council meetings indeed affect the European defense sector in a nuanced way. In line with our argument, summits which were associated with significant decisions to advance the ESDP triggered a significantly positive abnormal defense stock return even if we control for other factors potentially relevant for the European integration process, e.g. national elections or referenda in key member states and preferences of the weightiest EU member states on EU integration. Moreover, investors seem to carefully differentiate between summits which resulted in a push forward on Europe's military capabilities – increasing expectations about future defense sector profitability – and those on which the ESDP was an issue but leaders did not agree on taking further steps to strengthen Europe's defense and security component. More generally, our results demonstrate that research on the political economy of European integration and the relevance of its institutions is likely to gain valuable insights from assessing the short-term economic effects of European politics. Moreover, our analysis shows that the often derided summit meetings can have considerable economic and financial repercussions.

2. European Summits and the Defense Sector

Literature review: The interrelatedness of the European economy and the political collaboration between the EU member states has so far mainly inspired examinations that try to uncover the economic sources of European integration or the long-term growth effects that

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[8] Baldwin et al. 1989, Micco et al. 2003.

key integrative decision have brought about.[9] Econometric studies in the latter domain have shown a significant impact of the internal market on economic growth.[10] If the entire economy reacts in the long term in a foreseeable direction to political decisions, we should observe equivalent economic short-term reactions to key events within the European Union.

However, studies which explore such short-term economic effects of European politics are very rare. The articles by Brady and Feinberg and Feinberg and Harper[11] are notable exceptions. Brady and Feinberg find that announcements of progress towards stricter European merger rules as well as several other events associated with legislation on merger regulation had a substantial impact on the stock values of individual companies. Feinberg and Harper argue that especially the British banking sector was well prepared to take advantage of a regime change toward common European rules for market expansion. This would make it easier for businesses to take advantage of the elimination of barriers to intra-EU mergers, which should increase their expected profits. Focusing on UK firms from the banking sector their estimates show that between 1988 and 1990 events which suggested an increased probability that the EU adopts the proposed European merger control regulation and the second banking directive caused positive abnormal returns. Thus, both studies show that specific EU policy decisions indeed had short-term repercussions.

In this application, we will examine the short-term economic effects of decisions made by one of the most important bodies of the European Union, the European Council. We argue that decisions made by this intergovernmental body should have economic repercussions in those sectors in which the demand for their products heavily depends on political decisions. Of course, the prime sector for such an analysis is the defense industry whose order books and thus profits crucially depend on orders by government agencies. We will therefore examine

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[9] Moravcsik 1998.

[10] Baldwin et al. 1989, Micco et al. 2003.

[11] Brady and Feinberg 2000, Feinberg and Harper 1999.

whether and how this sector reacts to the summit meetings for which the European Council convenes at least twice a year.

European Council Meetings, the ESDP, and European Defense Sector Performance: Our focus on the European Council meeting is substantively justified as the history of EU cooperation in defense and security policy and the build-up of military capabilities is still largely a history of European treaties and the negotiations about them. We argue that deals struck on issues of defense and the EU's military capabilities have become key events for the prosperity of European defense firms, as these are highly dependent on public demand for their products. This simple argument about the economic effect of summit decisions implies a nuanced causal mechanism: We theorize that investors carefully differentiate between summits which resulted in significant steps toward the built-up of a "European army" and those on which defense was an issue, but leaders did not reach an agreement which moved beyond what had already been common knowledge on the ESDP and EU's military capabilities. Finally, rational investors will not care about summits that do not address defense questions at all, regardless of their potential importance for the general integration process.

To illustrate the significance of EU council meetings for defense matters, the Cologne European Council (June 1999) can serve as an example. This summit focused on the Petersberg tasks and stated its willingness to set up the necessary military capabilities:

"In pursuit of our Common Foreign and Security Policy, we are convinced that the Council should have the ability to take decisions on the full range of conflict prevention and crisis management tasks defined in the Treaty on European Union, the 'Petersberg Tasks'. To this end, the Union must have the capacity for autonomous action, backed up by credible military forces […]."[12]

Most importantly for the argument put forward in this article, the Council underscores the need to strengthen its own military capabilities and to more closely collaborate with the defense industry:

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[12] European Union Council 1999, Annex III: 27.

"We therefore commit ourselves to further develop more effective European military capabilities from the basis of existing national, bi-national and multinational capabilities and to strengthen our own capabilities for that purpose. […] We also recognise the need to undertake sustained efforts to strengthen the industrial and technological defence base, which we want to be competitive and dynamic. […] With industry we will therefore work towards closer and more efficient defence industry collaboration."[13]

These aims were specified in more detail by the Helsinki European Council (December 1999) in that EU member states agreed on the so called European headline goal: for EU-led operations member states were required to be able to deploy military forces of up to 50,000-60,000 soldiers capable of the full range of Petersberg tasks within 60 days and sustain for at least 1 year. The Council meeting in Brussels on December 12th 2003 agreed on a "European Security Strategy" in which member states point out that the EU should "develop a strategic culture that fosters early, rapid and when necessary, robust intervention" and needs "the full spectrum of instruments for crisis management and conflict prevention at our proposal, including political, diplomatic, military and civilian, trade and development activities"[14]. Indeed, what initially began at the Amsterdam summit in 1997 has resulted in the build-up of so-called European battle groups (EUBG), the EU's rapid reaction force. The EUBGs have reached full operational capability on January 1st 2007 and some conceive this as proof that "The European Union has quietly acquired what might be described as a standing army"[15]. Table 1 provides an overview of the meetings which were associated with important decisions to increase cooperation on the EDSP and the built up of military capabilities.[16]

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[13] European Union Council 1999, Annex III: 28.

[14] European Union 2003, 11.

[15] Anecdotal evidence about the lobbying behavior of defense firms underscores the idea that summit decisions which increased ESDP cooperation and strengthened the military arm of the EU benefit the European defense industry. For example, when the European Defence Agency (EDA), whose aim is to improve the EU's military capabilities, was approved by EU member states in 2004, Europe's three largest defense firms officially welcomed the creation of the body. They also took the opportunity to emphasize that "only through consolidating spending and research budgets can EU countries compete with rapidly expanding US defense budgets" and urged the EU "to have the new body identify holes in capability and push member states to increase funding to fill the shortfalls" (BBC: „New force behind EU foreign policy", March 15, 2007; http://news.bbc.co.uk/1/hi/world/europe/6441417.stm; 29.04.2008).

[16] These codings were checked by two experts in the field in order to increase inter-coder reliability.

