Economic Surveillance and Financial Markets

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B.A., M.A.

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Supervisor:

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Declaration

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Table of Contents

List of Abbreviations

ABT	Arbitrage Pricing Theory
BIS	Bank of International Settlements
CAR	Cumulative Abnormal Return
CAPM	Capital Asset Pricing Model
CDS	Credit Default Swap
EDRC	Economic and Development Review Committee
EEC	European Economic Community
EFC	Economic and Financial Committee
ESO	Economic and Social Organisation
EU	European Union
G5	Group of Five
GDP	Gross Domestic Product
GFG	Going For Growth
IEO	International Economic Organisation
IMF	International Monetary Fund
IO	International Organisation
IEO	International Economic Organisation
IPE	International Political Economy
IR	International Relations
LIBOR	London Interbank Overnight Rate
MIP	Macroeconomic Imbalance Procedure
OECD	Organisation for Economic Cooperation and Development
OEEC	Organisation for European Economic Co-Operation
PIN	Public Information Notice
ROSC	Reports on the Observance of Standards and Codes
SDDS	Standards for Data Dissemination
UN	United Nations

VIX	Chicago Board of Options Exchange Volatility Index
WTO	World Trade Organisation
WW1	First World War

List of Tables and Figures

Table 9.1 Results of Breusch-Pagan Test (IMF and EU Surveillance) 254
Table 9.2 Determinants of Absolute CARs (IMF and EU Surveillance) 255
Table 9.3 Determinants of Absolute CARs (IMF Surveillance) 256
Table 9.4 Determinants of Absolute CARs (EU Surveillance) 257
Table 9.5 Determinants of Absolute CARs (PIIGS) 258

Economic Surveillance and Financial Markets

Elliott Doak

International organisations such as the EU, IMF, and OECD represent some of the most powerful institutions in the global economy. All three survey their members in a process designed to detect economic threats and evaluate domestic policy. This is one of the most important tools available for preventing financial crises. Each IO uses a combination of peer and public pressure to stimulate reform among its members. While scholars have begun to examine the surveillance function of IOs in greater detail, many questions remain. Specifically, we have a relatively low understanding of the impact that economic surveillance has when released to the public. This thesis examines the impact of economic surveillance on a crucial set of public stakeholders – financial market participants. Most research that has explored this question previously has conceptualised surveillance by IOs differently. Additionally, these studies have also only examined reactions to surveillance by one organisation. By using an event study method that captures unexpected financial market reactions to surveillance by three IOs over a 17 year period, this study illuminates the relationship between IOs, domestic governments, and financial market participants. Furthermore, this research adds to the growing body of literature that is concerned with the role of IOs as providers of information in the global economy.

1. Introduction

International organisations such as the European Union (EU), International Monetary Fund (IMF), and Organisation for Economic Co-operation and Development (OECD) represent some of the most powerful actors in the global economy. In 2017, 34 countries are currently drawing on some form of IMF credit, while membership of the organisation is nearly global (IMF, 2017c). The EU is comprised of 28 members, including some of the most financially and politically important sovereigns, while it also represents the world's largest single market. The OECD draws on expertise from both its 2500 secretariat staff and across its membership of 35, primarily advanced industrial economies (OECD, 2017a).

Since the inception of these IOs, their work has evolved and proliferated greatly. In this study, I focus on only one of these functions, economic surveillance of members, examining specifically its influence on the global economy. However, other operations of IOs have been at the centre of a spirited debate among a range of stakeholders. In the case of the IMF, its lending and conditionality arrangements have been the subject of intense criticism (e.g. Stiglitz, 2002). While others have noted however that abandoning conditionality should be avoided (Bird, 2001). Additionally, other studies have found that IMF programmes are generally good for economic growth (Bird and Rowlands, 2017). Sentiment surrounding the EU extends even further into the social fabric of whole societies. The recent referendum that saw the UK electorate vote to leave the Union is just one example of how EU integration has divided opinion. Such elemental debates have also been coupled with contestation over particular policies within the EU. One example of this is the common agricultural policy that supports domestic production within the union (Borrell and Hubbard, 2000). Conversely, the OECD, whose influence over domestic and international policy making is far smaller than the EU or IMF, has been the subject of more fundamental questions. Scholars in this realm have even argued that the organisation is ineffective in its current format, and that it may be "too late" to change the path the OECD has forged for itself in this regard (Clifton and Diaz-Fuentes, 2011: 310).

These factors, and the various debates they have sparked demonstrate that IOs such as these perform highly specialised roles in the global economy. Furthermore, it is clear that IOs hold a unique ability to influence domestic policy making among their members. Scholars have referred to the IMF for example as the most important financial institution in history (Stone, 2002: 1). Despite an abundance of research that has theoretically (Drezner, 2003; Dai, 2007) and empirically (see Steinwald and Stone, 2008 for a review of one aspect) sought to examine the ways in which IOs exert influence, many questions still remain on this topic. Researchers have characterised the ability of IOs to influence domestic policymaking through 'carrot and stick' strategies (Breen, 2013: 183). Alternatively, others have argued that the influence of IOs extends far beyond such circumstances (e.g. Dai, 2007). In this sense, understanding the extent to which IOs directly influence the world in which they operate is an ongoing process. That this question has remained interesting for scholars stems from the fact that the operations of IOs are becoming more robust, diverse, and globalised (e.g. IMF, 2014), and correspondingly, the number of stakeholders in these processes is increasing. Scholars of IOs, therefore, face a difficult task in trying to keep pace with developments in IOs, international cooperation, and the global economy in general.

Economic surveillance produced by IOs is a prime example of this problem. Surveillance is designed to maintain stability and foster growth in the global economy. To this end, the operation is intended to detect threats, and influence governments to reform their economies in such a way that financial stability is no longer threatened. However, to date, few scholars have sought to examine this influence empirically. Additionally, researchers are continuously exploring how economic surveillance exerts influence on one of the most important sets of stakeholders in the global economy; financial market participants (Edwards, Denbow, Elkarrimy, 2012; Glennerster and Shin, 2008; Fratzscher and Reynaud, 2011). I build upon these studies to explore this question in detail.

In this dissertation, I will examine the way in which surveillance is produced, the content it contains, and the ways in which markets react to it. This will help policymakers to make more informed judgements regarding surveillance in the coming years. By testing the

impact that economic surveillance by three of the largest and most influential IOs in the global economy has on financial markets, this research aims to fill an important gap in the literature on IOs. Firstly, the size and importance of capital markets have grown exponentially since the inception of the IOs studied in this research. Additionally, their growth has largely taken place in recent decades. Issuing sovereign debt on international markets is one of the most efficient ways that governments can raise capital for investment in their economies. However, the speed at which financial markets operate now is far greater than it was even 10 years ago (Lewis, 2014). Sovereign debt markets now represent "daily judgements" of the ability of governments to issue and repay these debts (Ferguson, 2009: 69). As a result, sovereigns can more readily suffer from crises of confidence, fuelling self-fulfilling financial crises (Cole and Kehoe, 2000: 1), this was evident during the most recent Eurozone debt crisis. This research question should be of crucial interest for governments seeking to access credit on international markets. It should also be of interest to financial market professionals, who are often forced to consider the impact of news on others in the market, rather than what it means for the fundamentals of the asset itself (Devenow and Welch, 1996).

Secondly, the most recent global financial crisis has led to a lively and ongoing debate over surveillance in the global economy. International organisations such as the IMF have been criticised even internally for their inadequate assessments of risk in the run-up to the crisis (IEO, 2011). However, such criticism is not new, with the internal evaluation office of the IMF noting failures such as these as far back as the Argentine sovereign debt crisis in 2001 (IEO, 2004). The second main research question seeks to examine how the content of economic surveillance reports by the EU and IMF impacts on market reactions to their release. This question speaks directly to the debate on the effectiveness of economic surveillance. Economic surveys are released to the public as both an exercise in transparency (IMF, 2017b), and also to maximise pressure on members of IOs to enact the prescribed reforms. However, we have a relatively low understanding of the direct impact of economic surveillance in this regard. It is likely that economic surveillance releases have a significant impact on domestic public opinion, or on domestic political competition. Yet

financial markets are an area in which not only would one expect the impact of surveillance to be greatest, but they also represent an area in which impact can be directly and immediately observed. In this sense, policy makers at IOs themselves are presumably aware of this possibility, but may be unaware of the empirical implications. If surveillance is designed to promote reforms that ensure stability and growth, the reactions of financial market participants are an ideal way to test the perception of surveillance as an effective tool in achieving this. In this study, I provide a comprehensive background section that details the procedures involved in the production of surveillance by the EU, IMF, and OECD. I pair this background research with robust empirical analysis of the impact that surveillance has on financial markets to illuminate our understanding of this topic.

Third, the current economic climate is one in which surveillance can play a crucial role. Economic growth since the end of the global financial crisis has been heavily determined by the unconventional monetary policies of central banks (El-Erian, 2017). This has been coupled with the fact that investors have become reliant upon central banks to calm financial markets when uncertainties arise (MacKenzie, 2017). The gains from growth in the advanced industrial economies and the stock market in recent years have been unevenly distributed among their populations (Dabla-Norris et al, 2015). Wealthy sections of society have accumulated most of the wealth that has generated in the past years, while wage growth has been minimal or stagnant for other groups (OECD, 2016). These factors have led to populist backlashes in electoral cycles, and an increased scepticism towards financial integration. Policy makers in the domestic governments of advanced industrial economies now face important decisions on several fronts. They are faced with tackling not only cyclical challenges, but also structural and political ones. As the main drivers of economic activity, these factors have huge implications for growth in the wider global economy. Economic surveillance by international organisations should be able to act as a crucial platform to aid members in tackling these decisions. The OECD, in particular, should be ideally placed to generate policies to best tackle these issues. The IMF has greater experience in implementing policy reforms in conjunction with members, while the EU will negotiate the dynamics of policy reform in an already integrated regional economy. A

greater focus on economic surveillance in the coming years therefore is paramount for maintaining both economic growth and political stability.

Lastly, this study should be of considerable interest to scholars in a range of different, but interconnected disciplines. While my study falls squarely within the confines of quantitative political economy research, the topic, methodology, and subject area lend themselves to a wider audience. As the scope and invasiveness of economic surveillance expand (IEO, 2017), this presents new and exciting research opportunities. From an IR perspective, surveillance represents a valuable piece of international cooperation. For economists, surveillance represents an ideal platform for the dissemination of new and important research. Naturally, for political economists, economic surveillance represents one of few highly important, yet relatively understudied operations in the global economy today.

1.1 International Organisations in the Global Economy

International organisations are an integral part of the contemporary global economy. The three IOs studied in this research cumulatively hold near-global membership, with operations that cut across areas such as domestic policy making, cross-border trade, international law, and even security. Specifically, IOs are designed to perform specific roles, solicit compliance with varying degrees of enforcement, and overcome challenges to international cooperation that states alone cannot (Koremenos; Lipson; Snidal; 2001). In this study, I focus on one function of three different international organisations; economic surveillance. However, the EU, IMF, and OECD all have a far more broad and diverse role in the global economy more generally.

The IMF's role and influence is unique. Firstly, the organisation has a defined mandate that tasks it with maintaining financial stability and promoting economic growth. It pursues this agenda through three primary functions, the first of which is surveillance. Originally, the IMF was created to monitor compliance with the fixed exchange rate system developed at the Bretton Woods conference in 1944. The system in itself was designed to

ensure a more stable economic system in general, with the IMF to perform "firm" surveillance over this experiment. Currently, the IMF surveys its members, but focusses on their economies more generally. Monitoring the global economy is performed by the IMF in a number of ways. Bilateral economic surveillance that takes place between the staff of the IMF and its members on an annual basis is the focus of this study. This process involves official delegates from the IMF being despatched to members of the organisation. During these visits, staff from the IMF meet with a broad range of stakeholders in the economy, such as government and central bank officials. They also attempt to meet with additional groups like members of the business community and labour unions. The results of these exercises are used to form appraisals of the economy being surveyed. Such appraisals represent the extent to which the IMF believes a member needs to enact reforms in its economy. The IMF also has a rich history of extending credit to countries facing actual and potential balance of payments crises. As part of this particular function, an IMF member enacts and promises to enact future reforms in exchange for access to a common pool of resources at the organisation. These two functions, and the processes around them, demonstrate that the IMF is afforded a unique level of access to domestic policymakers. Furthermore, their history as an overseer of economic reform around the globe is unrivalled.

The OECD also performs a highly specialised role in the global economy. Its sole purpose is to produce and promote welfare improving policies for its members. It does this primarily through two functions; policy generation, and promotion. To generate policy implications, the organisation collects and analyses data before discussions, decisions, and implementations take place (OECD, 2017a). One unique factor in the way that the OECD generates policies is that not only do its economists produce research, but also its team of lawyers, natural scientists, and other professionals. This scope of expertise allows the organisation to produce welfare-improving outcomes that take account of other areas outside of the traditional macroeconomic scope of IOs like the IMF. The OECD promotes these reforms through exerting a combination of peer and public pressure on members. Research produced by the organisation is released publicly on their website for example.

However, one of the main ways in which policy reform is promoted is through the economic surveillance function of the organisation. This process is similar to that of the IMF, whereby mission teams produce assessments of their members' economies, noting the various areas that require reform, and how these could best be addressed. Following this, these recommendations are discussed in further detail by the representatives of member governments. This aspect of the process is designed to maximise peer pressure on members. Additionally, a consensus must be reached on the content of the final surveillance report, which is also released to the public to further increase pressure on the member government. These processes, particularly the way in which the OECD produces its research affords the organisation a highly specialised position in contemporary international relations. This is highlighted by the fact that international agreements between members on certain policies are often borne out of research produced by the OECD.

The European Union is perhaps the most unique organisation of the three I focus on in this study. The most distinguishing feature of the union compared to IMF or OECD is the greater level of integration between members. While both the IMF and OECD require members to contribute financial resources, comply with exercises like surveillance, and maintain certain levels of transparency, there are no direct relationships between members. Members of the European Union are more integrated across in a number of different policy areas. Common tariffs are levied against all non-members, and there is free trade between all members of the bloc. Among many of the financial linkages are the contributions of members to a common pool of resources that are used to perform many functions, for example, these funds are used to issue grants for infrastructural development in member states. Other examples are contributions from members to refinancing funds like the European Financial Stability Fund. There are also deeper legislative links between nations, such as the freedom afforded to EU citizens to move and work freely within the bloc. Most uniquely, 19 members of the European Union also form a currency union. These structural linkages have led to increased interdependence through cross-border trade and capital flows, making the EU a truly unique political economy experiment.

There are two aspects that make the European Union particularly interesting for scholars of economic surveillance. Firstly, the EU, and especially the Eurozone, brings not only greater financial integration for firms from different states, but it also has implications for international relations. In the case of the IMF, all members naturally benefit from global financial stability, but to different extents. For example, small and relatively closed economies are not necessarily greatly affected by developments in small open economies located in different geographical locations. As part of the Euro system, the finance ministers of members have a higher stake in the financial stability and growth of other economies. Changes in one member have both financial and monetary implications for other members. With this in mind, the surveillance operation of the European Union is not drastically different to the system employed by the IMF or OECD. The process still takes the format firstly of a preparatory phase, before a discussion. Yet there are distinct features that make the overall operation different however, a full overview of which I provide later in this thesis. Where surveillance substantively differs in the EU is the extent of the importance of the function for stakeholders, or rather, how much they have to lose from failures in surveillance of *all* members.

Such complexity means there are many questions that require further scrutiny. Both theoretical and empirical research on IOs has been prolific. However, studies that fall into the latter category have often focussed on only some of the functions performed by international organisations. Yet given some of their important findings, there are obvious questions that might be asked about surveillance by IOs. Firstly, the surveillance operation of international organisations is relatively understudied. As a result of this, there remains considerable scope for exploring how IOs treat their members when producing surveillance. In the case of the IMF, research has indicated that they are treated very differently when lending and conditionality arrangements are set (Oatley and Yackee, 2004; Stone, 2004). These studies have shown that rather than being a purely technocratic organisation, the work of the IMF is often politicised. Researchers have extended these theories to the surveillance operation of the IMF, and contend that the organisation engages in a process of "defensive surveillance", or "defensive forecasting" where the content of surveillance is

shaped by political considerations within the IMF (Dreher; Marchesi; Vreeland; 2008: Fratzscher and Reynaud, 2011). Yet, as research on lending on conditionality has demonstrated, there are many competing theories and conflicting findings on the work of IOs. These findings have greatly expanded our understanding of how IOs operate, but many questions remain about alternative functions performed by these organisations. Indeed, surveillance reports by the IMF have only recently been declassified (IMF, 2015). This provides scholars with an invaluable data source for future studies.

The OECD is another curious example. Scholars of this IO have primarily examined the policies it has already implemented with its members. The diversity of topics represented in such a body of research is representative of the broad scope held by the organisation (Jesover and Kirkpatrick, 2005). Yet the surveillance operation is designed to promote and pressure countries into implementation, warranting an entirely different empirical approach. Despite the relatively exclusive mandate of the OECD regarding policy generation and promotion, scholars have yet to fully explore the surveillance operation of the OECD in general, let alone its impact. There are obvious questions that come to mind in this regard. For example, is OECD surveillance bound by the same constraints as IOs more broadly? Or does OECD surveillance hold more credibility than that of the IMF or EU?

Questions over EU surveillance stem from the factors that more directly integrate members of the union. Some studies have compared the surveillance function of the EU with other IOs (Schafer, 2006), but further, and more fundamental questions remain. For example, do the greater financial linkages mean that EU surveillance is more negative than that of other IOs? Or, conversely, are vulnerable EU members shielded from heavy criticism during moments of economic uncertainty? These questions alone indicate that by employing a research design that captures the impact of surveillance across countries, over time, and between institutions, our collective understanding of economic surveillance can be greatly expanded.

1.2 Understanding Economic Surveillance

While there is a rich body of research that has explored the work of IOs from a theoretical and empirical perspective, economic surveillance is relatively understudied. Coupled with this fact has been a more fundamental debate over the contribution of IOs more generally (Abbott and Snidal, 1998). This debate speaks directly to the surveillance function of IOs. Of crucial interest to policy makers, investors, and the public is the impact that surveillance reports have when released. Researchers that have attempted to answer this question have used different theoretical interpretations of the surveillance exercise more generally, along with relatively similar empirical approaches. These studies have contributed greatly to our understanding of how surveillance is interpreted when released. However, I propose that economic surveillance is interpreted differently to the other arguments made in the literature. Specifically, these studies primarily focus on economic surveillance by IOs through the lens of transparency (e.g. Edwards, Denbow, Elkarrimy, 2012; Glennerster and Shin, 2008). These studies have been invaluable for extending our understanding of surveillance. I build on their findings, primarily that surveillance can have a considerable impact on financial markets. However, I extend the study of this particular question in a number of ways. In terms of the theoretical focus, I employ an alternative framework. Specifically, by drawing on a combination of research from the literature on both IOs (e.g. Keohane, 1984) and financial markets (Fama, 1965), I argue that the way in which economic surveillance is interpreted can be far more diverse.

This does not detract from, or contradict previous theories, but rather adds to this body of work. Specifically, I contend that economic surveillance should have a direct and immediate impact on financial markets in a number of different ways. I start with the assumption that surveillance reports contain genuinely new information for market participants. This is grounded in some of the factors noted above; that the scope of activity, expertise, and position of IOs in the global economy allows them to gather and disseminate information that private actors cannot (Koremenos; Lipson; Snidal; 2001). Secondly, I assume that financial markets are, by Fama's (1970) theory, efficient. They should therefore 'price in' expected results, or news, and only react to genuinely new information about an asset. I use this basic framework to generate a range of testable hypotheses that examine

financial market reactions to economic surveillance releases, which are outlined in detail in the theoretical chapter of this thesis.

1.3 Structure of this Study

This dissertation is structured as follows. As the surveillance operation is a relatively understudied facet of IO activity, I devote chapter 2 to providing an overview of the surveillance function of the EU, IMF, and OECD. This chapter describes how surveillance is produced across the three institutions. My research question is essentially to understand the impact that surveillance has, and understanding how surveillance is produced is essential to pursuing this agenda. Additionally, this chapter contributes to a broader understanding of the operation in general. In chapter 3, I review a collection of literature that represents the most relevant work to date on this topic. I outline firstly the more general literature on international organisations, paying particular attention to the theoretical research linking IOs and policy making. I then move on to discuss the research that has focussed specifically on the economic surveillance function of international organisations. This chapter details the foundations upon which this research has been built. Surveillance by IOs has been the focus of attention from researchers for years now. Researchers studying the topic now build upon both the initial studies that explored the historical foundations and evolution of surveillance by IOs (Pauly, 1997) along with contemporary research that has attempted to examine specifically the impact of surveillance (e.g. Edwards, 2013; Fratzscher and Reynaud, 2011).

In chapter 4, I discuss the theoretical underpinnings of this study. I synthesise research that examines financial market reactions with literature on IOs to generate a new theory of how economic surveillance is interpreted. Few studies have attempted to conceptualise the way in which surveillance is viewed by market participants. Literature in the field of finance is often unconcerned with these kinds of questions, and focusses more heavily on methodological rigour (Economist, 2015) for understanding financial markets. I attempt to bridge the gap between these sets of research by providing testable hypotheses

that attempt to speak to both scholars of IOs and of finance. Chapter 5 is dedicated to outlining the methodological approach I have used in this study. As this research is quantitatively orientated, this chapter both describes and justifies the framework I have chosen. From an epistemological viewpoint, there is little debate over the variables in this study. Of more interest to researchers will be the finer details of my estimation techniques, along with the generation of my independent variables and controls. I discuss these in light of alternative approaches that may have been used.

Following this, I combine the background research, theoretical framework, and empirical approach to answer my research questions. Chapter 6 details the findings of financial market reactions to economic surveillance releases across the three organisations, and over the timeline of my sample. Chapter 7 contains the findings of the quantitative content analysis procedure used to extract the sentiment from economic surveillance reports by the EU and IMF. Chapter 8 focusses on the predictive capacity of economic surveillance sentiment on abnormal financial market reactions to the release of surveillance reports. Chapter 9 is also concerned with exploring financial market reactions to economic surveillance, but is done using a slightly modified specification of the abnormal returns generated in this study for each surveillance release. While chapters 6 – 9 represent the empirical analysis of this research, I explore these findings and their implications for stakeholders in further detail in chapter 10 of this study. The concluding chapter, therefore, reviews the collective work in this thesis, and offers a discussion on the implications for both policy makers and researchers within the field.

2. Economic Surveillance by International Organisations

Economic surveillance produced by international organisations is a function that has received far less attention from the academic and policy communities than other activities of IOs. As a result, our collective understanding of the function is underdeveloped. This research attempts to close this gap. This chapter is dedicated to providing an outline of the function itself, exploring its historical foundations, and the practical details of surveillance production today. The aim of this is to offer the reader a more broad comprehension of the operation across the three IOs examined in this study. Firstly, I present a brief overview of the historical development of economic surveillance by IOs, before detailing the practicalities involved in the production of a surveillance report.

2.1 What Is Economic Surveillance?

The period from the 1870s until the First World War (WW1) saw a rapid proliferation of cross-border flows involving capital, labour, and trade. These factors, along with rapid technological advances, massively boosted economic growth across the globe. The pace of these changes was first halted, and subsequently reversed by the effects of WW1. The first efforts at breathing new life into greater levels of economic integration came in the shape of the League of Nations, and the mandate of Economic and Social Organisation (ESO) within. The goal of this framework was to reinvigorate the growth of global capital markets, as had been witnessed prior to the war. It is in this agenda that the origins of multilateral economic surveillance lies (IMF, 1999: 19).

By modern standards, the work of the League of Nations, particularly the economic arm of the organisation, was extremely broad. Indeed, economic matters were mentioned only briefly in the covenant of the League itself (Pauly, 1997: 45). Economists that worked at the League essentially did so under the guidance of the foreign ministers of member states (Pauly, 1997: 46). Rather than specialising in certain fields, staff moved freely across a very general set of areas like macroeconomics, finance, and development (Pauly, 1996: 6). Over time however, the economic work of the League, and the overall focus of the ESO, shifted

towards a common set of principles. The seminal moment for scholars of economic surveillance came in 1920 when the International Financial Conference was held in Brussels (Pauly, 1996; 7). The conference came as a result of the economic disarray exhibited by the global economy. Its purpose was to provide policy recommendations for governments in the hopes of lifting the world out of the economic doldrums it found itself in following the war (Pauly, 1996:7). The League Secretariat was also requested to report on the responses of member governments to the recommendations (Pauly, 1997: 48). The recommendations were important in a number of ways. Firstly, they represented a coherent economic template that sovereign states could follow in a period of unprecedented uncertainty. Secondly, the League itself had a more defined economic policy agenda that it could implement in its schemes at the individual level with members. Over the following years, the economic agenda of the League, and its influence as an overseer of economic policy in general, became more pronounced. The International Economic Conference was held in 1927 partly as a result of the success of the League's recommendations for rebuilding Austria and Hungary after their economic collapse following World War 1 (Mouré, 2005: 145). At this conference, a broad range of topics were discussed that would today be the focus of the IMF, World Bank, and WTO. Indeed, the Geneva conference synthesised two main ideas, that both free trade and improved, inclusive social conditions were both central to increased economic prosperity (Pauly, 1997: 60).

While the League of Nations can be seen as a blueprint for how not to establish an international organisation in some ways, it laid the groundwork for the coordinated economic policy making that today's IOs strive towards (Boughton, 2014). The economic conferences it held, and the reports it requested from members, also closely mirror the surveillance operation seen from several IOs in the modern era (Pauly, 2008: 189). Years later, when faced again with economic destruction, decimated global capital levels, and crippling debt burdens, the international community was tasked with rebuilding the global economy. The Bretton Woods conference of 1944 gave a much more firm outline how the various roles performed by the League's economic arm would be carried out in the post-war period. Several international organisations were established and provided with clear

mandates; the World Bank would structure lending for development and reconstruction, the General Agreement on Trade and Tariffs, and subsequent World Trade Organisation (WTO) would govern and promote trade between nations, and the Organisation for European Economic Co-Operation (OEEC) would oversee the administration of aid from the Marshall Plan. Lastly, and possibly most interestingly for this study, the International Monetary Fund would exercise surveillance over members' exchange rate policies (IMF, 2016). After the successful implementation of the Marshall Plan, the OEEC was transformed into the globalised OECD, comprising of members from around the world (OECD, 2017b). Both the World Bank and WTO have largely retained their original mandates, but have evolved in how they pursue these. The IMF on the other hand, has entirely outlived the global economy it was designed to survey. The collapse of the fixed exchange rate system established at the Bretton Woods made the primary function of the IMF redundant. Multilateral surveillance in the global economy was now resigned to informal environments and only among the larger industrial economies. The revised Articles of Agreement for the IMF in 1978 broadened the overall mandate of surveillance to maintain global economic stability, rather than just exchange rate stability (Bossone, 2008: 9). The end of the Bretton Woods regime essentially marks the point at which multilateral economic surveillance in its current format by the IMF was born (Boughton, 2001: 67). In reality, there are many forms of economic surveillance that the IMF produces. These can be sorted into three main formats; country surveillance, where members are assessed on an individual basis, usually annually; regional surveillance, which focuses on developments in currency unions and geographic regions; and global surveillance, which covers more general trends, prospects, and developments in the global economy as a whole (IMF, 2017b). In this study, I focus on country surveillance, where both the staff and executive board contribute to the eventual surveillance report. I provide a comprehensive overview of how this is produced in the following section of this chapter.

In the case of the OECD, there are parallels with the IMF in terms of the how the modern surveillance operation has been developed. Similarly to the IMF, the OECD has been restructured and re-orientated to reflect the fact that it too has accomplished the goal

it was originally intended to achieve. Its' surveillance function was born with the creation of the Economic and Development Review Committee (EDRC) in 1961 (OECD, 2017c). The EDRC is comprised of representatives from all member states, along with the European Commission. Its mandate is to survey a large portion of the global economy, and make policy recommendations. While I focus on this aspect of OECD surveillance, it must be noted that the organisation itself undertakes a range of other, similar tasks. The primary function of the OECD as an IO is to promote effective policy making to improve the lives of people around the world (OECD, 2017a). As a result of this, it also focuses on issues such as the environment, education, and other areas that are left outside the traditionally macroeconomic scope of the IMF. However, this focus has been the culmination of years of evolution in how the organisation surveys its members. In terms of surveillance production, the OECD surveys its members every two years, along with several non-members such as China, Russia, and a separate Eurozone analysis (OECD, 2017d). I focus only on the surveys produced of member economies every 18 months. Similarly to the IMF, the OECD also produces forecasts and regional outlooks, these too are omitted from my analysis. I also provide an expansive outline of how country surveys are produced in the next section.

The EU arguably has a greater incentive than the IMF and OECD to promote effective policy making and detect threats in the economies of its members. Indeed, its framework for surveillance, promoting prudential decision making among its members, and harmonising policy-making in general is complex. The EU itself is a quasi-legal, political, economic and monetary union, where members retain varying levels of international and domestic policy autonomy. As a result, its scope for surveying and monitoring compliance among members is equally convoluted. A combination of techniques such as peer and public pressure, along with legally enforceable targets, are designed to maintain stability in the EU, particularly within the economies that form the monetary union (Tutty, 2013). Several treaties have attempted to legally enshrine macroeconomic stability, but noncompliance is common (European Commission, 2017c). In terms of analytical surveillance, the most recent "Two Pack" framework outlined in May 2013 for detecting threats to the Euro area represents a significant effort to upgrade the surveillance of EU

members (Fabbrini, 2013: 1016). This system involves greater levels of more formal interaction between domestic policy making and the European Commission on issues such as governmental budgets (European Commission, 2013). Additional aspects of European economic surveillance come as part of the broader "European Semester" governance framework, which came directly in response to the financial crisis. This framework was specifically designed to overcome the opaque nature of European financial integration that the crisis revealed (European Commission, 2015). Indeed, surveillance of European states is performed by a combination of the EU institutions including the Commission and the Council (European Commission, 2017d). This complex network of oversight involves a range of indicators being monitored by the various institutions. One notable difference between this style of surveillance and that employed by the IMF or OECD is the monitoring of these indicators is enshrined in the regulatory framework of the various treaties and pacts among members of the EU. Probably the most notable difference between the EU and the other IOs in this research is the practical elements of harmonising the policies of members, where both preventative and corrective arms are incorporated into the overall stability framework (European Commission, 2017d). However, economic surveillance of the European area in its most basic format dates back to when the predecessor of the EU, the European Economic Community (EEC) outlined in the Treaty of Rome that economic issues were a common concern (EUR-LEX, 2017). Again, similarly to the IMF and OECD, economic surveillance of the EU underwent significant changes, specifically with each treaty that committed European states to greater levels of integration. The Maastricht treaty in 1993 signalled the initial signs of the multilateral economic surveillance framework we see in place at the Union today (Buiter et al. 1993). A specific European Council regulation in 1997 marked the moment at which surveillance of "budgetary positions and coordination of economic policies" was strengthened to become the replicable event used in this analysis (European Council, 1997). I focus on the Council recommendations of each country, published in the official journal of the European Union.

This chapter will examine and provide an overview of how exactly the surveillance reports used in this study are produced by IOs. This is necessary for a number of reasons.