- table 1 about here -

The decisions mentioned above resulted in what can be reasonably called significant steps in strengthening the military component of the EU. [17] Looking at all Council meetings, however, shows that there is considerable variance across the summits. While the ESDP and especially Europe's military capabilities played a role during other council meetings as well, these summits were far less successful in instigating further cooperation in this policy sector. For example, during the Göteborg European Council (June 2001) member states merely repeated what had been agreed on already, namely that "the European Union is committed to developing and refining its capabilities, structures and procedures in order to improve its ability to undertake the full range of conflict prevention and crisis management tasks"[18]. Also the Laeken summit (December 2001) and the treaty of Nice (2000) only emphasized the importance of enhancing the EU's military operational capabilities as a part of developing the European security and defense policy, which had been presented already by the Cologne summit in 1999. And finally, many Council meetings did not even touch issues of the ESDP and questions of the EU's military capabilities.

We argue that investors carefully differentiate between these differing outcomes of summit meetings: Summits which result in significant steps toward the built-up of a common ESDP and the creation of an "European army" should increase investors' expectations about future profits of the European defense industry ("good summits"). In contrast, summits which do not discuss the ESDP ("irrelevant summits") or merely repeat existing decisions without reaching an agreement that moves beyond what already is common knowledge ("bad

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[17] Financial Times: „EU defence agency approved", June 15, 2004, p. 8.
[18] European Union Council 2001: V: 11.

summits") should not bolster investors´ expectations. More precisely, there should be no "agenda effect", i.e. merely putting ESDP issues on the agenda should not affect investors' expectations about future performance of the European defense sector. As we subsequently elaborate, our theoretical framework has straightforward empirical implications we can evaluate using stock market reactions to summit meetings.

Summits and stocks: Using stock market reactions to measure the short-term economic effects of ESDP decisions

We have made an argument about the impact of ESDP decisions by the European Council on the future performance of the European defense industry. More precisely, we theorize that if a summit meeting results in an agreement that strengthens defense policy, since this increases expectations about demand for military products, such an outcome raises the expected profitability of the European defense sector. How can we empirically evaluate, whether this theoretical reasoning has explanatory power? Our evaluation strategy follows a growing body of literature which exploits stock market reactions to political events in order to learn about the effect of politics on the firms or sectors.[19] On stock markets, investors react to events only if these provide information that leads to an updating of their beliefs about the expected profitability of an asset. Consequently, return reactions to events can be used to uncover their economic effects, i.e. the economic winners and losers of political decisions.

On the micro (investor) level the standard discounted cash flow (or net present value) model suggests, that at time t, stock price S_t^i of sector i depends on its expected value $E[S_t^i]$, which equals the sum of all future sector dividends discounted to the present. Formally, with a continuous stream of cash flows, the expected value of the sum of discounted future sector dividends is:

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[19] Schneider and Troeger 2006, Guidolin and La Ferrara 2005, Abadie and Gardeazabal 2003, Pantzalis et al. 2000, Lang and Shackleford 2000, Gilligan and Krehbiel 1988.

$$E_t[S_t^i] = E_t \int\limits_t^{+\infty} e^{-k} D_k^i \mathrm{dk} \Big| \qquad , \tag{1}$$

where D_k^i denotes dividend payment at time k,   is a discount factor and   is the information set containing economic as well as political information on which investors condition their expectations. As t approaches infinity, $E[S_t]$ converges to S_t^i. Note that the size of a dividend payment D_k^i of sector i equals i's profits divided by the number of shares.[20] In other words, the profitability of an industry determines the amount of capital available to be distributed as stock dividends.

Clearly, the profitability of the European defense sector is strongly politically determined (defense firms rarely sell their products to private actors). Based on this assumption about the strong dependence of the defense sector on public demand, any change in the information set   will induce a change in the expected value of a defense stock investment through a change in the expected profitability of the European defense sector. If the expected value increases, investors will invest more in European defense stocks, leading to higher demand and thus to a higher price of defense stocks. If the expected value decreases, investors will re-allocate their capital accordingly, i.e. pull money out of the European defense sector. This decrease in demand for defense stocks of course leads to a lower stock price. Therefore, as we expect as relationship between "positive" EU summit outcomes and the profitability of the European defense industry, stock returns to European defense firms should react positively to "good summits".

Hypothesis 1: Summits outcomes which strengthen the ESDP lead to an increase in the return on defense stocks.

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[20] Miller and Modigliani 1961.

The cleanest test of our "summit outcomes matter" hypothesis would be to compare defense return reactions to summit meetings which merely discussed ESDP issues (or weakened ESDP cooperation) with reactions to European Council's that resulted in closer ESDP cooperation. This would provide us with an estimate of the effect of strengthening EU military cooperation on the European defense industry and is exactly what we will do in the empirical estimation.

Another rival explanation for the effect of summit decisions on defense sector returns' relative performance might be that these are driven by summit outcomes which are of general importance to European financial markets, i.e. if EU leaders reach agreements which are considered to be economically important more broadly in contrast to narrow decisions concerning the ESDP and the build up of EU military capabilities. In the empirical estimation we will carefully test our argument against rival and along with complementary explanations.

3. Data and Method

Data

We compiled a dataset comprising daily stock prices of seven major European defense firms from 1993 to 2005. Table 2 shows which companies are included in our sample along with their main products. To gain an impression of the economic importance of the European defense industry, note that these firms generated about 53 billion Euros turnover and employed more than 167,000 individuals in 2004. Daily stock prices were available from 1993 to 2005 for most firms (BAE Systems, Chemring Group, Finmeccanica, Thales, and VT Group) except for EADS (starting in July 2000) and Ultra Electronics (starting in October 1996).

- table 2 about here -

As one would expect, unit root tests clearly suggest that the stock price series are non-stationary, which means that these variables cannot be used for consistent estimation. We log-differenced the raw price series in order to obtain continuously compounded returns which we need also for theoretical reasons since our interest lies in evaluating the *return* reactions to EU summits. Results from non-parametric Phillips-Perron unit root tests indicate that the returns are stationary (see appendix, table A1).