Firstly, economic surveillance has been largely overlooked relative to the lending and conditionality arrangements that have been the focus of most scholars, and the subject of scrutiny from the public. Highlighting the operation itself, and examining the practical details within can only bring the prospect of a more open and lively debate on how best to improve the function going forward. This is a further goal of this chapter, essentially to establish the background of the surveillance reports that serve as the key independent variable in this study. The first empirical chapter outlines the impact that surveillance releases have, while the second goes further by attempting to explore their predictive capacity. Both of these serve as useful analyses of surveillance, with each contributing findings that speak directly to the practicalities of surveillance production. Yet the initial outline of this chapter illustrates, particularly in the case of the EU, surveillance and policy monitoring is a complex procedure. The IMF too, is prolific in terms of its information production. Without completely entering into an institutional analysis of how these pieces of information vary, I examine one piece of surveillance in considerable detail. In itself, this represents one of the few explorations of how the final surveillance report that is released to the public is produced. This helps illuminate the findings in the other empirical chapters of this study, and should highlight some potential avenues of change for policy makings in these IOs going forward.

2.2 Does Economic Surveillance Matter?

One influential theory claims that IOs attempt to increase the amount of resources they have access to (Barnett and Finnemore, 1999). One way to do this is to justify new, and sometimes expensive operations. Critics of IOs might claim that economic surveillance by IOs is one of these operations. Indeed, there are grounds for why economic surveillance might be seen as wasteful. One argument might be that as literature indicates that the work of IOs is sometimes politicised (Steinwand and Stone, 2008), economic surveillance lacks credibility. Another argument might be that in the modern era of information availability, surveillance lags rather than leads the market. The range of reasons extends beyond these.

However, there is limited empirical strength for any of these potential hypotheses. At a most basic level, economic surveillance is designed to maintain stability and promote growth in the global economy. Each IO faces slightly different constraints and incentives when it surveys its economies. However, all three are tasked with the broader goal of stimulating economic growth. In an environment where economies are more closely integrated than ever before, surveillance serves as a crucial form of international cooperation. Furthermore, international organisations occupy a unique position in the fields of international economics, international relations, and domestic policy making, amongst others. One of the primary reasons that IOs were established was to fill this void (Koremenos; Lipson; Snidal; 2001). With this position enshrined in international legislation, IOs represent one of the few actors that can credibly collect and disseminate information about their members. Additionally, from a professional point of view, international organisations recruit and train some of the best economists and practitioners in the world (Momani, 2005b). These factors all indicate that economic surveillance is a process that can potentially be hugely beneficial for members of international organisations. Surveillance by the IMF for example, represents an ideal opportunity for shared learning and development on macroeconomic issues such as prudential financial management and mitigation of risk. The work of the OECD has similar potential, but focusses also on microeconomic and social development. For example, the OECD might study the long-run impact of education on economic growth (Temple, 2001). The EU surveys focus on both of these areas, but with a regionalised scope. From a theoretical standing, economic surveillance has untold potential. Given the clear failings of the operation prior to the most recent financial crisis, the question now turns to how the operation can be improved upon. The next sections outline the surveillance operation of each organisation in detail, while I examine the question of reforming the function in the conclusion of this thesis.

2.2.1 OECD Surveillance Procedure

OECD surveillance is produced through a system designed to generate maximum pressure on a member to reform its economic policies, this can mean a complete overhaul in some cases, or minor adjustments in others (OECD, 2017c). The procedure is quite similar to that employed by the IMF in its annual review mechanism for each state, however, there are several contrasts that differentiate the surveillance functions of each institution, each of which I note in the following overview.

Like the IMF Article IV releases, OECD surveys are produced over two phases. The first is a preparatory phase conducted by the staff, followed by a multilateral discussion, involving all member economies (OECD, 2017c). The first phase is carried out by the Secretariat of the OECD, this arm of the institution is based in Paris and is comprised of around 2,500 staff members such as economists, lawyers and other experts who support the activities of the committees and carry out the tasks delegated by the OECD Council (OECD, 2017d). The staff here prepares a detailed economic questionnaire which is delivered to the relevant authorities of each member country. Here the national authorities provide a general overview of the health of the economy, discussing recent developments, along with a forecast and underlying assumptions to provide context (Schafer, 2006: 73). This phase also offers the relevant authorities their first chance to 'defend' their economic policies and discuss how it intends to solve any economic problems. Following the completion of the questionnaire, a mission team then visits the country in question. This is a common process in IO surveillance, designed to aid the staff in producing a more robust assessment of the economy. During this phase the staff meets with the various relevant stakeholders, such as staff of the central bank, government ministers, policy analysts, and other actors. This phase of information gathering allows the staff of the OECD to produce the first draft of the economic survey, which they do following the conclusion of the visit. The draft survey typically takes the following structure: Firstly the survey covers recent trends in the economy, along with future prospects and macroeconomic policy recommendations. Secondly, the survey discusses structural policy, specifically the difficulties and weaknesses in the relevant policy framework, and also the implementation of structural reform. In the third section, the OECD addresses the less prominent policy

areas it covers in its mandate, this is done in a country-specific chapter where issues such as the environment or other factors relevant to the country are discussed.

Approximately three months following the initial mission, a follow-up team visits the member in question, focussing on the specific economic weaknesses and vulnerabilities in the country. The purpose of this follow-up is straightforward; to update the information gathered during the previous visit. However, this is also the moment when the process shifts towards an emphasis on policy reform and recommendation rather than macroeconomic fundamentals. The bilateral phase of the surveillance function is then ended with the production of the final draft survey by the staff. This is then distributed to all member economies around three weeks before the multilateral discussion on the country. The process then moves into the custody of the Economic Development and Review Committee (EDRC). This committee is comprised of representatives from all 34 member economies along with the European Commission, and is designed to examine trends and policies in members' economies (OECD, 2017e). The EDRC is also tasked with reaching unanimity before the report can be released to the public (OECD, 2017e). The multi-lateral discussion is led by two reviewers who are assigned to each country under examination. However, it is usually initiated by a statement from a representative team of the country under review (around 10 people). This statement offers a second opportunity for the government to respond to the draft appraisal, for example, by defending their economic policies or to dispute the content of the report (Schafer, 2006: 74). The appointed reviewers can then posit questions before a general discussion with all members. The government in question then fields questions from the representatives of other member states, the purpose of which is to reach an appraisal that all members can agree on (OECD, 2017d; Schafer, 2006: 74). Following the discussion, which lasts up to a day, the chair drafts a summary of the negotiations, which forms the basis of the final draft survey. Crucially, the negotiations between state representatives are contained in the first portion of each report, the 'assessment and recommendations' section. This essentially represents the official view of the OECD (OECD, 2017c), despite disagreements between representatives often occurring. A favourable redraft of this section is the top priority for members when

negotiating. Following the finalisation of the report, it is circulated once more to all member states, which must also consent to publication, this mechanism is used to protect the survey from excessive redrafting during negotiations (Schafer, 2006: 75). The survey is then released to the public.

2.2.2 IMF Surveillance Procedure

Surveillance of its members is one of the primary functions of the International Monetary Fund (IMF, 2017a). While lending and conditionality arrangements have received the most attention from academics, policymakers, and the general public, exercising surveillance over members was the founding operation of the IMF (IMF, 2016). Furthermore, in 2005, bilateral surveillance alone cost the organisation more than the use of fund resources (IEO, 2006: 12). The production of economic surveillance by the IMF is organised geographically into country, regional, and global surveillance. These are some of the ways in which the organisation drives its' policy agenda. Additionally, the organisation produces academic research on an ad-hoc basis.

Country level economic surveillance produced by the IMF follows a similar structure to that of the OECD. Once again, there are two phases of survey construction; preparation and discussion (IMF, 2017b). The initial stage involves a general review of the country before any meetings take place on site, resulting in a 'mission brief', this presumably gives some structure to the impending visit of delegates from the IMF (Schafer, 2006: 75). Following this, a small team of economists, known as a mission team, visits the country in question and meets with the various stakeholders for around two weeks (IMF, 2017b). They produce an overview of risks to financial stability in the country from a domestic and international perspective, discussions over policy also take place, and the member's authorities present their forecasts for a range of variables. Interestingly, the IMF staff attempts to meet with a broader range of stakeholders, such as members of the business community and domestic labour unions, however, it is unclear how often this takes place (IMF, 2017b: 1). The final task as part of this phase is the production of the concluding

statement, which is negotiated between the heads of the domestic finance ministry, central bank, and the mission team of the IMF.

The next step involves the head of the mission team writing a 'back to office' report on the visit, detailing the findings and results for the management (Lombardi and Woods, 2008: 8). The country desk at the IMF also produces a report on the member being surveyed, covering the economic condition of the country, policy recommendations and details of discussions held on policy, along with a final appraisal, which marks the end of the preparatory phase of surveillance production (Schafer, 2006: 76). Following this, the discussion begins with the final surveillance report to be released. The initial discussion takes places around a month after the staff report is prepared, which forms the basis of the exchanges at the executive board. Crucially, the staff assessment remains unedited by the executive board, which produces its' own assessment to be incorporated into the eventual surveillance document to be released. While changes can be made to the staff assessment, they are included in light of the offerings made at the national level during discussions (Lombardi and Woods, 2008:8). The most notable difference in the production process between IMF and OECD surveillance is the fact that in contrast to OECD surveys, the IMF executive board does not need to reach a consensus on the content of their assessment (Schafer, 2006:76). Contrasting views are incorporated into the final executive board assessment, and also in a 'summing up' report, which is circulated to the authorities of member governments. The Public Information Notice that I use in my study is just one of several final documents that are usually published as part of the annual surveillance operation. The Public Information Notices indicated the conclusion of the surveillance operation, and contained summarised views by the staff and executive directors. These have now been labelled as "press releases". The Article IV concluding statement of the mission contains a summary of the key points that emerged from the meetings, the release of this document requires consent from the member being surveyed (Maurini, 2010:6). The full staff report is also published separately. All of these documents are published on the IMFs official website, and their release marks the end of the yearly country surveillance exercise.

2.2.3 EU Surveillance Procedure

The surveillance operation of the European Union is more complex than that of the IMF or OECD. There are several reasons for this. Firstly, membership of the union binds countries closer than in other IOs. The increased integration that includes shared ground across domestic policymaking, international security, movement of goods and labour, and a range of economic issues requires a different approach to monitoring members. The recent financial crisis and ongoing sovereign debt crisis in the Eurozone have highlighted the need for greater awareness regarding policy making across the region. To further this agenda, the surveillance operation of the EU has been expanded to become more robust, and more firm overall. As the timeline of my sample dates back to 1997, I focus on the facet of EU surveillance that has been operational from this time. The event I use in my study is the Council recommendation of each member of the European Union. Specifically, I choose the Council's opinion on the stability programme of member states. Council recommendations reference the original article of the treaty on the functioning of the European Union as the overarching mandate being pursued, while they also mention the specific Council regulation that concerns the strengthening of the surveillance procedure within the union. The Council issues recommendations on a range of issues, I am only concerned with the recommendation on economic policy. The members of the Eurozone are subjected to reviews of their "stability programmes", while EU members with autonomous monetary policies are assessed on their "convergence" programmes. In reality, each programme largely assesses the same factors.

The production of the eventual Council recommendation follows a different procedure than IMF or OECD surveillance. Firstly, while the overarching aim of EU surveillance is to maintain macroeconomic stability, this is pursued by short and longer term targets of harmonised economic policies between members (Hodson and Mahon, 2004: 799). To this end, there is a clear agenda to which economic surveillance recommendations can adhere to. However, the initial step in the EU's surveillance process is similar to that of

the IMF or OECD. Here, the European Commission produces a country report detailing the economic situation in the member state and its progress towards implementing the recommended reform agenda (European Commission, 2017c). Following this, the member government submits a stability or convergence programme for assessment. Both self-assessments must fulfil a set of criteria, specifically that they include details on budgetary targets, adjustment plans, forecasts of debt and revenue figures, and expenditure targets, amongst others. Convergence programmes must contain this information relative to the exchange rate and inflation forecasts of their own currencies. Details must also be provided on the underlying assumptions and general liabilities in the system, and how the government intends to achieve budgetary objectives (European Commission, 2017c). These aspects represent significant differences between surveillance by the EU and other IOs. EU surveillance appears to benefit from having clear criteria that the member government must fulfil in its self-assessment, while the macroeconomic targets laid out in the stability and growth pact give explicit instructions to members as to how much flexibility they are afforded.

Following this submission by the member state, which is currently scheduled for April of each year, the Council begins the process of constructing the recommendation of each country (European Commission, 2017d). The European Commission and the Economic and Financial Committee (EFC) of the European Council prepare assessments of the information submitted by member states. They assess, in particular, the assumptions of the member in their analysis, the suitability of the efforts taken by the member to prudentially manage its budget, and whether the government is actually seeking to improve its budget balance at all (European Commission, 2017a). The Council opinion is therefore an amalgamation of several opinions; the member state, the European Commission, and the EFC. If a “significant divergence” from the medium-term budgetary objective of a state is discovered, correction recommendations as part of the ‘early warning’ system are issued (European Commission, 2016: 16). The practical details on how the eventual recommendations are published are scant compared to the IMF or OECD procedure. However, there is discussion and debate over the recommendations and policies at the

national level in the form of meetings held by the Council of ministers (European Commission, 2015). The formal endorsement of the recommendations comes at an EU summit in June, before the eventual adoption and publication of the recommendations in July (European Commission, 2017d). It must be noted that this process refers to surveillance produced after the initiation of the European Semester, the EU's annual cycle that aims to coordinate the macroeconomic, budgetary, and structural policies of member states. Prior to this, the process appears to have followed a less strict timetable. The final document has not been changed over time however, as the performance criteria and structure to Council opinions have remained throughout the sample period. Interestingly, the eventual publication is released in the Official Journal of the European Union, available online. This journal contains notifications of decisions, regulations, recommendations, and other items of note. The journal is a legal forum rather than a piece of media, for example, certain legislature is not made binding until it is published in the journal. The content is made available each day, and has been published in 22 official languages of the European Union.

2.3 Differences in Surveillance Operations

There are both clear similarities and disparities in the way that economic surveillance is produced across the three IOs. The surveillance operations of the IMF and the OECD are most closely aligned in terms of production, while their eventual outputs take very different formats. The EU on the other hand, produces a Council recommendation that is broadly similar to that of the IMF, but does so in a very different way. Additionally, enforcement mechanisms also vary greatly by institution. Failure to implement the advice of the OECD is inconsequential for member states, it relies entirely on peer and public pressure to stimulate reform. The IMF can expel members, or deny them access to credit if their policies are greatly divergent from recommendations, although this has never happened through the surveillance mechanism. The EU on the other hand has set clear targets regarding the

acceptable debt and deficit levels for its members. Furthermore, as part of the macroeconomic imbalance procedure, the EU issues warnings and eventually sanctions members that violate these targets.

Given these differences, there doesn't appear to be a clear consensus on the best way for IOs to survey their members. In one sense, the macroeconomic targets issued by the EU give members quantifiable measures of performance. There is even a 'scorecard' which assesses performance in this regard. However, critics argue that economic policy coordination in general in the EU is failing. Those that criticise the flexibility of the project claim that the MIP targets do not sufficiently account for the general economic environment on a rolling basis. This is something that IMF surveillance appears to give considerable weight to, as half of every PIN focusses on the background of the economy in question. There is evidence that suggests, however, that IMF surveillance rather fails to offer clear guidance to its members' (Moschella, 2014). IMF assessments do issue recommendations that are designed to reduce debt or budget deficits, but these are often vague and unaccountable to any benchmark. OECD surveillance falls somewhere between these two extremes.

Firstly, as surveys produced by the OECD are far more comprehensive than the IMF PINs or EU recommendations, there is considerable scope for covering background issues, performance, and policy reform. While the OECD does not produce quantifiable targets for their members, recent surveys do include an illuminative table which compares a broad range of indicators in the country relative to the average of all members that year. Following this, there is a two-way scatter plot that graphs each member's structural reform responsiveness and change in the primary balance as a proportion of GDP over the years since the *'Going for Growth'* (GFG) programme. These visualisations are invaluable aids in boosting the public pressure element of surveillance, and make for easy distribution when released. The structural responsiveness metric is a binary variable that takes the value of 1 if "significant" actions have been taken by the government to implement the recommendations of the OECD provided in their GFG programme in 2011. While a binary

variable is a very general measure of action, and the definition of "significant" is not provided in the survey, it still represents a very useful indication of how much reform is taking place. To bolster this, OECD surveys now contain a very detailed assessment of how each country has addressed the recommendations issued in the previous surveillance operation. These sections are broken down into specific areas that require addressing, for example, "restoring competitiveness". In each section, the report contains a table that clearly lists the previous survey's recommendation, and the country's action taken towards implementing this. The surveys also contain detailed information on specific issues that are identified as drivers of growth across all members. One example of these might be the business environment in a country, where factors such as contract enforcement and ease of trade across borders are assessed, with each country receiving a score for each of these categories. This information is contained in a table that also includes the OECD member that scores most highly in each area, along with details of the specific problem(s) that has brought down the score of the member being surveyed.