An Event Study Approach

We conduct an event study to uncover the economic dependence of European defense firms from ESDP decisions during EU summit. Event studies are common in financial economics, where they have been used to study the economic effects of a wide range of political phenomena which affect shareholder wealth through their impact on firm and industry performance. In the political economy literature, this method has been applied to estimate the wealth effects of holding a seat in the U.S. senate or the value of political connections to the Suharto regime.[21] More recent applications use event study methods to assess the economic effects of violent conflict.[22]

A noteworthy objection against event studies is that efficient markets should anticipate political events, and therefore, any significant correlations with political variables is either spurious or evidence for markets not processing information efficiently. However, this argument misses that in a world of uncertainty, political events are almost never perfectly predictable. This is all the more plausible in our case for at least two reasons. First, the precise agenda of European Council meetings is frequently unknown beforehand. Investors therefore have a hard time predicting the agenda and can hardly anticipate the final outcome. Second, while EU summits have sometimes produced significant policy changes and pushed European

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[21] Ziobrowkski et al. 2004, Fisman 2001.
[22] Schneider and Troeger 2006, Guidolin and La Ferrara 2007, 2005.

integration, they often failed to achieve clear steps toward integrationist policy. This stop-and-go pattern makes prediction of EU council outcomes a difficult task, even if economic actors update their beliefs in a rational manner (and even if the precise summit agenda were known beforehand). Making predictions about outcomes on council decisions is complicated by the existence of information asymmetries between member states' governments and their incentive to engage in threats and bluffs.[23] Therefore, it is reasonable to assume that even efficient markets cannot perfectly predict EU council decisions. Consequently, our estimates of stock market reactions to council meetings are more likely to yield accurate results, which are not confounded by anticipation effects.[24]

Since it is the changes in stock prices which contain information about the changes in expected value of the underlying asset, we define the daily return R_t at time t as $R_t \equiv \ln S_t - \ln S_{t-1}$, where S_t denotes the stock price at t. Let $E\left[R_{f,t}|x_t\right]$ be the expected (or normal) return of firm f conditional on a set of covariates x_t. The normal return is the return we would expect in the absence of the EU Council meeting. Thus, the normal return is the counterfactual against which we compare observed return performance. Formally, the abnormal return $AR_{f,t}$ is defined as

$$AR_{f,t} \equiv R_{f,t} - E\left[R_{f,t}|x_t\right]. \tag{1}$$

In words, the abnormal return is the difference between the observed return and a control series of synthetic returns representing the return we would expect in the absence of a summit meeting given the covariates x_t.

An important task is to determine the normal return, i.e., the return we would expect if no summit took place. To generate our control series of synthetic returns we can distinguish

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[23] Schneider and Cederman 1994.

[24] Clearly, anticipation might nonetheless occur. But even then our estimates reflect short-term reactions to council meetings, although they might capture only a part of the effects Council meetings exert on defense firms. This means that our approach is conservative as it is likely that the true effect is underestimated.

two approaches. The first approach is the market model which relies on the capital asset pricing model (CAPM).[25] The second approach is based on arbitrage pricing theory (APT).[26] While the multi-index CAPM and the APT are related, the APT is more general as it relaxes some of the strong assumptions underlying the CAPM.[27] The APT starts from a simple, yet powerful idea: in equilibrium two assets which are different cannot be sold at the same prices. This is to say that in the world of the APT, assets adhere to the law of one price, since investors will immediately take advantage of any arbitrage opportunity.[28]

We apply a model which relies on the less restrictive APT, according to which the stock return is a linear function of the returns on other assets. More formally,

$$R_{f,t} = a + \sum_{j=1}^{J} b_j R_{j,t}, \tag{3}$$

where a is a constant, $R_{f,t}$ is the return to risky asset j at time t, and the b_j's (also called weights) reflect how changes in the return to asset j translate into changes in the defense return $R_{f,t}$. As investors will not leave any opportunity to profit from arbitrage unexploited, it is sufficient to select a subset of risky assets into the APT model, in order to determine normal performance of defense sector returns. Still, APT can be considered a more conservative version of the simple CAPM in the sense that more assets are used to estimate normal performance than just the market return. In our case the return to a general European stock market index, the U.S. stock market return (Dow Jones), Oil return, and the EURO-Dollar exchange rate were chosen to estimate the risk exposures. Results from Phillips-Perron tests show that these return series are stationary.

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[25] See MacKinlay 1997.

[26] See Elton et al. 2007, 367-373. Indeed, many event studies use some version of the capital asset pricing model, see e.g. Brady and Feinberg 2000, Campbell et al. 1997, MacKinlay 1997, Boardman et al. 1997, Cutler 1988.

[27] See Elton et al. 2007, 362.

[28] This assumes that investors have homogenous expectations and hold well-diversified portfolios.

Many summits take place on weekends. But no investor can rebalance his portfolio on Saturday or Sunday, and therefore, new information released during the meeting cannot be incorporated into current prices. Past research on politically induced abnormal returns has tried to circumvent this problem by interpolating returns in order to fill in missing values on non-trading days. However, this procedure is unlikely to adequately substitute for missing return observations. Instead, we opt for shifting events occurring on non-trading days to the next trading day, when investors are in fact given the opportunity to trade on the basis of the latest information released during or immediately after a summit meeting and therefore, in accordance with their updated beliefs.

To generate the synthetic return series that represents normal performance, we add an error term with a mean of zero and constant variance to (3) and estimate this equation within a $[-q,-20]$-estimation window, where q is set such that the distance between the previous summit and the subsequent estimation window of the following summit is at least 10 days. While this ensures that there is no overlap between the event or estimation window of the previous summit, a consequence is that we have to drop the Luxembourg summit (December 12th, 1997), a Council meeting in Copenhagen (December 12th, 2002), and a summit in Brussels (March 20th, 2003) from our analysis. However, this is advisable because it prevents the parameters from being confounded by event induced return effects. The beta weights are estimated on the basis of return observations q to 20 days (i.e., four trading weeks) prior to an EU Council meeting.[29]

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[29] The reason for letting the estimation window stop long enough before a summit occurs is that we have to prevent our estimates from being confounded by anticipation effects, e.g., due to information leaks. This is not just a theoretical concern. Politicians often publish information about summit topics and likely outcomes immediately prior to council meetings. For example, before the Lisbon summit in March 2000, then European Commission president Romani Prodi informed the public about European Union leaders having already reached agreement on creating an integrated EU venture capital market and fully integrated financial services markets in 2005. See Financial Times: "Prodi delivers upbeat message ahead of EU summit in Lisbon"; March 22, 2000, p. 1.

Based on the synthetic return series computed from the APT weights we compute two standard quantities which are useful for the empirical analysis. (I) The abnormal return $AR_{f,t}$ to defense firm f on day t and (II) the average abnormal return AAR_t, which is simply the mean return to defense firms at time t. Thus, the average abnormal return provides information about the relative return performance of the whole European defense sector while the abnormal return represents how the stock return on each individual European defense firm performed relative to the APT benchmark.

Key Variables

We created several variables in order to evaluate whether there is empirical support for our argument about the conditional relevance of summit meeting decisions for the European defense industry. Probably the cleanest way to test our argument is to compare defense return reactions to summit meetings which put defense issues on the agenda but then failed to reach stronger ESDP cooperation with those that indeed strengthened the EU's military capabilities. *Def agenda* is an indicator variable taking on the value 1 if the Financial Times (London edition) reported that the Council meeting will discuss issues related to the European Security and Defense Policy and equals 0 otherwise.[30] The use of information provided by the Financial Times to generate this variable is justified, as it can be considered to be the most relevant newspaper for investors interested in European financial markets.[31]

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[30] To generate this variable we performed a content analysis of the Financial Times (London edition) using the LexisNexis database. We proceeded in two steps. First, we performed a search for the keyword "summit" within the Financial Times in the week preceding the first summit day and manually identified those dealing with EU summit meetings. Second, within this subset of articles we performed a keyword search for "defense" OR "defence" OR "security" and then manually identified those which informed readers that the ESDP is likely to play a role during the upcoming meeting of the EU Council. In addition, we checked that during there were no other major events related to defense or security issues which occurred during EU summits, as this could lead us to wrongly attribute effects to Council meetings. From 1993 to 2005, there were no other major international events taking place during summit meetings one could arguably view to be relevant for the stock performance of European defense firms.

[31] Initially, we thought about distinguishing expectations according to whether investors expected a strengthening or weakening of EU military and defense cooperation. However, one of the findings from our content analysis in the Financial Times is that there never was a case in which FT commentators made explicit

The variable *Def good news* is central to our study of the economic effects EU summit decisions on the European defense industry. It equals 1 if the Council meetings resulted in increased ESDP cooperation and is 0 otherwise. More precisely, the results of the summit meetings summarized in table 1 are coded as providing "good news". Given our theoretical argument, we expect that this variable has a significantly positive effect on abnormal returns of the European defense industry, while the coefficient for the variable "Def agenda" should not be positive, i.e. either be indistinguishable from zero or significantly smaller than zero.

Control Variables

Another explanation for the effect of European summit decisions on defense sector returns' relative performance might be that these are driven by Council outcomes which are of general importance to European financial markets, i.e. if EU leaders reach agreements which are considered to be economically important more generally in contrast to narrow decisions concerning the ESDP and the build up of EU military capabilities. Since the defense sector is a particularly politicized industry, it might be that it also responds especially strong to European Council meetings in general. Thus, although we already account for general market movements by selecting several European financial assets into the APT model used to generate synthetic control returns, the defense industry could still be more sensitive to general economic decision made during Council meetings than the overall market. This is to say that we should account for summits that are important to the financial community in a more general way.

To that end we again performed a content analysis of the Financial Times during and after EU summits and created two variables intended to proxy for the extent to which a

predictions about what outcome one should expect from a Council meeting in terms of ESDP changes. Apart from that this finding underscores our impression that summit outcomes are inherently difficult to predict, there was no sound basis for further distinguishing expectations about summit outcomes with regard to the ESDP decisions.

Council meeting is important to financial actors in a general, defense-unrelated way. The rationale for using articles in the Financial Times is that this newspaper faces strong incentives to report more intensively about an EU summit the more important the meeting is to financial markets. The variable *Summit info bef* counts the number of articles published before an EU Council meeting that deal with the upcoming summit. *Summit info after* is the number of articles published after a summit meeting took place.

The European Union is a multi-level political system. This fact requires us to account for two major national political factors which may affect the stock market performance of the defense sector during or after an European Council meeting: elections and referenda. These partial foundations of the European defense sector in national politics can be deduced from the well developed literatures on the "two-level" nature of international decision-making and democratic responsiveness to public opinion.[32] Contributions to these research areas suggest that elections raise the hurdles for achieving integrationist decisions on summit meetings.[33]

Elections then function as a short-term corrective device: In order to appeal to their domestic electoral principals in the shadow of an election, political leaders slow down the pace of European integration. This is to say that summits which take place immediately before a national election are unlikely to result in progressive integrationist steps which would clarify the future of European cooperation in defense issues. A relatively similar logic applies to summits which take place prior to a referendum. The literature on direct democracy within the EU argues that domestic ratification procedures raise the hurdles for achieving policy change.[34] Therefore, simple strategic reasoning suggests that by way of anticipation, immediately prior to a national referendum investors should not expect leaders to agree on

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[32] Hug and Schulz 2007, Aarts and van der Kolk 2006, Hug 2002, Powell 2004, Putnam 1988, Schelling 1960.

[33] There is a distinct gap between ideal policies of voters and parties. Regarding the European dimension, party elites are generally more in favor of integration than their electoral supporters (Mattila and Raunio 2006).

[34] Hug and Schulz 2007, Brouard and Tiberj 2006, Schneider and Weitsman 1996.

summit decisions which deepen integration in such a publically sensitive field as military affairs. To account for these factors, we created the indicator variable *Election* which equals 1 if an election is scheduled in one of the three major member states France, Great Britain, or Germany and 0 otherwise. A second binary indicator (*Referendum*) discriminates between summits which took place in the shadow of a scheduled EU referendum and those which did not.

The literature on decision-making in the European Council suggests, that the predictability of decisions made during summit meetings should also depend on the preferences of key member states regarding European integration.[35] The more key member states are in favor of strong integrationist steps, the more investors can expect a summit meeting to result in significant ESDP changes from which the defense sector benefits. The variable *EU Integration* uses data from the Comparative Manifestoes Project (CMP) as a measure of governments' ideal point regarding more or less integration (higher values indicate a preference for more integration).[36] One might argue that the EU dimension is inappropriate when it comes to questions of defense policy. Since defense issues lie at the heart of conservative politics, it is the classical left-right dimension which determines whether a government is in favor of building up a strong military component on the European level. We will address this concern in the robustness section.

Several additional control variables were created to account for influences from other factors. First, the predictability of summit decisions, and in turn the effect of summit meetings on European defense return performance, may also be affected by the European level of defense expenditure. For example, DiPietro et al.[37] show that in the US and the UK, military expenditures and stock market returns are correlated. Also, expectations about future defense

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[35] König and Pöter 2001, Schneider and Cederman 1994, Moravcsik 1993, Bulmer and Wessels 1987.

[36] In the CMP data set the variable "per108" measures preferences toward EU integration.

[37] DiPietro et al. 2008.

spending levels may influence how defense returns react to European Council meetings. As Nikolaidou[38] shows by using autoregressive distributed lag models for 15 EU member countries, there is an extremely high degree of persistence in defense spending behavior, i.e. current spending behavior is a very good predictor for future defense expenditure. In order to proxy for expectations, *Defense exp* measures average defense spending in billion Euros.[39] One might also argue that it makes a difference whether a summit is extraordinary or not. To address this concern, *Extra summit* indicates whether a Council meeting is extraordinary or not.