Conclusion

This chapter has provided an overview of the economic surveillance function employed by IOs. I have described the origins of the function and its relevance in today's interconnected global economy. Economic surveillance remains one of the best tools available for policymakers seeking to maintain financial stability and foster economic growth, with IOs uniquely positioned to perform this task (Rogoff, 2003). The most recent global financial crisis has demonstrated clear failings in the operation however. The EU, IMF, and OECD

have all made changes to the ways in which they produce surveillance in the previous years, yet more reforms are needed. As this study focusses on financial market reactions to surveillance, I have paid particular attention to both the content of surveillance, and the ways in which IOs disseminate and store the findings of their annual surveys (the OECD produces these every 18 months). The eventual surveillance releases in the case of the EU and IMF mask the extent to which governments are being evaluated by their international counterparts. They also are unclear as to exactly what changes governments should make to their economies. These are the pieces of information that IOs are so uniquely placed to collect and distribute to the public. Including these in future surveillance reports, amongst more clear and specific requests of members would greatly add to the transparency of the operation and its information content overall. In the following section, I move on to offer a discussion of the relevant literature upon which this thesis builds.

3. Literature Review

This research is concerned with analysing financial market reactions to economic surveillance releases by the EU, IMF, and OECD. My study draws from, and builds upon a broad base of literature that analyses IOs from a number of different perspectives. The literature on IOs is diverse in terms of its scope, methodological approach, and specific focus. I draw on numerous studies in this rich collection of research to provide an overview of how our collective understanding of IOs has grown over time. The following chapter is organised as follows. Firstly, I provide an overview of the most relevant literature to date on this topic. Within this section, I offer an introduction to the research on IOs from a historical perspective, before moving on to discuss the more recent scholarship. I pay particular attention to the research that examines the influence of IOs on domestic policymaking, and the few studies thus far that have examined the surveillance function of IOs. I also examine the literature that most closely resembles the current study. I describe the findings of these studies, and how my research intends to fill a gap in this particular area.

3.1 Foundational Research on IOs

The study of international organisations has been at the core of international political economy research since the growth of the discipline from the 1970s. Over time, scholars have gradually added to our collective understanding of why states delegate powers to IOs, how they operate in practice, and what their impact is on an increasingly interconnected political economy environment. Despite this progress, IOs have proliferated in terms of the size and scope of their operations, presenting new challenges for researchers in the area. Additionally, the international environment is in a constant state of flux, and has evolved dramatically since the inception of IOs like the EU, IMF, and OECD. These factors have contributed to shortages of research and gaps in the understanding of certain functions of IOs. Economic surveillance by IOs is a prime example of this. Most research on international economic organisations (IEOs) has focussed on the more sensational aspects of their activities. For example, research on the IMF has largely focussed on its lending and

conditionality arrangements, often with a heavy regional focus. Much of the literature on the EU however, has examined its institutional operations and the impact on international relations. Some IOs like the OECD, receive relatively little coverage at all from scholars of international organisations.

Historically, researchers initially grappled with basic questions over the function of IOs in an environment where states were the dominant players in international relations (IR). International Organisations were therefore seen as agents of the states that created them. In this sense, the research in IR gave IOs little room for autonomously influencing global politics. Over time, scholars began to look at the more practical functions of IOs, stimulating new and interesting research on the topic. The attention of researchers was directed then towards understanding why IOs were created, how they function, and what impact these functions have. These questions have led to a rich and diverse literature on the topic of IOs. Drawing on rational choice theory, scholars have argued that the utility maximisation of states has led to them designing IOs to accomplish tasks they alone cannot (Koremenos; Lipson; Snidal; 2001). The work of these authors derives from a simple observation, that IOs are constructed in radically different ways, in terms of objective, institutional composition, and enforcement capability. Research on the behaviour of IOs too comes from a closely related observation, that IOs have widely varying levels of success in achieving their mandates. Established theories like realism couldn't explain sufficient variation in the behaviour of IOs, while new approaches including constructivist theories failed to adequately account for the influence of larger member states on decision making inside IOs. Research on the impact of IOs is extensive given the wide scope of their operations. However, the literature has yielded mixed empirical findings. From the IOs in this study, much of the literature has focussed on the impact of IMF programmes on a range of outcomes. Studies have examined how economic growth is affected by participation in an IMF programme (Conway, 1994; Przeworski and Vreeland, 2000; Dreher, 2006; Bas and Stone, 2014; Bird and Rowlands, 2017), while others have analysed very different phenomena, such as the likelihood of civil war (Hartzell, Hoddie, Bauer, 2010). Research on the impact of the EU has focussed heavily on areas such as the politics of integration

(Featherstone and Radaelli, 2003). On the OECD, researchers have primarily been concerned with the impact of its policies on a case by case basis (e.g. Apke, 2001; Barichello, 2004). Collectively, these studies have greatly expanded our understanding of how IOs operate. When grouped together by the IO in question, they reflect the varying compositions and mandates that characterise these organisations.

As my study examines the impact of one function performed by several IOs, an initial question to ask concerns the main purpose of the EU, IMF, and OECD. While the mandates of each have evolved considerably since their inception, each has a specific purpose to fulfil. In the case of the OECD, their goal is relatively straightforward: to improve the lives and economic well-being of people around the world (OECD, 2017a). To do this, the organisation seeks to promote effective policy making amongst its members across a diverse range of macro and microeconomic areas. The IMF has an equally broad mission that encompasses monetary and trade cooperation, securing financial stability, promoting high employment and sustainable economic development, along with reducing poverty (IMF, 2017a). It seeks to accomplish these tasks by surveying the economies of its members, where it detects threats to the local, regional, and global economic system. It offers financial assistance to members who are facing actual or potential balance-of-payments crises. Lastly, it offers technical assistance and expertise to its members in areas like financial regulation or tax systems. The EU is a political, economic, sometime monetary union comprised of several different institutions that govern different aspects of the membership. Founded on the idea that interdependent states were less likely to engage in conflict with each other, the EU was initially a purely economic union known as the European Economic Community, established in 1958. This evolved into the complex political economy system of 28 states seen today. Central to the functioning of the EU is the promotion of human rights, democratic institutions, and economic integration through a stable single market of members. To further this agenda, the EU draws on a legal framework that binds members to internal agreements. This is achieved through various institutions (7 are principal decision-making bodies) within the union that are tasked with several mandates. The parliament has legislative, supervisory, and budgetary

responsibilities. The Commission also has legislative, management, enforcement, and representative capacities. A European Council comprised of all leaders of member governments is tasked with defining the overall direction and priorities of the Union. Separately, the Council of the EU is tasked with committing member governments to agreed actions, and along with the Parliament, is the main decision-making body of the EU (EU, 2017). The European Central Bank is tasked with implementing the monetary policies of the single currency, and performs other traditional central bank functions.

3.2 How Do IOs Influence Domestic Policies?

The central theme running through these three IOs, in particular, is the emphasis placed on policy making amongst members. There is wide variance across these organisations in terms of the structural capabilities held to influence reform in member governments. However, there is a rich body of literature that examines how IOs exert influence on policy making through both formal and informal mechanisms in general. International organisations are primarily external actors in the domestic policy-making environment. This is grounded in the fact that although governments retain sovereignty and exercise autonomy over many policy choices, many have also delegated substantial authority to IOs. Internal actors include the domestic political parties, civil society groups, and so on. IOs often cross this boundary somewhat under certain circumstances, for example, when states draw on the credit of the IMF. Scholars of IOs have been particularly interested in the relationship therefore between domestic actors, policy-making, and international organisations themselves (Caraway, Rickard, Anner, 2012; Chwieroth, 2013).

Researchers have outlined three mechanisms through which these interactions influence the behaviour of states; contracting, coercion, and persuasion (Drezner, 2003). Contracting describes a situation in which all parties to an agreement benefit, with no party being made worse off. Crucially, actors in this situation are merely following their self-interest as rational, utility maximising decision makers. Such a situation is central to the neoliberal institutionalist tradition in IR. Additionally, it is a straightforward and common

interpretation of interactions between IOs and members. The accession of a new member to an IO is a good example of this. International organisations benefit from increased membership through acquiring extra resources, broadening the scope of their activities, and boosting their prestige. New members, particularly smaller states, benefit similarly from being able to draw on a new pool of financial and intellectual resources. They also appear to have increased prestige and lower risk (Dreher and Voigt, 2011; Gray, 2009) in the international community, although this particular benefit depends on the demographic of membership in the organisation prior to this (Gray, 2013). Finally, in the classic interpretation of international interactions in an interdependent global economy, all members benefit from reduced uncertainty and now regularised expectations of behaviour from the new entrant (i.e. Axelrod, 1981; North, 1990; Morrow, 1994).

Coercion is slightly different than contracting, but retains the pretence that actors' operate with utility maximising, self-interested behaviour. Under this specification however, states no longer exhibit self-restraint in terms of their compliance with international agreements or decisions. Rather, coercive compliance relies on external constraints placed on the behaviour of parties (Hurd, 1999: 386). As part of this possibility, coercion and external constraints present the possibility that violators can be made worse off than other parties. One of the obvious examples of coercive practices in IOs is the use of formal sanctions. These can be in the form of economic punishments when a member violates agreements; such as the EU's MIP, where violations are punished with fines. Alternatively, coordinated coercion has resulted in more severe punishments, such as the economic sanctions placed by the UN Security Council on North Korea in 2006. Situations in which coercive practices might arise, particularly in the form of fines or smaller punishments are more readily analogous to how the policies of IOs interact with domestic politics. Policy choices often involve political costs for governments. When IOs request compliance from members on certain issues, these governments are faced with competing domestic and international pressures (Rickard, 2010: 714). Threats of sanctions and fines are designed to enforce compliance when domestic pressures are strong.

The last theoretical mechanism through which IOs exert influence over domestic policy making is through persuasive practices. Contrary to contracting or coercion, persuasion allows for a reordering of preferences among the members of an IO. In the previous two examples, international organisations employ the traditional 'carrot and stick' incentives to gain membership and enforce compliance among members. Persuasive practices allow for members to change their initial opinions and interests when faced with new information. Given the intellectual expertise of IOs like the IMF and OECD, this mechanism should be one of the strongest ways in which IOs can influence policy. Rationalists would refer to this process as 'Bayesian Updating' of preferences (Schorfheide, 2005). However, as the results do not differ in the way in which we observe them, attributing actions such as economic reform to persuasion is difficult for researchers. This mechanism requires increased levels of interaction between members and domestic officials (i.e. Chwieroth, 2013) than under contracting or coercive practices. A good example of this would be the economic surveillance function of the countries in this study. The research and analytical teams of economists are tasked with presenting new and more beneficial policies for members to implement. While the interactions between the staff and domestic officials, along with interaction at the board level, are both designed to be the forum within which persuasion can be exerted. The peer-pressure element of economic surveillance, as described in the previous chapter, is also a primary example of how IOs seek to influence the policies of their members. The profile of IOs as both memberships of large states, and also intellectual powers means that their public voice carries particular weight. Statements by their leading officials, or research they produce can play a strong role in empowering domestic interests and fuelling debate in a member state (Dai, 2007).

In general, IOs employ aspects of all three mechanisms in both their formal and informal channels of influence. These studies have demonstrated that a central concern of IOs is influencing the policy-making agenda in member states. As this study focuses on one way in which IOs attempt to pursue this goal, this literature is of considerable relevance to the current research. In the following section, I move on to discuss the literature on

economic surveillance to date in more detail, before finally concluding with an overview and analysis of the most closely related studies on the topic.

3.3 The Study of Economic Surveillance

While researchers have generally preferred to examine alternative operations of international organisations, there is a small body of literature that specifically focusses on the economic surveillance function of IOs. Loosely, these studies can be grouped into three distinct categories. One strand of the literature has primarily conceptualised economic surveillance as a forum for learning, socialisation and the building of shared understanding between members. Early studies in this category were primarily occupied with analysing the surveillance operation itself, in terms of what its intentions and designs are (Mussa, 1997). Scholars were then concerned with how the IMF promoted its agenda through surveillance, with some research (Broome and Seabrooke, 2007) challenging the 'one-size-fits-all' criticisms that had been borne out of research on IMF lending and conditionality arrangements (Stiglitz, 2002). More recent research on surveillance has followed a similar line of inquiry, and focusses on the interactions between surveillance and institutional reputation (Broome, 2008). Others have employed a similar focus on the specific policy prescriptions issued by the IMF through its consultations with members (Broome and Seabrooke, 2012), and when countries borrow from the organisation (Broome, 2014). Other studies on surveillance have considerable shared ground with sociological research, where the particular dynamics of IMF surveillance are examined through an analysis of the demographic of surveillance teams (Seabrooke and Nilsson, 2014)

As most of the research on the IMF, in particular, had focussed on the organisation's engagement with emerging and developing market economies, these studies were concerned with the dialogue between the IMF and its more advanced members. Islam et al. (2012) examine the policy prescriptions in this sense, focussing on the specific policy advice contained in surveillance reports and the overall efficacy of these. Other scholars retain the distinction between levels of market development within the organisation, but attempt to

answer different research questions. Broome and Seabrooke (2007) for example note that the advice of the IMF through surveillance releases should be important for both emerging and advanced economies for several reasons. Firstly, the unique combination of technical expertise and the experience of the organisation in monitoring reform efforts and outcomes across its broad member base. Secondly, surveillance releases serve as signalling instruments to both domestic and international audiences. On the international front, actors like credit rating agencies might be influenced to alter their assessments based on the public discourses of the IMF. Domestically, surveillance releases can influence the general political climate by strengthening the position of incumbents or empowering domestic opposition parties. Surveillance can also drive particular agendas, such as specific pieces of policy reform or more generally on issues like budget management.

The second strand of research has focussed on the overall effectiveness of economic surveillance by international organisations, both individually and comparatively. Research on this particular question has studied the way in which IOs frame policy advice and the influence of surveillance exercises in general (Broome and Seabrooke, 2007). This body of literature was interested in exploring the theoretical arguments as to how economic surveillance could be influential given the very different circumstances in which it operates. Some studies noted that surveillance could only be effective in situations where the member being surveyed faced incentives to comply with advice (Lombardi and Woods, 2008). Other scholars have explored the impact of surveillance at a bilateral level using case studies (Breen, 2012; Edwards and Senger, 2015). These findings were part of the contribution to the debate on reforming not only the surveillance operation of the IMF in particular (Rogoff, 2003), but the organisation more generally. From 2008 onwards, scholars began to turn their attention to surveillance in greater numbers. The global financial crisis that erupted in 2008 led to severe criticism of not only the IMF, but also the EU for the inadequate efforts of both organisations to detect risk in their members' economies. The IMF came in for particularly harsh criticism both from within and outside the academic community on this issue. The extent of this criticism was amplified by the fact that the surveillance operation of the IMF had been the subject of scrutiny around previous financial

crises. Indeed, the IMF itself (through a team of independent experts) had evaluated its own surveillance operation in the wake of the Asian financial crisis in 1999. The comprehensive document of 81 pages contains a wide-ranging overview of each different type of IMF surveillance, along with an extensive set of policy recommendations regarding changes to be made to these operations. The thrust of the report is that surveillance lagged market trends and required broad reform in order to increase the impact of the function (IMF, 1999).