Since our data is time series cross-section, we need to decide whether to use a fixed or a random effects model. For each model we used the Hausman test to asses whether (more efficient) random effects estimates significantly differ from those of a (consistent) fixed effects model. According to the results, there is no systematic difference between the coefficients from fixed and random effects models. Therefore, random effects, which offer higher efficiency, can be used without running danger of relying on biased results.

4. Results

We evaluate our argument empirically on the sector level first by analyzing the average abnormal defense return, i.e. the relative return performance of the European defense industry. To that end average abnormal returns (I) from a [-1,5]-event window are regressed on a reduced (reduced model) and a full (full model) set of explanatory variables. Our measures of EU key member governments are added in the full model to see whether the results remain robust. Since graphs help to more efficiently communicate our results along with measures of uncertainty, we follow Kastellec's and Leoni's recommendation and present

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[38] Nikolaidou 2008.

[39] The data was taken from the web pages of the Stockholm International Peace Research Institute.

our regression estimates graphically.[40] Figure 1 shows the results. The dots represent generalized least squares (GLS) point estimates and the horizontal lines indicate 90 percent confidence intervals computed from Huber and White (heteroskedasticity robust) standard errors. Note that since the synthetic control returns are estimated on the basis of the APT model specified above, all regressions implicitly "control" for economic variables (European stock market performance, U.S. market return, Oil return, EURO-Dollar exchange rate).

Does it matter for defense sector performance, if European leaders put the ESDP on the agenda of a summit? As can be seen from figure 2, the answer is no. Since abnormal defense sector returns are not significantly affected by these summits, we conclude that there is no "ESDP agenda effect". Of course, this is precisely the first part of what one would expect given our theoretical reasoning which predicts that summit *outcomes* matter: Only summits which result in increased defense policy cooperation should be beneficial for the order books of European defense industry and thus their profits. Consequently, given markets which process information efficiently, only these summits should trigger an increase in the relative return performance of the defense sector. As can bee seen from figure 1, the empirical evidence supports this argument: The coefficient for the variable "Def good news" is significantly greater than zero. The point estimate suggests that summits which strengthen ESDP cooperation significantly increase average abnormal defense sector returns by about 0.4 percentage points on average. At first glance, this result seems moderate in terms of magnitude. Yet, this impression is misleading. To gain an impression of the monetary dimension of this estimate, we collected data on the market capitalization of the European defense sector. This data is available from 1997 to 2005. Based on this information we can say that an 0.4 percentage point change in sector returns equals a change of about 3.8 billion

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[40] Kastellec and Leoni 2007, Tufte 1983.

Euros in market value. Thus, even seemingly small return reactions may represent considerable wealth effects.

- figure 1 about here -

The point estimates for the summit information variables ("summit info bef" and "summit info aft") are extremely close to zero, yet with very small confidence intervals. This suggests that even if Council meetings which achieve agreements important to the European financial community in general affect the defense sector differentially, this effect is much smaller than that of summit meetings which strengthen ESDP cooperation.

According to the results from our fully specified model, also elections seem to matter: Summits taking place in the shadow of a national election increase abnormal defense sector returns. We believe that that this is largely a consequence of the fact that in the three countries included here either the European Union was at the time under examination not a major topic or that the outcome of the election could relatively easily be anticipated. The latter explanation is all the more plausible, since the availability of polling data enables investors to form expectations about the likely outcome of an election. While there is empirical evidence that elections matter, the results suggest that referenda do not. In both the reduced and the full model the estimate is not significantly different from zero.

Robustness

Our analysis so far has been at the industry level. Do the results remain robust if we further disaggregate the data and analyze the return performance of individual European defense companies? Figure 2 allows us to answer this question. First note that the coefficient for "Def agenda" is negative and not significantly different from zero. Thus, it seems that Council meetings which merely produce "hot air" with regard to the ESDP do not lead investors to

expect European defense firms to be more or less profitable on average. Most importantly, the estimates again suggest that summits during which European leaders agree on strengthening ESDP cooperation significantly increase the return performance of the individual European defense firms. According to the full model, "good news" summits increase abnormal defense returns by about 1.3 percentage points on average. This lends support to the view that investors carefully evaluate the consequences of EU summit decisions for the profitability of European defense firms, leading to the differences in how substantial decisions made during EU Council meetings impact abnormal defense returns.

- figure 2 about here -

Obviously, at the level of the individual firm also elections and referenda play a role for the European defense sector, as the significant point estimates indicate. Summits which take place in the shadow of a national election increase the relative return performance of individual defense firms. Referenda have the opposite effect. This finding might be due to differences in the information available to investors about these political events. In particular, not only may EU issues have been neglected in national election campaigns, investors also are more likely to have more experience in forming expectations about the likely outcome of an election, but not (yet) in predicting referenda.

To further examine the robustness of the results we re-estimated the effect of summit outcomes on abnormal defense and average abnormal defense returns varying the operationalization of our preference measures. One might argue that in the case of defense policy, it is the ideological position of a government on a left-right scale which matters and not its stance toward European integration. Therefore, we re-estimated all models using two different measures of left-right ideology instead of preferences for European integration (see

Appendix, table A2, models I and II). The first measure was again taken from the CMP data. The second measure is the Schmidt index as contained in the comparative political data set 1960-2005.[41] This five scale measure (govparty) distinguishes between ideologically different cabinet compositions and ranges from "hegemony of right-wing (and centre) parties" (1) to "hegemony of social-democratic and other left parties" (5). The coefficient of the summit outcome variable (Def good news) remains positive and statistically significant. Thus, summits which are associated with increased defense and military cooperation induce higher abnormal defense returns. In models III and IV we repeat the estimations with average abnormal defense returns as our dependent variable. "Good summits" are associated with an increase in the relative return performance of the defense industry of about 0.4 percentage points on average. Therefore, our substantial conclusions remain the same.

6. Conclusion

The destiny of the European defense sector has always been closely related to the history of European integration. In the past years, the organization has strongly increased cooperation in defense and security policy and has built up its own military capabilities; this development contradicts the view that the process of European cooperation is unlikely to encroach upon defense policy making. Some commentators described this remarkable and still relatively unnoticed trend as "raising the flag for Europe's army".[42] Defense issues frequently play a central role during council meetings with summit outcomes being difficult to predict while at the same time they are crucial to defense companies as these highly depend on official demand for their products. We exploit reactions of defense stocks to European summits in order to examine the impact European supranational decision-making has on an economically

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[41] Schmidt 1992; Armingeon et al. 2008.
[42] Financial Times, December 10, 1999, p. 21.

and politically important industrial sector and the extent to which investors discriminate between the content of summit outcomes.

We argue that since European defense firms' order books are almost exclusively a function of politically determined demand, investors should carefully evaluate the outcome of EU council meetings. Therefore, stock market reactions to European summits should be conditional on their outcomes: Only if European leaders agree to deepen cooperation in ESDP expected profits to the defense industry should increase, which the stock market will reflect with an increase in the relative return performance of defense stocks. In contrast, summits which merely put ESDP issues on their agenda should not systematically affect the return performance of the European defense sector.

Our results suggest that decisions made during EU summits are indeed potentially important for defense sector performance. We find robust empirical support for defense return reactions to summit meetings being conditional on their outcomes. Only council meetings which result in deeper ESDP cooperation trigger positive abnormal returns worth about 3.8 billion Euros. We conclude that EU summits have indeed become key events for investors as well and therefore have important short-term economic repercussions. This finding clearly contradicts the view that EU council meetings are just "talk shops" which lack any informational value and therefore are ignored by financial markets. Rather, it seems that investors on financial markets have realized that EU summit decisions and most likely other major diplomatic events matter if the summit addresses key concerns of a particular industry. If summits are likely to produce results relevant for market, traders carefully evaluate the outcomes of these meetings. Our results therefore encourage future research to further look into the short-term economic effects of international diplomacy and key EU decision-making.

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**Table 1: Strengthening the ESDP and Europe's military capabilities: EU Council meeting decisions 1993-2005**

Summit	Summit Date	Outcome
Amsterdam	16.06.97	Petersburg Tasks; treaty signals the progressive framing of a common security and defense policy based on the Petersberg tasks.
Cologne	03.06.99	Build up of military capabilities; European Union leaders agree that the EU should have its own military capacity to tackle regional crises in Europe, backed by sources of intelligence and capabilities for analysis and strategic planning.
Helsinki	10.12.99	Agreement on "European headline goal" specifying the need for a rapid response capability, adding a security and defense arm to the EU (capacity to have a corps of up to 60,000 men on peace-keeping operations).
Brussels	12.12.03	Summit approves the European security strategy ("A Secure Europe In A Better World"), formulating for the first time a common security strategy for Europe.
Brussels	17.06.04	European Battlegroup (EUBG) Concept: EU military forces under direct control of the Council, each consisting of approximately 1500 combat-ready soldiers deployable within 15 days of approval from the European Council.

Table 2: European defense firms

| Name	Main Products	Turnover/Employees (2004)
BAE Systems	Combat aircrafts, armored combat vehicles, major and minor caliber naval guns, missile launchers, artillery systems, intelligent munitions, submarines, naval ships, electronic warfare systems, military air support, air defense	12 billion € / 19.000 employees
Chemring Group	Countermeasure products: expendable decoys/obscurants against radar, infra-red and electro-optically directed weapons, pyrotechnics, pyro-mechanisms, medium and large calibre ammunition, rocket motors, gas generators, initiators and actuators.	110 million € / 42,537 employees
EADS	Military transport aircrafts, helicopters (reconnaissance, observation, fire support, protection combat mission), airborne ground surveillance	€ 30.1 billion € / 111,000 employees
Finmeccanica	Helicopters, missile systems, torpedoes, naval artillery and armored vehicles, military communications,	11 million € / 56,600 employees
Thales	Air defense command and control systems; systems for surveillance, reconnaissance, and combat; vehicle and soldier systems	10.3 billion € / 20,000 employees
Ultra Electronics	Military radios; submarine communications equipment; cryptographic equipment; armored vehicle systems; combat system for minor warships; naval power systems	392 million € / 2,673 employees
VT Group	Naval ships; military transmission and communications infrastructure; asset management of naval ships, military aircraft and vehicles	850 million € / 8,683 employees

Information taken from firms' web pages. Turnover and employee figures taken from firms' publicly available profit and loss statements.

Figure 1: Regressions of average abnormal defense returns (AAR(-1,5)) during EU summits, 1993-2005
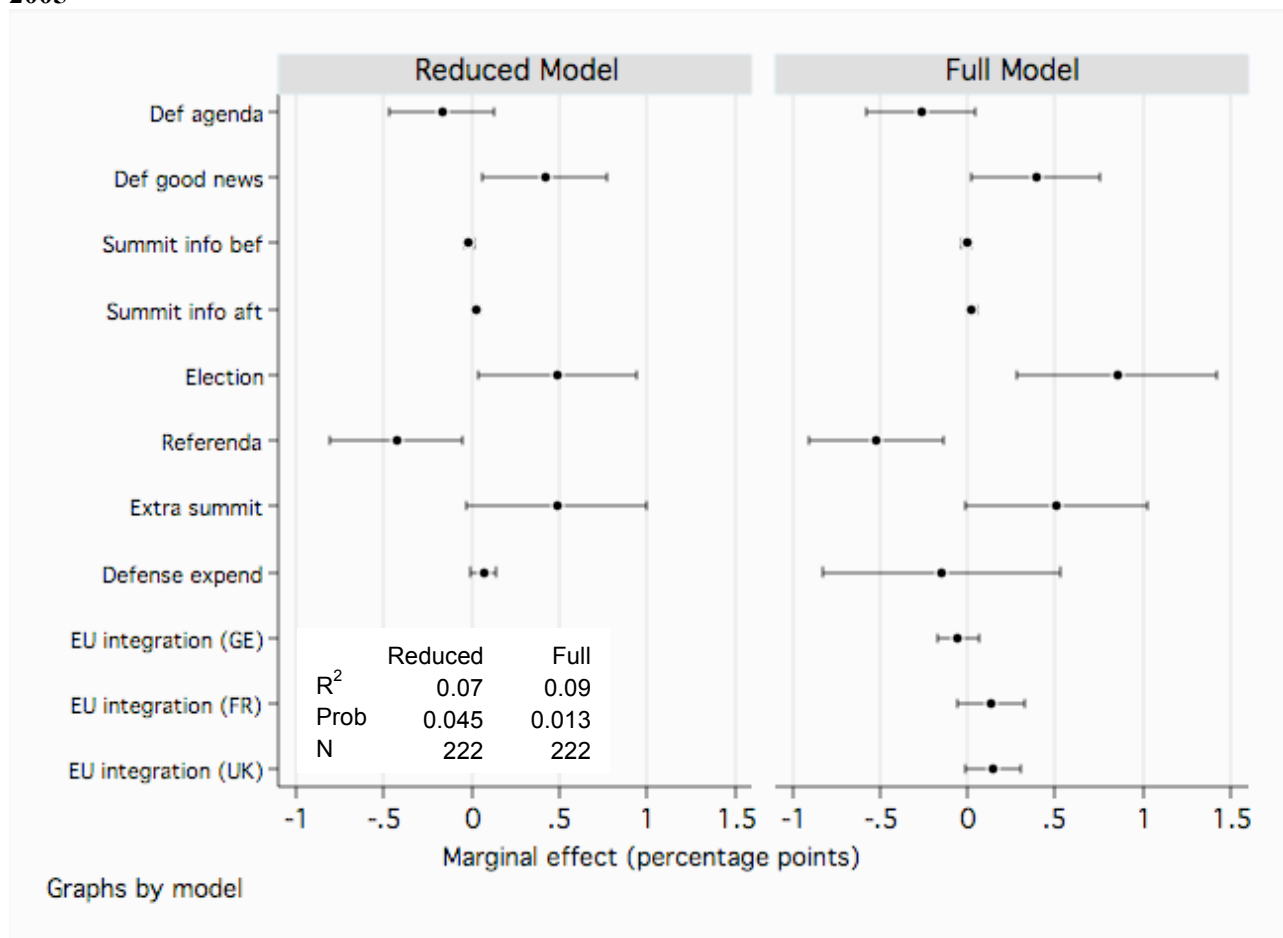
GLS point estimates (with random effects) shown together with 90 percent confidence intervals computed from Huber/White (heteroskedasticity robust) standard errors. Constant included but not reported.