The Independent Evaluations Office of the IMF produced several reports over the following years which focussed on the surveillance function of the organisation. Each of these examined the operation from different viewpoints. One such report which examines IMF surveillance from the 1990s onwards focusses on the internal structure of the IMF with regard to surveillance. The author argues that reforms should be made to the various governing bodies of the IMF when producing surveillance, where each group should play to their comparative institutional advantages (Bossone, 2008). This report effectively demonstrates that the function suffered from inherent structural flaws even prior to the performance flaws of the operation. A later report that focussed on the performance of the surveillance operation in the pre-crisis years of 2004-2007 found significant failures. This report, which is also a lengthy document, explicitly states that the surveillance produced in this period failed to provide “clear warnings” over the risks and vulnerabilities of the impending financial crisis. The report also provides a significant template for reform. Of particular focus in this report is the fact that the IMF appears to acknowledge its relatively passive, and seemingly self-censored role in the run-up to the crisis. Of its 5 main recommendations in the report, 4 concern the delivery of the message in a surveillance exercise, rather than other issues like reform of survey construction or enforcement (IEO, 2011).

Academic research on the topic focussed on different aspects of surveillance around the crisis period. Some noted that IMF surveys had actually offered warnings, but that responses to these were not always followed up on (Sapir, Pisani-Ferry, Wolff, 2011). The

same authors pay particular attention to the divergence between individual surveillance reports of Eurozone members and the region as a whole. They note too that the IMF did fail in certain cases to report on risks in the area, concurrent with the analyses of the IMF's evaluation office itself. The OECD has not been immune to criticism from within over its surveillance operation prior to the onset of the crisis. Shigehara and Atkinson (2011) produce an evaluation report for the OECD that studies their surveillance, and that of the Bank of International Settlements (BIS) of the US and UK economies in the run-up to the crisis. The authors find that in both cases, surveillance by the OECD and BIS resulted in too few warnings, and those that were issued were inadequately highlighted or follow up on.

These alleged failings have also received significant media coverage and have been incorporated into wider domestic investigations into various aspects of financial crises. For example, the sovereign default of Argentina in 2001 was acknowledged by the IMF as a case in which its surveillance operation failed to adequately detect public sector vulnerabilities in the economy (IEO, 2004). This episode was picked up on by mainstream UK media (Conway, 2004). Similarly, the inquiry into the banking crisis in Ireland led to testimony from former IMF officials that focussed on the role of their surveillance operation in the crisis. This inquiry was televised nationally and the testimony that claimed IMF surveillance had failed was widely reported in the Irish media (The Irish Times, 2015). Scholars have also examined not only the performance of the IMF in relation to its surveillance responsibilities, but also the extent of its reform agenda. The findings regarding this demonstrate that there is a considerable time lag between surveillance failings and implementation of reform (Moschella, 2011).

Much of the literature on economic surveillance has been produced since the onset of the global financial crisis. Within this strand of research, most scholars have focussed on the failings of IMF surveillance to detect threats to the global economy. This is justified on the grounds that the mandate of the IMF is primarily to safeguard macroeconomic stability around the globe. However, as noted, both the EU and OECD are tasked with monitoring the economies of their members and detecting risk. Researchers have therefore begun to

examine surveillance regimes from a comparative perspective. Initial studies that took this format sought to explore the differences in the surveillance functions of IOs (Schafer, 2006). Such research was reflective of the coverage of economic surveillance before the crisis, where academic researchers had yet to join the policy debate over the performance of surveillance. The crisis from 2008 onwards led to greater scrutiny on the surveillance function of IOs regarding their performance. Moschella (2014) examines the surveillance operation of the IMF and the EU in her study of effectiveness. The author concludes that from a practical perspective, EU reports provide clearer and more practical advice than the IMF equivalent. She also argues that both organisations fail to prevent political considerations from impacting upon reform and compliance processes. Edwards (2012) compares the surveillance operation of the IMF to that of the OECD in his work. His findings demonstrate that there are significant differences across the two institutions in terms of information contained in the surveillance reports. The IMF performs well in terms of transparency of dissenting views over the economy in question, while the OECD is far more coherent in its approach to prescribing and following up on recommendations contained in its surveys. The same author extends this line of inquiry in his 2013 work to find empirical evidence that provides support for the hypothesis that OECD surveillance has considerable scope for influencing members to reform their economies (Edwards, 2013).

These studies provide several important findings for this research. Firstly, the economic surveillance function of international organisations has received most of its coverage in the wake of the most recent financial crisis. These studies have highlighted significant failings in surveillance produced by a range of international organisations. This body of research has also contributed to a lively debate on the potential areas of reform in the function. While these studies have focussed on effectiveness, there is limited empirical data used. As a result, the broader question of the level of impact that surveillance has is not answered by these studies. In the following section, I describe the few studies that employ an empirical approach to quantify the impact that economic surveillance has on financial markets specifically.

3.3.1 How Have Markets Interpreted Economic Surveillance?

There is a small but growing body of literature that seeks to examine the relationship between economic surveillance releases and financial markets. Conceptually, economic surveillance should at least serve as a liquidity boost for capital markets when new information is released to the public. However, research on the topic has led to conflicting findings. Survey based analysis by Mosley (2003b) and the IMF itself focusses on the extent to which market participants are familiar with other aspects of information provision by the IMF. Mosley's (2003b) interviews relate to the IMFs Standards for Data Dissemination (SDDS), a code of data standards that is designed specifically to facilitate access to capital markets. Her findings are that 44 per cent of interviewed fund managers are at least vaguely aware of the standards (pp 344). The Reports on the Observance of Standards and Codes (ROSC) by the IMF is an assessment of a country's observation of a broader set of international standards ranging from efforts to combat the financing of terrorism to insolvency and creditor rights. In an internal review concerning the use of these reports, the IMF concluded that there was "low" usage by market participants (IMF and World Bank, 2005: 6). This is particularly interesting given the comparison to Article IV reports also produced by the IMF. As noted, economic surveillance in the form that produces Article IV reports has been considered inferior to the OECD equivalent for failing to provide clear guidance to governments in the form of quantifiable targets or performance assessments. The same report details that Article IVs were used more widely by market participants than the ROSCs however (pp 24). While ROSC reports contain appraisals and offer recommendations, they still lack the quantifiable component of performance analyses that financial market participants prioritise for risk modelling. They also claim that the reports are too complicated and require clarifications and summaries. These studies outline the relationship between the various surveillance functions of IOs (the IMF in particular) and financial markets. Empirically, such research demonstrates little. Mosley's (2003b) research is illuminative, but limited in generalisability because of its research design. The internal reports by the IMF suffer the same failing. The thrust of these studies says that surveillance

is less useful than the conceptual framework would suggest. These studies also demonstrate that the primary reason behind this interpretation of surveillance and information releases by IOs is that the final products are not clear enough. Yet this tells us little about how financial markets actually react when surveillance is released. Research suggests even that if surveillance does suffer from these weaknesses it might yet move markets to a greater extent (Gaballo, 2017) as a *result* of being unclear.

The few studies that have empirically examined the impact of surveillance releases on financial markets have produced interesting findings. The scope of these studies varies in terms of the particular type of surveillance studied, the framework within which it is conceptualised, and the research design employed. Overall, however, the findings show that various forms of economic surveillance do impact on financial markets. Progressing chronologically, scholars were first concerned about the impact of transparency reforms on financial markets, where theoretical and empirical literature was located primarily in the realms of corporate finance (Greenstone, Oyer, and Vissing-Jorgensen, 2006). Research that sought to explore similar mechanisms on sovereign risk pricing struggling initially with the autonomous nature of the issuer. Corporate finance scholars could focus on mandatory changes to data collection, dissemination, or accounting standards issued by a governmental agency or central bank. Sovereign debtors are not officially bound by these kinds of constraints, although most conform to the IMFs ROSC at present (IMF, 2017d). Glennerster and Shin (2008) in their study use the efforts of the IMF in the period following the Asian financial crisis to boost the quality and regularity of data dissemination by members. Their study uses the initiative as a convenient natural experiment to examine the impact of various increases in transparency on emerging market sovereign debt prices. Crucially, publication of Article IVs and ROSCs is optional, and their findings show that countries that chose to publish these reports were rewarded by sovereign debt markets with cheaper borrowing costs of around 11 per cent (pp 186). Furthermore, they find that the size of the debt market and the initial level of transparency both play a key role in determining market reactions. Specifically, states with lower initial levels of transparency received greater reductions when they published Article IVs and ROSCs, and smaller, less

liquid debt markets saw greater reductions too. This study represents one of the first efforts to quantify the impact of economic surveillance releases on financial markets and offers some significant findings. However, the use of quarterly data, a focus on emerging market economies only, and relatively short sample period (1999 – 2002), leaves considerable space for future research.

Edwards, Denbow, and Elkarrimy's study in 2012 retained the focus on IMF surveillance through the lens of transparency. Their study too sought to explore the impact of increased governmental transparency in the form of publicly releasing Public Information Notices (PINS) that summarise the surveillance operation, or the full Article IV reports. They also use a two-step model that accounts for the determinants of a state behaving in a transparent fashion initially. Following this, they also use quarterly data on emerging market bond spreads over US counterparts as the main dependent variable in their study. Their findings demonstrate that countries that first opted to publicly release PINs concerning their economic surveys had lower spreads on their sovereign debt yields. Similarly, when countries were offered and accepted the opportunity to release their full Article IV reports to the public, they too paid less to borrow on international markets. Once more, the authors present findings that further illuminate the relationship between surveillance and stakeholders of financial information. Their study also moves closer towards my own, with the emphasis placed on Article IVs and PINs separately. Indeed one of the implications of their work is that the content of various forms of surveillance needs to be taken into account, something I attempt to do in this study by studying three organisations.

Finally, Fratzscher and Reynaud (2011) produce a piece of research that is closest to my own in terms of design. The authors examine financial market reactions to 157 Article IV PIN notices on emerging market economies released by the IMF. Their primary research question diverges from the other studies that examine financial market reactions to surveillance releases. They are concerned with the extent to which political economy factors influence the composition of an IMF PIN notice, and in turn the market reaction to

the release of a PIN. Their findings indicate that political economy factors do influence the way in which the IMF surveys its members, with countries that hold greater political power and linkages to the IMF receiving more favourable reports. This finding is consistent with the concept of "defensive surveillance", where more vulnerable economies, such as those with heavy debt burdens are shielded from greater criticism. Additionally, the financial benefit for governments that hold these positions is sizable, as they receive on average, a 50 basis points reduction on the yield of their sovereign debt when a PIN is released. These findings too shed light on both the determinants of surveillance reports, and their impact on financial markets. There are, however, several aspects of my own study that attempt to close the gaps in these earlier studies.

Firstly, the majority of the previous research that examines the impact of economic surveillance has focussed solely on IMF monitoring operations. I present a more comprehensive analysis of the impact that surveillance has as an operation by examining reactions to releases by three institutions. This is the first study to my knowledge that explores variation in market reactions to surveillance across institutions to include the OECD and EU. Secondly, the literature thus far has used relatively short time periods and sample sizes. Some of the studies have sample periods of just a few years. While the findings of such research are still highly important, they do not reveal as much about how market reactions to surveillance releases have changed over time, particularly after the 2008 crisis. It is highly conceivable that reactions to surveillance might change in volume or magnitude over an 18 year period. Financial markets have evolved greatly over this period in terms of their structure and size, while economic conditions around the globe have also displayed great fluctuations. My study is therefore ideally formatted to capture the impact of these changes on market reactions to surveillance. In terms of the sample sizes used by researchers in previous studies, they are relatively small. Fratzscher and Reynaud (2011) for example use a sample size of 157 observations, while Glennerster and Shin (2008) have a sample of 322 observations. I greatly expand on this by using a sample size of 827 observations over a longer time frame and across three organisations. Additionally, these studies focus exclusively on surveillance of emerging market economies. Emerging markets

are an ideal group for this kind of research, as their relatively opaque nature and volatile debt markets should test the informational content of economic surveillance. IOs do of course produce surveillance of all member economies however, and our lack of understanding regarding how they are affected by surveillance represents a considerable gap in the literature.

Furthering our knowledge of how debt markets react to surveillance of advanced economies is vital for a number of reasons. Firstly, the advanced industrial economies are drivers of growth both regionally and globally, with changes in their borrowing costs having significant implications for wider economic growth. Secondly, advanced economies are the largest shareholders at the IMF, and are the most politically important members of the EU and OECD. This study has scope for explaining both the extent to which the content of surveillance varies for these members compared to emerging markets, and the extent to which market reactions to surveillance varies across asset classes. This approach should reveal findings that speak to the literature on financial markets, and also on the political economy of IOs. Closely linked to the issue of sample size in previous studies is the methodology used by these authors. To my knowledge, Fratzscher and Reynaud's work (2011) is the only study that attempts to classify economic surveillance reports according to their content. They accomplish this by reading and hand-coding each of the 157 PINs in their study. Hand coding can be reliable, but at the cost of sample sizes in academic research. It is also not as easily replicable as the quantitative content analysis procedure that I employ in my study. Furthermore, their assumption and robustness check for the validity of the hand coding system they employ is that the score of each report should match the general macroeconomic conditions in the country being surveyed. My theory argues rather that the conditions of an economy might be irrelevant, and that surveillance is a homogenised judgement regarding policy reform in a member's economy, this is more closely in line with the role of surveillance itself. Lastly, the estimation method I use to calculate abnormal reactions to economic surveillance releases is considerably robust. Where previous studies used quarterly data, I use daily yield data for each of the 42 countries and 827 observations in my sample. The use of daily data allows for both a more

accurate estimation of 'normal' market movements, and also a more clear indication as to how surveillance impacts yields immediately after release.

Conclusion

This chapter has provided an overview of the literature of relevance to this research question. There is a rich body of theoretical research that has broadened our understanding of IOs more generally. These studies have argued that IOs represent a unique force for the reduction of uncertainty in IR and the global economy (Rogoff, 1999). Later studies also retained a theoretical focus, but cast light on how the activities of IOs can influence the political world in which they operate (Drezner, 2003). Only recently has the surveillance function of international organisations received coverage from the academic community. Research on this function has been produced largely since the onset of the global financial crisis in 2008, when severe criticisms were levelled at IOs for failing to detect vulnerabilities in the global economy. As a result of this, most studies that focus on economic surveillance are concerned with reforming the function to better safeguard the financial system. This is admirable, but does not provide information on how surveillance is interpreted by markets, which play a critical role in global financial stability. The few studies that have attempted to answer this have approached the question from alternative theoretical perspectives and have employed methodologies that leave considerable scope for future research. In my study I build primarily on the work and findings of this last body of literature. I offer a new theory of how economic surveillance can be conceptualised, a greatly expanded sample size, comprehensive data, a new database of coded economic surveillance sentiment, and a robust methodology to estimate the impact of surveillance on sovereign debt markets. In the following chapter, I outline the new theory that I have developed on economic surveillance, where I also describe the hypotheses I have generated to test market reactions to surveillance releases.

4. Theoretical Framework

This research examines the impact of economic surveillance releases on financial markets. I draw on the wide range of literature that focusses on IOs and market reactions to information. Theoretically, this research attempts to explain how market participants might react to political economy news. Much research on international organisations has noted their vulnerability to capture and politicisation by larger members, a particularly pertinent example of this considers the lending and conditionality arrangements of the IMF. This might indicate that the economic surveillance function of IOs could be compromised, and that market participants may not trust its findings. However, lending and conditionality arrangements are different in the sense that IMF programmes always contain short-term distributive effects. Surveillance, however, should be positive sum. Indeed, the previous chapter of this thesis has demonstrated that international organisations are a force for increased cooperation in the international arena, particularly with regard to information sharing. Economic surveillance is an example of such cooperation, where information exchange and dissemination by a credible institution is used to reduce uncertainty in the global economy. As noted, there are many reasons why economic surveillance should be of interest to financial market participants. In this chapter, I will provide a new theoretical argument and set of hypotheses that will be used to test the reactions of investors to new surveillance releases produced by international organisations.