Figure 2: Regressions of abnormal defense returns (AR[-1,5]) during EU summits, 1993-2005
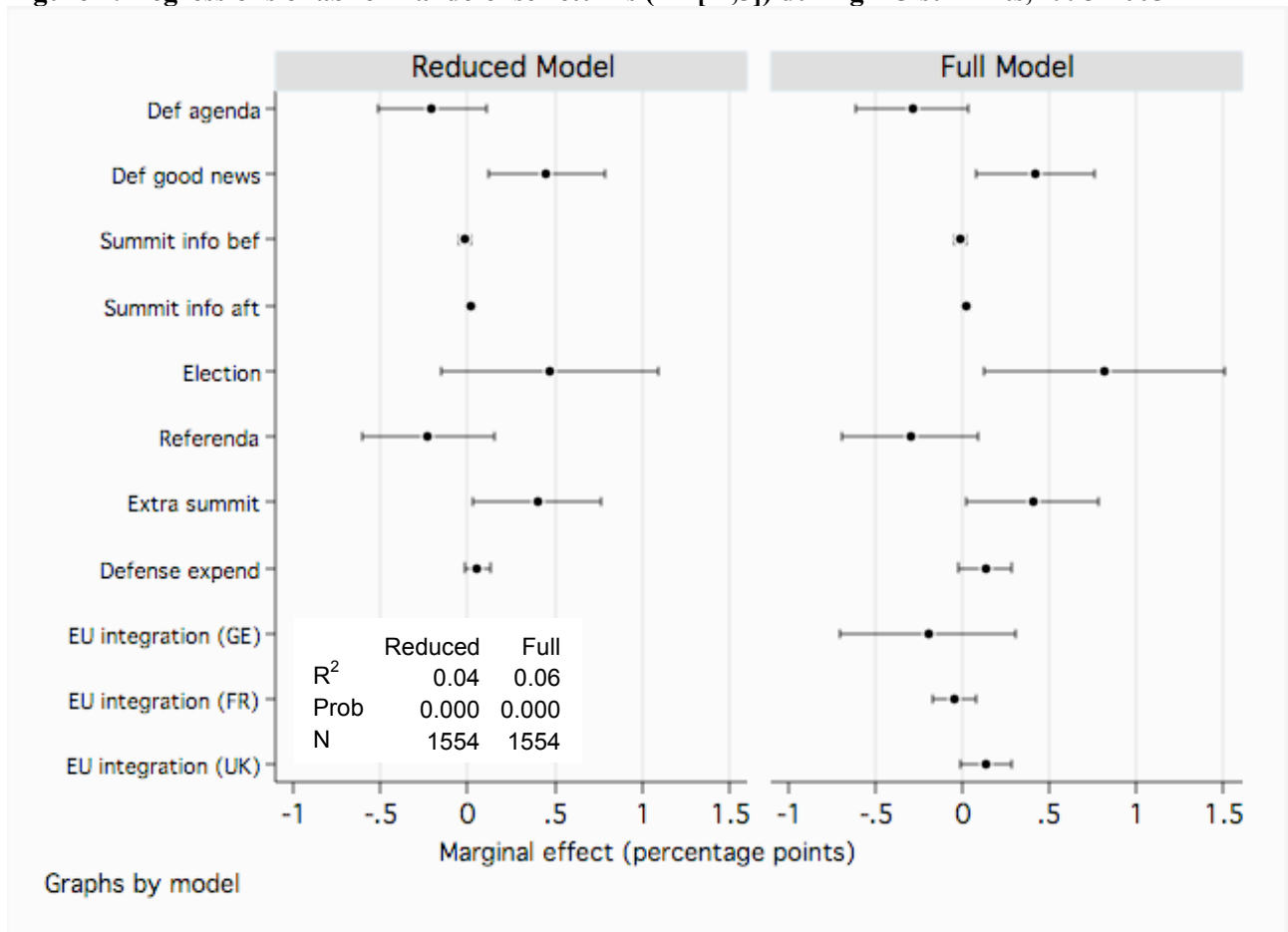
	Reduced	Full
R^2	0.04	0.06
Prob	0.000	0.000
N	1554	1554

GLS point estimates (with random effects) shown together with 90 percent confidence intervals computed from Huber/White (heteroskedasticity robust) standard errors. Constant included but not reported.

Appendix

Table A1: Results from non-parametric (Phillips-Perron) unit root tests

Variable	Test statistic
BAE stock return	-52.17***
Chemring stock return	-33.48***
EADS stock return	-50.56***
Finmeccanica stock return	-54.34***
Thales stock return	-60.47***
Ultra stock return	-44.90***
VT stock return	-49.42***
EU bond (	-40.71***
Euro-Dollar exchange rate (	56.65***
Interest rate (	-88.16***
Summit info bef	-7.10***
Summit info after	-6.01***

Test statistic shown. Models include constant. ***, **, and * denote statistical significance at the .01, .05 and .10 level, respectively, applying MacKinnon critical t-values.