When the finance literature on market reactions to news is viewed as an entire body, it proves to be a highly complex, contested area of research. To acknowledge this complexity, I utilise four different theoretically relevant interpretations of financial market behaviour to explain reactions to economic surveillance releases. Within each grouping of financial market reaction theory, I offer several hypotheses of how markets may react specifically to economic surveillance releases. Firstly, I discuss the efficient markets hypothesis, a foundational theory in finance, and a natural starting point for explaining how markets may react to surveillance episodes. This theory of financial markets as rational entities unburdened by human emotions or weaknesses has come under sustained criticism

in the decades since its creation. In the wake of recent financial crises, an alternative school of thought in finance has emerged, specifically, that markets, as a social creation, are bound by the name constraints that all individuals are. This school of thought is known as behavioural economics, and often focusses on the factors the affect decision-making in market participants. This school of thought is more than worthy of discussion and is outlined lastly in this chapter as it stands as the entirely opposite theoretical interpretation to the efficient markets hypothesis. I bridge this gap by providing analysis of a moderate interpretation that combines both schools of thought, the 'quasi-efficient' hypothesis of financial market activity. This section of the chapter deals primarily with the growing middle ground between rational market theories such as those of efficient markets, and behavioural theories of decision making. Quasi-rational theories conceptualise actors behaving with bounded rationality in financial markets. These theories incorporate the broad implications of efficient market interpretations, but remain less constrained by also retaining elements of behavioural economics theories.

4.1 Efficient Markets Hypothesis

The first theory I employ to explain market reactions to economic surveillance releases is the theory of efficient capital markets. As one of the earliest, most robust theories which still retains relevance in the present area of finance, it is a logical starting point for attempting to explain market reactions to surveillance. Commonly known as the efficient markets hypothesis, it argues that market prices reflect an ‘intrinsic’ value of an asset, meaning that the cost of any asset reflects its risk and reward, and assumes that profit maximisers actively search for these rewards. The theory was originally constructed and tested by Eugene Fama in the 1960s with his paper that attempted to explain stock market movements (1965). His ‘random walk’ hypothesis argues that stock market prices cannot be predicted by past performance, and that future performance takes unforeseen ‘walks’ in terms of price movements. Central to this theory is the importance of the information about an asset that market participants have at any one time. A typically efficient market is

one with many profit maximisers, for example, most capital markets, where each profit maximising participant currently holds all available information about the assets they invest in. A second assumption is that financial market participants, by attempting to maximise profit, will also maximise the amount of information they can gather on assets in the market they operate in.

An efficient market, therefore, is one in which the price of an asset reflects the information that all parties possess. Crucially, the interpretation of what constitutes 'information' varies across three forms of the hypothesis that Fama offers. He firstly offers the weak form hypothesis, which argues that previous asset prices cannot be used to predict future returns on investments. Meaning that trends in previous prices are not predictive of future movements. The semi-strong form hypothesis argues that asset prices currently reflect all publicly available information, along with all previously known information and events. This form of the hypothesis is the one I am most concerned with in this study, and is typically examined in financial literature (e.g. Givoly and Lakonishok, 1979; Summers, 1986). Under the semi-strong form, an efficient market is one in which participants all hold the same level of information about the assets they invest in, along with knowledge of previous price movements. An example of previous price movements might be the effect of a particular degree of success in earnings announcements, therefore investors have priced the effect into the asset in anticipation of such an announcement. This form of the hypothesis argues that financial markets react quickly and decisively to new information released about an asset. For example, if a particular company is widely expected to release data showing a 3 per cent increase in growth, investors have already priced in the potential effects on asset prices, meaning that a 3 per cent rate of growth is expected for such a company. Information such as this does not count as being 'new', while the same company releasing an unexpected 6 per cent rate of growth will come as 'news' to investors, meaning that the market quickly adjusts to this genuinely new information. While this does not mean that anyone can profit, it means that disproportionate profits cannot be made, because, for example, the price of the stock before the unexpected earnings announcement would have reflected the ability to produce a 6 per cent growth rate. The

strong form of the efficient markets hypothesis is the strictest of the three, and argues that asset prices currently reflect all available public and private information. Once more it follows on from both the weak and semi-strong form hypotheses, and under these conditions, asset prices currently reflect all relevant available public and private information. This form of the hypothesis is often ignored in the academic literature, as essentially it means that no investor can earn excess returns, regardless of historical research, currently available information, or even insider information.

4.2 Efficient Markets and Economic Surveillance

I use the efficient markets hypothesis as one theoretical lens through which the impact of IO surveillance may be interpreted. Essentially, using the efficient markets hypothesis, this study tests the validity of IO surveillance as genuine 'news' to financial market participants. This research follows the typical process for examining semi-strong market efficiencies, by conducting event studies on economic surveillance releases. An event study combines forecasting, to examine the predictive capacity of time series data, along with an examination of the impact an event has on asset prices. In the broad spectrum of financial literature that has utilised event studies, most have focussed on the impact of the release of economic data, for example, earnings announcements (e.g. Aharony and Swary, 1980) or forecast data (Cornell and Landsman, 1989). These studies can therefore draw clear causal arrows between the data of their independent variables, for example, poor earnings announcements, and their dependent variables, for example, stock sell-offs. Events that contain little or no economic data releases, for example, elections, force scholars to draw heavily on theories in both finance and political science.

In order to merge theories of finance and political science for this research, it is necessary to examine economic surveillance in terms of how it is produced and what its judgement should mean to market participants. Economic surveillance episodes produced by international organisations are exercises designed specifically to promote and ensure stability in the global economy, and are one of the most powerful tools afforded to policy

makers in achieving this end. As noted, one of the strongest advantages IOs have is their ability to communicate and disseminate accurate and credible information to a range of audiences. Economic surveillance texts are released to the public following an often long and labour intensive process. The economic surveillance process involves a mission team of expert economists visiting the member state, meeting with the key figures in the government and central bank. Indeed, research notes information gathering as a strength that IOs hold over other agencies (Keohane, 1984), a reason for this may be the staff that produce such information. Martin (2006) notes that among the advantages of IOs are the strengths of their employees, who often provide training for members. During these meetings, both parties exchange data and evaluate strengths and weaknesses in the economy, along with the progress a government has taken towards enacting structural reforms. This process ends with a preliminary report being produced by the mission team of the IO, which is then debated and discussed by the directors and representatives of member economies at the organisation. As a result, a surveillance report essentially contains both an economic appraisal by a team of staff economists, along with a political appraisal by member state representatives. This breakdown is demonstrated in the final report, which includes clearly labelled, independent sections that have been produced by the staff and the directors. However, unlike other event studies that focus on data releases for example, PINs from the IMF and Council opinions from the EU contain little or no new data, but rather more political information. This creates theoretical implications for researchers, who must now focus on both financial market models, and also on more general political economy theory.

4.2.1 Efficient Markets Hypotheses

When taking the efficient markets hypothesis as a starting point, there are several theoretical implications. Firstly, the efficient markets hypothesis states that asset prices should immediately adjust to newly released information. This has important implications for hypothesis generation. Political economy research, specifically on international

organisations, states that on average, information dissemination should reduce uncertainty between actors and in the global economy. Indeed, research that has focussed on the institutional design and functions of international organisations has argued that states design IOs in ways that further their own goals, economic surveillance is a good example of this (Koremenos, Lipson, Snidal, 2001). Others note the important influence of shared normative orientations between IMF staff members and market-orientated member government officials on the activities of IOs (Chwieroth, 2013). It is often argued that a shared consensus between open market advocates and the IMF was to blame for the failure of its programmes (Stiglitz, 2002), however, this bolsters the argument that markets should treat surveillance releases as credible pieces of new information. Therefore, if we take economic surveillance releases as credible information disseminations that reduce uncertainty between actors by addressing their concerns, we should expect financial markets to react favourably.

H1: Economic surveillance should on average, reduce interest rates.

Earlier theories that discuss the provision of information by international organisations argue that it should be of collective benefit to actors (Keohane, 1984). However, IOs survey all members; 28 in the case of the EU, 34 within the OECD, and the 189 of the IMF. Furthermore, economic surveillance releases, while only available from 1996, occur during drastically different global, regional, and domestic economic climates. Also recall that surveillance is designed to improve, stabilise, and structure the global economy. It is therefore logical that the content of economic surveillance texts themselves should vary over time, specifically; there should be variance in the levels of positive, negative, or uncertain sentiment within the reports. If we take IO economists to have the same orientations as market participants, at least at a basic level in terms of market openness along with the preferential access afforded to IO staff as an advantage, we should expect sentiment to matter.

H1a: Positive (negative) economic surveillance releases should reduce (increase) interest rates.

Crucially, however, the efficient markets hypothesis dictates that markets should react only to information that is genuinely 'new'. Therefore, it is necessary to consider whether economic surveillance could genuinely be interpreted as such. As noted, economic surveillance teams are afforded unrivalled access to data and to policy makers of member governments, they are also highly trained, expert economists. However, IOs do not hold a monopoly over information on global finance, or even on skilled economists. Companies in the private sector too are endowed with some of the brightest minds in finance, and they too seek to produce research and analysis that provides their organisations with an advantage over competitors. This is particularly important for the conceptualisation of economic surveillance as an information revealing, uncertainty reducing exercise. The benefits of modern technology mean that information can be analysed and transported quickly across the globe, meaning even that actors are often oversupplied with information (Workman, Jones, and Jochim, 2009). The abundance of available data today forces us to consider an alternative interpretation of economic surveillance, that it may only be useful to market participants in cases where such information itself is not readily available. The current era of globalisation has produced the largest increases in capital mobility in history, both in relative sums and also across geographical distances. The current era is also drastically different in terms of information provision and risk profiling. For example, a key variable that early investors in sovereign debt considered was default history (Tomz, 2007). Now, institutional investment vehicles have dedicated research and analysis teams who are devoted solely to pricing risk. However, despite great advances in our ability to transmit and gather information on the global economy, there remains considerable disparity in information availability between emerging and developed markets. This is particularly acute for political information, such as policy direction.

Research departments have proliferated greatly within institutional investment groups, yet most of the money spent on research is channelled into researching advanced industrial economies, not emerging or less developed (Bhushan, 1989). One important reason for this is the limited availability and suspect reliability of the data that is collected by emerging market governments or central banks. In often large geographical areas with

dense populations, weaker institutions, and poor infrastructure, governments and central banks simply do not have the capacity to gather accurate financial data. Research suggests there are financial benefits of increased transparency in politics and in business (Tapscott and Ticoll, 2003). Generally, indications are that moves that promote transparency and improve the strength and credibility of domestic institutions are met favourably by the business community and financial markets in general (Glennerster and Shin, 2003; Standard and Poor's, 2013). Yet advances and moves towards transparency in recent decades have come largely from advanced industrial economies, with emerging and less developed markets slower to reform (Glennerster and Shin, 2003). Indeed, research on the determinants of government bond interest rates has indicated that emerging market assets are viewed as having distinctly different risk profiles than advanced economy assets (Mosley, 2003b). As noted, data availability and reliability form part of the reason that emerging market debt is considered riskier than that of advanced economies. Yet an additional factor is the opaque and volatile nature of the political environment in emerging economies. Advanced economies have relatively stable polities with often low turnover and partisanship, emerging markets are often the opposite, with quick and sometimes drastic turnovers in government ideology. This forces investors to consider not only the macroeconomic environment, but also the broader political landscape of the country they invest in. In advanced economies, the primary concern for investors in government debt is inflation, which they monitor with a select few macroeconomic variables they can gather easily and be confident with. In emerging markets, investors must consider both ability to repay, through macroeconomic analysis, and also willingness to pay, through political economy research. Yet a government's ability to repay is often easy to judge, even with relatively poor data, investors can make a judgement based on the available statistics. It is considerably more difficult to assess a government's willingness to repay their debts. Political contests in emerging markets are often characterised by populist candidates who run on tickets of wealth redistribution or debt repudiation. However, it is often difficult to predict how governments will actually behave in office. For example, financial markets began to react when Brazilian presidential candidate Lula Da Silva was gaining ground

before election in 2002, proclaiming his intention to default on Brazil's external debt. However, when in office, he reneged on this promise and even repaid the IMF ahead of schedule. This is just one case that demonstrates the unpredictable nature of politics in emerging markets. This is indicative of broader risk for emerging market investors, specifically, leading them to ask the question of how they can be sure that political officials will honour debt commitments when in office. Indeed, research on the topic has noted that assessing willingness to repay sovereign debt is the hardest variable to accurately predict (Lipworth and Nystedt, 2001). If we return to our assumption of economic surveillance being a process whereby expert economists are afforded access to policy makers and previously unreleased data, reports on emerging markets should be of particular interest to market participants then.

I am concerned with the mechanisms through which investors may react to a surveillance release. Data shortages are common in emerging markets, yet PINs and Council opinions (in contrast to Article IVs and OECD Surveys) rarely contain new data, usually they offer data on a select few variables that are already known to investors. I argue however, that these reports by IOs represent both political and economic judgements by members. Taking the ability of international organisations to reliably disseminate information, along with political uncertainty in emerging markets, economic surveillance offers a chance for governments to demonstrate credibility to international investors. Previous research notes that emerging markets are often forced to rely on sending 'signals' to financial markets, for example with the appointment of a particular central banker or finance minister (Rogoff, 1985). Furthermore, market participants are looking for information that will get them "inside the head of the finance minister", meaning both sides should have an interest in information releases. Economic surveillance should be an even more effective channel through which signals can be sent than for example, central bank appointments (Rogoff, 1985), or currency re-denomination (Mosley, 2005). With the literature on IOs in general noting this potential (Keohane, 1984; Haas, 1964). Central to the construction of an economic surveillance report is its emphasis on the enactment of structural reforms by member states. In the case of IMF and OECD surveillance appraisals, it is one of their core

objectives to pressure member governments into enacting the reforms they see necessary to boost growth and ensure stability (Schafer, 2006). This is reflected in the text contained within a report, particularly in the appraisal produced by the executive directors in IMF surveillance releases. These texts contain staff appraisals, which generally provide expert opinions on the background of an economy, detailing its strengths and weaknesses, and also executive director appraisals. This latter section deals primarily with how government officials and policy makers have performed, with an emphasis on "praising" politicians when reforms are enacted, and "strongly urging", when reforms have been slow to materialise. I argue that these judgements effectively represent political and economic appraisals of policy making in member economies.

It is also crucial to note that economic surveillance recommendations have been altered over time to become more representative of the concerns that market participants have in domestic economies (Mosley, 2003b). Much research has noted the impact of structural reforms on economic performance. For example, Berkmen (2011) demonstrates that despite the short-term costs of structural reforms, their growth supporting benefits are considerable, regardless even of the external environment. Berkman (2011) goes further to suggest that such domestic reforms should be the key priority for policy makers in the global economy. Similarly, Varga and Veld (2013) note that structural reforms entail both short and long term benefits in terms of fiscal balancing and also insulation against economic shocks. Bouis and Duval (2011) also find strong growth effects from structural reforms. One interpretation of market participants is that those investing in sovereign debt are concerned only with governments honouring their debt obligations (Mosley, 2003b). However, it would be counterintuitive for an investor to not be interested in the daily performance of the assets they invest in. This means that regardless of their investment strategies, they should be concerned about the growth implications of structural reforms. A second reason that investors should be interested in the judgement of IOs on policy making in member economies is the level of trust between the two sets of actors. Staff members at international financial institutions, along with economic policy makers in member economies, and those operating in financial markets are generally all drawn from the same

socio-economic group. These actors typically attend the same universities, where they receive similar training and develop like-minded normative conceptualisations of economic planning and policy-making (Chwieroth, 2013). Central to this learning and development is the emphasis placed by Anglo-American economics departments on market efficiencies and rational decision making, a factor that has often led commentators to be heavily critical of IOs. A core component of this criticism has been the broad set of 'Washington Consensus' policies that IFIs have included in their agendas, for example, the conditionality arrangements in IMF loan packages (Stiglitz, 2002). While the EU has is in recent years been subjected to heavy criticism for its emphasis on fiscal consolidation in combating economic crises in the region (Krugman, 2015). While academic research indicates that such broad generalisations of policy are somewhat inaccurate in the case of the IMF (Caraway, Rickard, Anner, 2012), each institution does retain a commitment to the kinds open economic policies that market participants adhere to. Furthermore, research has even noted that within the IMF, and as noted, recommendations on policy making have even been altered over time to reflect the concerns of financial market actors. Recall however that the efficient markets hypothesis states that prices should only adjust to genuinely new information. It is reasonable to suggest therefore that financial market actors may already have heavily researched the policies of larger industrial economies, and that economic surveillance may not actually reveal anything that is new. Mosley (2003b) finds that while actors are concerned with macroeconomic statistics, they may not display strong reactions to all information that is released about advanced economies. This is strengthened by the fact noted previously, that most research and development by institutional investors focusses on the larger economies of the globe. Information shortages and uncertainty within emerging markets may be more likely determinants of market reactions to information releases. Investors are forced to confront broader sets of indicators in emerging markets, not only macroeconomic figures but also the more subjective political economy environment. Economic surveillance can offer investors genuinely new information on the policy trajectory of an economy. For example, IMF authorities conducted their surveillance report of Brazil's economy almost immediately after newly elected President Lula Da Silva

took office. Uncertainty was high prior to his election, with the IMF indicating that financial markets feared the overturning of favourable economic policies following his election (IMF, 2007). The timing of the report was interesting, given that often surveillance exercises occur at any stage of the calendar year. The report itself made several references to the political landscape, and concluded that a move away from market-orientated policies was not on the agenda of the new president (IMF, 2002). While manager director Horst Kohler even made a public statement after his meetings with President Da Silva in January 2003, emphasising his support for Da Silva's framework (IMF, 2003). I argue that this kind of political information is genuinely new, and can be credibly transmitted by few actors, IOs being one. However, this kind of uncertainty is largely absent from advanced economies, with lower polarisation and higher transparency in the political arena.

H2: Financial market reactions to surveillance of emerging markets will be greater.

I have outlined how in an efficient market, economic surveillance may cause investors to react positively overall, because of a reduction in uncertainty. I have also outlined how they may react to the content of the report, specifically that the sentiment of the text should guide their responses. An additional feature of an efficient market is that it prices in all available information, and because of high data availability for advanced economies, reactions to surveillance of emerging markets will be greater. I now depart from traditional efficiency hypotheses to examine various ways in which efficiency theories may interact with theoretical research from behavioural economics. Specifically, I discuss the next theoretically relevant interpretation of how markets operate, a combination of behavioural economics and efficient market reactions.

4.3 Quasi-Efficient Markets

The efficient markets hypothesis and its three forms is one interpretation of how financial markets operate. While there is considerable evidence to support the assertion that markets are efficient in this regard (Fama, 1970), the theory has faced competition since it was offered in 1965. Naturally, capital markets have evolved greatly since Fama's original

thesis was proposed. There currently stands an equally large body of research that indicates markets are often inefficient, with Fama himself even conceding this in certain circumstances (Fama; French, 2008). Furthermore, the efficient markets hypothesis has come in for sustained rounds of criticism following financial crises, notably most recently with the onset of the global financial crisis (Akerlof and Shiller, 2009). This criticism was borne out of a growing school of thought that maintains markets are disproportionately driven by human exuberance and emotion rather than rationality and efficiency. Behavioural economics is a school of thought that stands in contrast to the assertions of the efficient markets hypothesis when trying to explain market trends. However, a more moderate interpretation of financial behaviour that incorporates both schools of thought is that financial markets often operate with 'quasi-rational' decision making.

Traditional economic theories, and the efficient markets hypothesis, are grounded in general theories and assumptions of rational choice. These theories pioneered by Neumann and Morgenstern (1944), argue that individuals, when faced with decision-making choices, behave to further their own interests. This means in an economic sense, that individuals will make the decision that maximises their financial utility. This assumption is common in economics and finance literature, being part of the reason it has been criticised so heavily for its role in financial crises (Akerlof and Shiller, 2009). Since the initial introduction of assuming utility maximising actors into financial literature [the concept itself might be traced back to Mill (1836: 321)], much research has been produced that contradicts such assumptions. For example, studies in the field of psychology note that a key determinant of how actors respond in problem-choice environments is how the options available are framed (Kahneman and Tversky, 1986). De Bondt and Thaler (1994) give the example of two actors faced with the same problem choice, a fixed consumption budget, but each chooses different consumption bundles. They, in turn, offer three potential explanations for this outcome, firstly that each actor has different tastes. This explanation means that the principle of utility maximisation still holds, and that they are pursuing their own interests, even if they are different to each other. The second possible explanation is that each actor has different information about the choices available. This possibility, for the purposes of

our study, violates the efficient markets hypothesis. While in this hypothetical example, each actor may be trying to maximise utility, they act according to conflicting information. The current research focusses on financial markets, where there are many actors and finite amounts of information, meaning that on average, the homogenisation of information should result in a mean reversion of prices. The final explanation provided is that one of the actors has made a mistake. In this research, I am interested in a combination of second and third reasons. De Bondt and Thaler (1994) develop a model that explains consistently incorrect choices that violate the principles of utility maximisation. While violations of traditional rational choice, utility maximising behaviour can be observed elsewhere, they develop a model for consistent violations, which they define as 'quasi-rational' behaviour. However, this study is concerned with financial markets, where incorrect choices are not typically sustained. Decision making in financial markets is based on utility maximisation, however, those that make consistently wrong choices are crowded out of the market (Keynes, 1934). Furthermore, on an individual level, the price change effects of even occasionally incorrect decisions by actors that typically make rational decisions are also washed out of asset prices.

The efficient markets hypothesis stipulates that asset prices are determined by all available public information, coupled with rational, utility maximising actors dictating these price movements. While we can presume that actors are utility maximising, they would invest and trade infrequently if complete information on an asset were necessary. However, we observe the opposite, because success in finance is measured as much by the performance of one's competition as much as it is by total earnings. Financial market participants must continually invest and trade, even when they are faced with time and resource constraints that limit their information gathering abilities. As a result of these constraints, market participants are forced to rely on a number of formal and informal mechanisms through which information is gathered and disseminated. Research on the use of heuristic devices in financial markets indicates that there are two main reasons that explain their use. As noted, that time and resource constraints prohibit investors from completely gathering adequate information on an asset, or that they cannot collect the

information themselves (Payne, Bettman, Johnson, 1993). Secondly, constructivist interpretations of financial markets argue that economics, in general, is a field in which ideational norms, orders and structures become dominant forces in the practical developments of the discipline on a daily basis (Nelson and Katzenstein, 2014). I argue that economic surveillance releases speak to both of these theories, and that their role is that of both an information producing exercise, and that its impact is moderated by heuristic uses in financial markets more generally. The following section will analyse how economic surveillance interacts with theories of heuristic use by financial market participants.

4.3.1 Quasi-Efficient Markets and Economic Surveillance

In this section, I explore two theoretical interpretations of how economic surveillance interacts with financial markets, firstly why markets may rely on economic surveillance produced by IOs when making decisions under time and resource constraints. Secondly, how the impact of surveillance is moderated by heuristic devices and subjective interpretations that market participants use when operating. In order to understand how and why markets might use surveillance releases, it is necessary to examine the broad range of literature that discusses the relationships between international organisations, international agreements and global finance in general. There exists an extensive body of literature that has examined the short and long-term impacts of international organisations on economic outcomes (Vreeland, 2003; Jensen, 2004; Edwards, 2006; Chapman et al. 2017). A general belief in open market economics within the financial community should indicate that reactions to agreements in trade or international economic cooperation would be favourable. Indeed, this impact has been widely observed over previous years (Buthe and Milner, 2008). However, political economy research indicates that traditional open market benefits such as increased trade and other directly observable changes alone do not explain the extent of financial market reactions to international interactions. For example, scholars have examined ‘seals of approval’ in global finance, whereby endorsements from credible institutions and actors disproportionately impact on asset prices. Such instances

date back to early phases of globalisation, when less developed markets were afforded cheaper borrowing costs as a result of their colonial status (Ferguson and Schularlick, 2006) even when controlling for traditional explanations. In the same period, Bordo and Rockoff (1996) find that countries that adhered to the gold standard monetary peg were conferred by financial markets with 'good housekeeping seals of approval' regarding their status as investment options. Ferguson and Schularlick's (2006) work forms part of a broader literature on the influence of international organisations and institutions, along with the concept of reputation in global finance. In their research, the observed influence on financial markets was exerted through membership of an institution coordinated by the British Empire. Interestingly, the strongest effects are found for smaller, less developed countries without solidified capital market reputations. Similarly Gray (2009) finds that EU accession plays a considerable role in reducing investor perceptions of risk in acceding countries. Within the international relations literature, accession to an international organisation has been indicated as a mutually beneficial agreement between states, where increased trade and a reduction in uncertainty are some of the traditionally cited benefits (e.g. Axelrod, 1981; North, 1990; Morrow, 1994). However, research like Gray's (2009; 2013) goes further to suggest that the benefits of membership of an international organisation go further than the directly observable, commonly cited explanations. The influence of such reputations in capital markets is not a recent phenomenon however. Tomz (2007) discusses how reputations of debtors materialise and evolve over time. He demonstrates how new borrowers were subjected to increased borrowing costs as a result of their unestablished reputations, and how default history was a highly important determinant of interest rates. However, the current era of globalisation is one defined by unprecedented capital and information mobility, which should allow investors scope for more informed decision making. Yet there remain both empirical and theoretical indications as to why investors should and still do rely on factors such as reputation when participating in financial markets.

Investors are primarily concerned with inflation and performance risks in advanced economies (Mosley, 2003b), a state's reputation as a reliable debtor allows investors to

focus on other assets or activities in their daily work. For example, several advanced economies are viewed as 'safe haven' investments in sovereign debt markets. In recent years, two notable destinations for investment have been the German and United States central banks, and the sovereign bonds of both countries. Safe haven investments such as these do not represent gambles by market participants on the possibility of large returns, but are in fact assets that have the lowest chances of default or volatility. Indeed, investing in German bonds in recent years has actually become costly, with interest rates falling negative. The reason that these destinations are safe, is that default risk is perceived as non-existent, while inflation risk is almost equally low (Mosley, 2003b). Empirically, advanced economies such as these also have low ideological reversals in governance, along with generally strong macroeconomic performances. They also typically get the highest ratings from credit rating agencies, and have transparent, open economies with strong institutions.

Yet it is important to remember that market participants, while aware of these factors, do not monitor or scrutinise them as intensely as they would an emerging market economy, because of the strong reputations these advanced economies have developed (Mosley, 2003b; Tomz, 2007). Strong macroeconomic fundamentals, along with a proven record of debt repayment are straightforward interpretations of how countries establish strong reputations. However, reputations have the ability not only to determine the path of the economy in question, but also those who interact with it. Countries that are consistently strong performers in sovereign debt markets are by definition, pursuing the kinds of policies that market participants favour. Furthermore, they are often the larger members of the advanced economies, those with extensive economic and political influence. As a result, the influence of their reputations is often observable in other economies. Gray and Hicks (2014) for example note that positive international reputations of stronger economies lead to increased reputation benefits for lesser-known economies when they adhere to international agreements. A straightforward example they use is of international organisations with strong reputations, when a weaker economy joins, it receives a reputation boost from financial markets. Conversely, if a lesser-known state joins an

organisation in which larger members have pre-established 'bad' reputations, the newly joined state will damage its own reputation. Similarly, Gray (2013) notes how investors perceive risk as a function of the 'company' that a state keeps in its international relations. She argues that risk in emerging markets is largely determined by international agreements between states, with this used as an indicator of the likelihood a state will honour its debt commitments. As noted, international economic organisations are mandated to ensure stability in the global economy, and as a result, in financial markets. I have also described how their demands in policy assessments have evolved to reflect the changes that financial market participants would want in an economy (Mosley, 2003b). Furthermore, the most powerful members are larger advanced economies with long, established reputations of consistently honouring sovereign debt commitments. Therefore, an assessment from an international economic organisation should carry the same reputational influences that characterise economic agreements. However, in the case of economic surveillance, there are no direct consequences for a poor report, no traditional 'carrot and stick' systems for member economies. If a member is drawing on credit, they are bound by certain pre-agreed conditions, but surveillance reports are not part of programme monitoring. Therefore, an economic surveillance report should indicate to financial markets that the economy in question is on a certain policy trajectory, similarly to the mechanism established in Gray's (2013) work. This is the first reason that markets should use economic surveillance releases as heuristic devices for pricing risk in financial markets. The first point, to summarise: is that economic surveillance is produced by IO staff, who share the same normative orientations as market participants. IOs are comprised of large, economically and politically powerful members that have solidified reputations in sovereign debt markets. I argue that this means an economic surveillance report has the ability to confer the 'seal of approval' seen in previous research, through two mechanisms. Firstly through the approval of policies and trajectory signal that expert economists produce, essentially a technocratic approval. Secondly, through the reputational approval that large, economically powerful institutions, organisations and states carry indirectly in surveillance releases.

This theory of how market participants interpret economic surveillance can be viewed in two ways, the first of which is that financial markets use surveillance as a heuristic device for pricing risk in all sovereign debt assets. There is a strong case for this first interpretation. As noted, there are many practical strengths of surveillance that indicate it should be a useful, technocratic heuristic that investors can use in decision making. In addition, there are logistical reasons too, for example, time and resource constraints that limit the research capacities of market participants. Theoretically, researchers note IOs are designed to fulfil the interests of states, with certain tasks delegated to the organisations (Koremenos, Lipson, Snidal, 2001). Their research notes even that specific functions such as information gathering are delegated to IOs because of the mutual benefits available from outsourcing the task. Additionally, an economic surveillance report provides a service that allows market participants more time to devote to other assets. If these assumptions hold, the argument is therefore that economic surveillance may be used for pricing risk in the global economy generally. However, as noted previously, economic surveillance releases assess vastly different economies in terms of size, structure, and overall health. This is complicated further by the fact that the political landscape varies greatly across economies and markets, along with a range of supply-side factors. As a result of this, market participants are forced to consider additional dimensions of risk when investing in states with different levels of economic development and political structures. Also noted previously was the information deficit that often characterises emerging market assets, both in terms of economic data and political transparency. I have argued how the impact of economic surveillance may be moderated by distinctions between assets, primarily an information deficit in emerging market assets. Yet such a hypothesis would not fully take into account the influence of reputations in sovereign debt markets, as noted in previous research. There remains considerable scope for reputation heuristics used by market participants to further moderate the impact of economic surveillance.