Table A2: Robustness: Regressions of abnormal defense firm returns (AR[-1,5]) and abnormal defense sector returns (AAR[-1,5]) during EU summits, 1993-2005

	I	II	III	IV
Dependent variable	AR	AR	AAR	AAR
Measure of government's ideal policy	on left-right dimension	Schmidt-index	on left-right dimension	Schmidt-index
Def agenda	-.285 (.196)	-.296 (.195)	-.273 (.191)	-.275 (.193)
Def good news	.450** (.198)	.413** (.200)	.411* (.214)	.381* (.218)
Summit info bef	-.005 (.019)	-.003 (.019)	-.005 (.019)	-.003 (.019)
Summit info after	.019 (.013)	.019 (.013)	-.025* (.013)	.025* (.013)
Election	.802* (.409)	.863** (.407)	.852** (.332)	.919*** (.318)
Referendum	-.303 (.233)	-.273 (.234)	-.526** (.241)	-.499** (.232)
Extra summit	.436* (.221)	.382* (.227)	.529* (.310)	.484 (.314)
Defense expenditure (European average)	.009 (.076)	.131 (.095)	.124* (.072)	.151* (.086)
Policy position GE	.004 (.009)	-.051 (.048)	.001 (.010)	-.042 (.069)
Policy position FR	.018 (.009)	.041 (.066)	.025 (.037)	.047 (.059)
Policy position GB	-.012 (.008)	.139** (.059)	-.014 (.009)	.141* (.075)
Constant	-4.347 (3.241)	-6.607 (4.556)	-5.420* (3.109)	-7.565* (4.121)
R^2	.02	.01	.09	.09
Prob	.003	.003	.016	.023
N	1554	1554	222	222

Cell entries are generalized least squares estimates with random effects and Huber/White (heteroskedasticity robust) standard errors. ***, **, and * denote statistical significance at the .01, .05 and .10 level, respectively.

Table A3: Regression of abnormal defense firm returns (AR[-1,5]) during EU summits, 1993-2005

Dependent variable	AR
Measure of government's ideal policy	on EU integration
Standard errors	Newey-West (maximum lag=1)
Def agenda	-.284 (.190)
Def good news	.422* (.219)
Summit info bef	-.005 (.018)
Summit info after	.021* (.012)
Election	.817*** (.309)
Referendum	-.297 (.250)
Extra summit	.407 (.326)
Defense expenditure (European average)	.132 (.089)
Policy position GE	-.193 (.336)
Policy position FR	-.048 (.071)
Policy position GB	-.139 (.091)
Constant	-5.326* (2.959)
R^2	.01
Prob	.016
N	1554

Cell entries are generalized least squares estimates with random effects. ***, **, and * denote statistical significance at the .01, .05 and .10 level, respectively.

Table A4: Descriptive statistics for EU integration preferences

Variable	Mean	Std. Dev.	Min	Max
Policy position GE	5.89	.42	5.26	6.37
Policy position FR	1.09	1.40	0	5.1
Policy position GB	2.80	1.22	.20	3.37

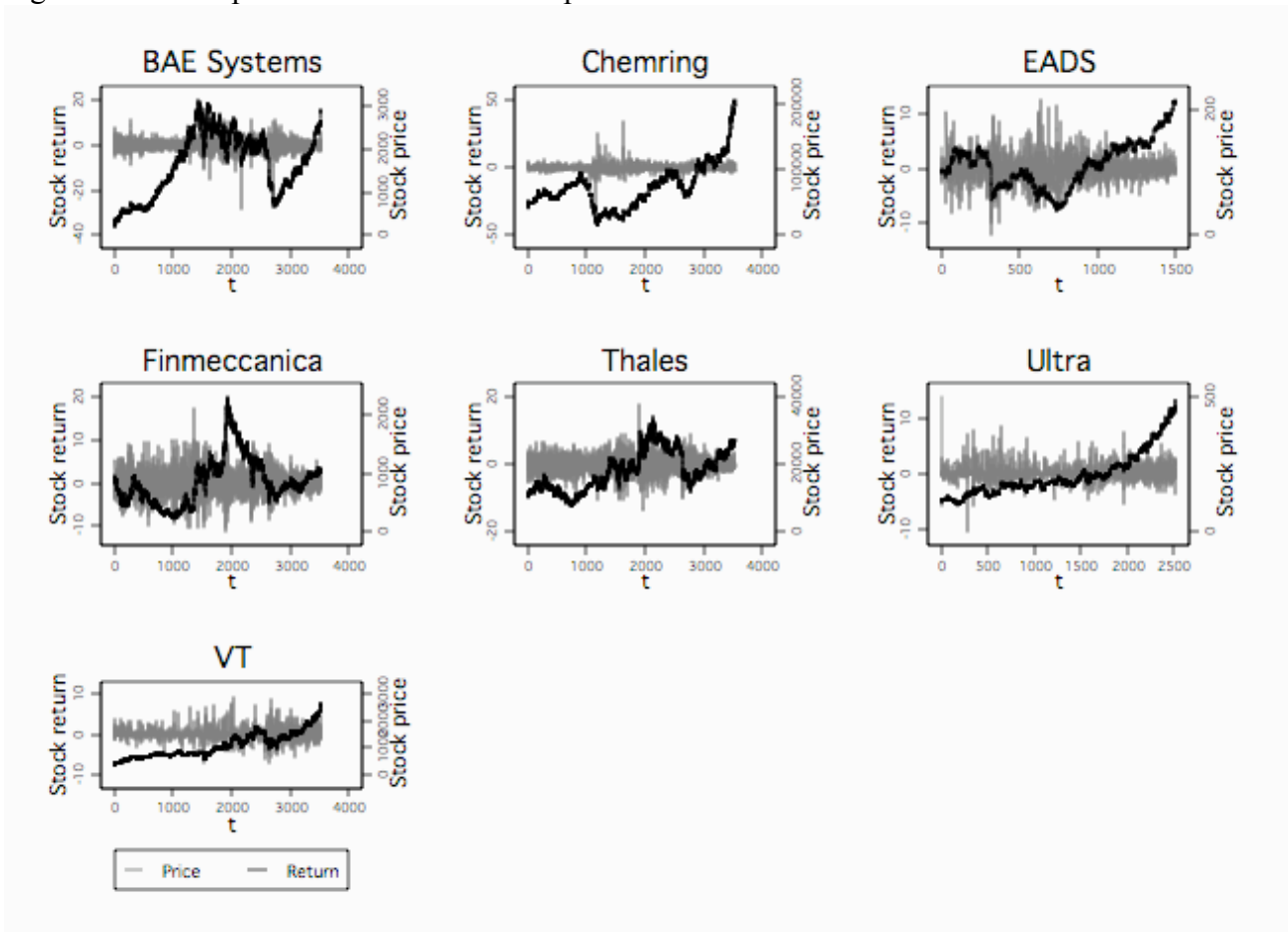Figure A1: Stock prices and returns of European defense firms

Figure A2: Abnormal defense sector returns during EU summits in percent by event time, 1993-2005