There exists a growing body of research that discusses the use of reputation and categorical heuristics by financial market participants. Brooks, de Cunha, and Mosley (2015) discuss the use of categorical heuristics by financial market participants operating in

sovereign debt markets. They discover that investors appear to rely on a small number of categorical distinctions when making investments, for example, credit ratings, geographical location, and level of market development. While the use of categorisations seems logical, and is indeed commonplace in financial literature and in commentary on global economic developments, the findings of scholars on the topic note the pronounced influence of such practices. Constructivist political economy and sociological research discuss how discourses can shape the realities of the environment they are used in, with financial markets apparently prone to such instances. For example, MacKenzie (2006) argues that in economics, the overarching ideas and concepts do not reflect and describe processes, but at the same time they mould and influence the economy itself. Linsi and Schffner (2015) describe this relationship as one in which economic ideas regulate the expectations and behaviour of actors, and when a sufficient number of actors behave according to the prevalent idea, it becomes a reality. A notable example of this in financial markets is the occurrence of self-fulfilling booms and busts when an idea grows but is then challenged. In this sense, a categorical 'idea' or script should in some way reflect inherent risk and returns expectations, for example, a credit rating. However, such classifications should not facilitate disproportionate price movements when new information is released. Furthermore, in an efficient market, such subjective categorisations should be irrelevant in the presence of available data on economic fundamentals in each economy. Yet Brooks, de Cunha, and Mosley (2015) not only find that arbitrary classifications, for example, geographical location, which is too broad a category to be used as an efficient tool for pricing risk, influences price movements in sovereign debt markets. Similar findings are present for the categories of credit rating and level of market development. Sovereign credit ratings are direct classifications of risk itself, therefore influence can be expected. Additionally, certain regulatory environments prohibit investors from owning assets that do not meet investment grade credit rating status. Yet, the level of market development is too general a category to convey any meaningful indication or to regularise expectations of behaviour, but is found to be influential net of fundamentals. The research of Brooks, de Cunha, and Mosley (2015) demonstrates that not only do categories matter for individual countries, but

also their emphasis on the level of sovereignty in international debt reveals that significant interdependencies exist in peer group classifications. Following on from MacKenzie's (2006) argument about created realities, there exists a range of 'categories' that are similarly arbitrary, and do not capture variables such as regulatory constraints in the case of credit ratings, or regional dependencies through geographical location. Most notably among these in recent years has been the growth of acronyms to represent small groups of countries in similar economic circumstances. Wansleben (2013) traces the origins of one, the BRICs, an acronym referring to the larger, emerging market economies of Brazil, Russia, India, China, and later South Africa. The author notes how the development of the acronym by the investment bank, Goldman Sachs, strikes similar parallels to the self-fulfilling constructs described earlier. Techniques such as calculative framing, strategies of the narrative used, and metaphorical language were all used towards legitimising a category of portfolio investment for market participants. However, various studies have noted the strong economic growth and policy environments of the BRICs economies, giving credibility to their assessment as a safer investment group within the broader category of emerging markets (see; De Vries et al. 2012, Ardichvili et al. 2012). On the other hand, Wansleben (2013) has conceptualised the category as a socially constructed norm, questioning its validity. Obvious questions relating to the financial legitimacy of the BRICs economies consider why other, similarly large and growing economies such as Mexico or Nigeria were not included, or South Korea, which was until recently classified an emerging market (Woods, 2013). Although the acronym MINT, representing Mexico, Indonesia, Nigeria and Turkey, is gaining popularity (Financial Times, 2016)

There appears to be further empirical strength to this claim, with Linsi and Schaffner (2015) once more examining the socially constructed reality of exogenous financial market categories. They step away from conceptualisations of the BRIC economies as a category of strong emerging market economies with specific, investment friendly policies. Their analysis is of the BRIC term itself as a socially constructed discourse that represents an arbitrary selection of less developed nations. When analysing portfolio inflows from the period 2002-2007, Linsi and Schaffner (2015) find that the 'BRIC' effect, meaning the socially constructed

term specific to these countries, net of fundamentals, explains over a third of total portfolio inflows to these economies. Brayzs and Hardiman (2015) explore this phenomenon in a European context when analysing the impact of the acronym 'PIIGS' on movements in sovereign debt markets, yielding similar results. Such findings provide strong indications that market participants may behave in a quasi-efficient manner, in the following sub-section I therefore analyse how these theories may explain the impact of economic surveillance on financial markets.

4.3.2 Quasi-Efficient Markets Hypothesis

These theoretical arguments, coupled with empirical findings, help demonstrate the influence that grouping effects and investment heuristics have over capital flows in the global economy. If we synthesise these findings with efficient markets hypothesis, we should expect the impact of economic surveillance to be moderated by the group effects and use of heuristics in financial markets. A straightforward interpretation would be that because of time and resource constraints, along with shortages of credible information, financial market participants must rely on heuristics when making decisions, particularly within emerging markets. Part of this behaviour involves the rational use of shortcuts, which is one interpretation of what economic surveillance releases are. However, these shortcuts often evolve into subjective interpretations of assets by investors, for example, reputations and classifications that are used in finance. Yet, they are still bound by aspects of an efficient market, in that they should react strongly when information does become available, to avoid losses. Therefore, information releases should impact on markets, as per the efficiency hypothesis, but this impact should be moderated by existing levels of information, reputation and development.

H3: Financial market reactions to surveillance should move according to categorical distinctions.

In an efficient market, actors are said to be utility maximising and rational in their decision-making processes. Under these conditions, rationality and efficiency are said to eliminate

phenomenon such as over or under reactions from actors. However, as noted, there exists a vast range of literature that highlights violations of these axioms. I am concerned with attempting to understand how financial markets may react to economic surveillance releases, and concerned with the factors that moderate the impact of surveillance on markets, I explore the possibility that behavioural factors may play a role in the relationship between surveillance and market reactions. In the following sections, I detail how behavioural research may explain additional variance in reactions to economic surveillance releases.

4.3.3 Decision Making Under Uncertainty

This chapter has thus far addressed two theoretically relevant schools of thought regarding decision making by financial market participants. The first of which was the efficient markets hypothesis, a foundational theory that argues markets are built on the rationality of their actors. Secondly, I departed slightly from the constraints of the efficient markets hypothesis to explore a theory which incorporates elements of both the efficient markets hypothesis, and of research in behavioural economics. This second section detailed a quasi-rational interpretation of how markets may react to economic surveillance. Lastly, I now continue the theoretical departure from the efficient markets hypothesis to offer an interpretation of financial market reactions that draws once more on research produced in the field of behavioural economics.

As noted, many studies highlight violations of rationality by actors in problem choice environments (e.g. Tversky and Kahneman, 1986). These violations have been sufficiently widespread and diverse to ultimately result in the evolution of behavioural economics itself. Yet often, the format of testing in behavioural science involves small participant pools with financial incentives to simulate choice problem environments. However, government bonds are unique financial instruments. This means that only particular strands of behavioural economics are relevant lenses through which market interpretations of surveillance can be viewed. Bond markets are composed of many different buyers and sellers across the globe,

with government bonds being some of the most liquid financial instruments available. Additionally, they are traded almost entirely by large institutional and private investors. As a result, they are vastly different to stocks and other financial instruments, which are often purchased by first-time investors and those with far smaller portfolios. This means that large portions of behavioural economics research are less relevant when considering bond markets. For example, the behaviour of actors investing in mortgages and stocks has been the focus of such research (De Bondt and Thaler, 1985). Sovereign debt markets are largely closed or unattractive to individual members of the public because of the limited availability upon issuance, and the lower possible returns than mortgages or stocks. I therefore argue that factors such as 'framing' or the endowment effect are not entirely applicable to sovereign debt markets, and therefore omit them from my theoretical framework. Furthermore, the relative inaccessibility of sovereign debt markets insulates them somewhat from other behavioural phenomenon such as the influence of the media. As noted, foundational research on the behaviour of actors in choice problem laboratory experiments indicated that participants were rational and utility maximising (Markowitz, 1952). Such theoretical assumptions maintain that actors make decisions to maximise their overall gains, and minimise their losses.

However, a central concept in the theory of loss aversion is that actors do not interpret gains and losses as overall figures, but rather as relative changes from a neutral reference point (Kahneman, Knetsch, Thaler, 1991). Furthermore, that when these changes result in losses, the impact on decision making is greater than the impact of changes that result in gains. For example, under the theory of loss aversion (Tversky and Kahneman, 1991), a loss and gain of equal size do not have the same value function to an actor, rather the loss weighs heavier on the individual. This concept has been examined in both laboratory settings and also as a focus in broader financial market research (Benartzi and Thaler, 1995). Laboratory experiments, and theoretical conceptualisations form a large portion of the research on loss aversion, experimental research highlighting the loss-aversive behaviour of subjects (Kahneman, Knetsch, Thaler, 1991). Yet I argue that sovereign debt markets are distinctly different from other laboratory environments, and

indeed even from other financial instruments. Still, the phenomenon of loss aversion has been highlighted across decades in which both the sophistication of market professionals and the tools at their disposal has developed greatly. For example, research has noted that loss aversion is a driver of the behaviour of actors in contemporary housing markets, where sellers overinflate their prices when subject to nominal losses (Genesove and Mayer, 2001). Similarly, research that has examined loss aversion in stock market actors has indicated that loss aversion is moderated by the 'narrow framing' an actor uses (Thaler et al. 1997). This finding essentially attempts to uncover the extent to which relative losses and gains impact on the loss-aversive attitudes of actors, but broadly gives strength to the theory of loss aversion in markets. Therefore, we can expect bond markets to be susceptible not to extreme bouts of hysteria, but rather to the loss-aversive tendencies of those who invest in them.

Further strength for this argument can be seen in research that notes sovereign debt markets, and particularly advanced economy debt is seen as a safe haven for investors (Arslanalp and Tsuda, 2014). Furthermore, research on the behaviour of professional traders notes that they too are not only prone to having loss-aversive attitudes, they exhibit these tendencies even more strongly than laboratory subjects (Haigh and List, 2005). I conceptualise loss-aversive attitudes in bond markets as part of the overall literature detailing financial market overreactions to bad news. Various studies have detailed the tendency of the financial markets in general to react disproportionately unfavourably to bad news that emerges about assets. For example, De Bondt and Thaler's seminal (1985) work follows on from laboratory experiments that highlight overreactions to bad news by examining stock market price movements. Their findings indicate that such price changes are consistent with the overreaction hypothesis. An additional variation of this overreaction, and a violation of the efficient market hypothesis is the price-earnings anomaly, where lower price-earnings ratio assets earn excess risk-adjusted returns (Basu, 1977). However, I place economic surveillance into this theoretical framework to suggest that investors may react to its release in a manner consistent with research in the field of risk aversion and overreaction. If economic surveillance constitutes genuinely new and

unexpected information for financial market participants, based on the theoretical reasons I have offered, reactions may be volatile. I argue that market participants can be shocked by economic surveillance, and that their responses should therefore be stronger when this happens. This process of 'Bayesian adjustment' should result in stronger market reactions when new information forces actors to suddenly change preferences regarding an asset. A good example of this would be the change in sentiment over two periods. As economic surveillance releases are scheduled as yearly events, there can be strong swings in the economic environment of this time. In the case of the OECD, the gap is even longer, at 18 months. There is a possibility that a country could receive a relatively positive surveillance appraisal at T1, before receiving a very different appraisal a year later, at T2. Given the ability of IOs to disseminate new information, this should mean that markets are greatly moved by changes like these.

H4: Financial market reactions are stronger for yearly changes in sentiment than absolute figures.

In this section I have examined and provided hypotheses on how financial markets may react to surveillance releases based on the behavioural principle of overreactions by those operating in finance. However, behavioural research into decision making in financial markets also indicates that actors react differently to problem choice environments depending on the circumstances they find themselves in. It is of considerable importance that theories of behaviour during times of economic crisis are addressed, the following, and last portion of this chapter is dedicated to analysing how these theories may explain variation in reactions to surveillance releases.

4.3.4 Risk Aversion in Financial Markets

It is clear that there is a major divide in the financial literature on how actors behave in choice problem scenarios, which are effectively what financial markets are. I have outlined one school of thought which argues that actors are rational, utility maximising decision makers that behave in accordance with their self-interests. From this theoretical standpoint,

I offered a number of hypotheses that may explain how markets respond to economic surveillance releases. An additional possibility is that actors can, under certain circumstances, behave in a manner more appropriately described as 'boundedly rational', where they are constrained not by their own biases but for example by time and resource limitations. Similarly, these theories lead to a series of testable hypotheses that incorporate economic surveillance releases and their possible impact. One potential weakness of utilising vastly different theoretical frameworks is that research from each can be equally different in design, for example, laboratory or empirical tests across different times and market products. However, these designs do not take general economic uncertainty into account. Similarly, previous hypotheses generated in this research test if economic surveillance represents genuinely new information to financial actors regardless of economic circumstances more generally. However, previous research has noted that actors react in vastly different ways within each context (e.g. Bikhchandani and Sharma, 2001). As noted, much of behavioural finance research has been dedicated to explaining why and how certain phenomenon occur during polarising economic circumstances, notable examples are herding tendencies (Shiller, 2000). If investors behave differently depending on the general financial landscape, the impact of economic surveillance should be moderated by the economic environment in which it is released.

Research on the behaviour of financial markets during times of crisis has yielded mixed findings. Some indications are that market actors engage in herding practices, where they are driven not by news releases or information in general, but the actions of others in the marketplace (Morris and Shin, 2004). Others note that market participants are in actuality, reacting rationally to safeguard themselves against self-fulfilling crises (Devenow and Welch, 1996). Empirical research on this phenomenon yields findings that go against the herding hypothesis, with Bikhchandani and Sharma (2001) noting that herding is largely explained by momentum trading strategies rather than theories of quasi-rational or irrational behaviour. Most research that has sought to empirically analyse the presence of herding, has used stock markets as the focus of research (Cont and Bouchaud, 2000), almost always in developed countries. Bikhchandani and Sharma (2001) discuss 'spurious herding'

in bond markets, which they argue is not true, intentional herding behaviour. Galatiotis, Krokida, and Spyrou (2016) test for herding behaviour before, during and after the most recent bout of European bond market volatility, and note that herding could not explain it. However, their findings do indicate rather that macroeconomic announcements on the affected European economies were strong predictors of bond market movements and investor herding. This is of particular relevance to the current research, which seeks to examine the impact of economic surveillance announcements. The recent sovereign debt crisis in the Eurozone economies can be conceptualised as a political crisis as much as an economic one, with a large cause of volatility being explained by the uncertainty regarding political unity between the governments of Europe (Wolf, 2014). Indeed, Bikhchandani and Sharma (2001) argue that herding effects and overreaction are theoretically, functions of information shortages. For example, the most recent wave of volatility in European markets was not calmed by a macroeconomic announcement or data release, but by a political agreement between governments (Shellock, 2015). Similarly, we have seen that political announcements can have the opposite effect on markets, with elections sending yields upwards in certain cases (McMenamin, Breen, Munoz-Portillo, 2013). If we therefore draw on behavioural theories of financial market activity that claim markets are increasingly sensitive during times of uncertainty, economic surveillance should impact on markets in such circumstances.

H5: Financial markets should respond more strongly to surveillance during times of crisis.

Furthermore, times of crisis and uncertainty detract more heavily from the limited time and resources that market participants are endowed with. This means that given the indications that actors are forced to rely on investment heuristics such as group pricing, times of crisis should amplify their effects on financial market movements.

H5a: Group pricing is more prevalent during times of uncertainty and crisis.

Conclusion

This chapter has sought to explore how financial markets may react to economic surveillance releases. In doing so, I have drawn upon four theoretically relevant dimensions of research that focus on financial market reactions. Theoretical findings from each of these bodies of research indicate that they may predict variation in financial market movements following economic surveillance episodes. I have therefore generated sets of hypotheses that can be categorised by three schools of thought; efficient capital markets, quasi-efficient, and behavioural.

The first school I examined is grounded in the foundational literature produced by Eugene Fama, whose research demonstrates evidence of rational, efficient capital markets. By combining this body of literature with research on the influence of international organisations, I generated several hypotheses which will test the information capacity of economic surveillance through the lens of efficient markets.

Following this, I moved on to examine the notion of 'quasi-rational' financial markets, which argues that markets behave within the confines of bounded rationality. Research that merges constructivist theories with statistical techniques is gradually emerging in the field of political economy. My interest lies in a growing body of literature that uses this format to explain financial market movements in the current era of globalisation. Specifically, there are findings that support the notion that financial market participants operate in a manner that is consistent with a theory of bounded rationality. I incorporate these findings to generate a set of hypotheses that address the possibility of a quasi-rational response by to economic surveillance releases.

Lastly, I continued the theoretical departure from the constraints of the efficient markets hypothesis. I acknowledge the influential body of research that has emerged primarily in the wake of recent financial crises. Behavioural economics incorporates psychological and sociological theories of human behaviour and applies them to explain to decision making in the financial world. I provide justifications for excluding certain aspects

of behavioural research, but also accept their relevance to this topic. Thus, I have attempted to include only the most relevant theoretical findings from behavioural economics that can be incorporated into the research design of this study. I therefore offer several testable hypotheses derived from the behavioural school of thought. In the following section of this thesis, I outline the methodological approach I have undertaken for testing these hypotheses.

5. Research Design

This research tests the impact of economic surveillance releases by international organisations on sovereign debt markets. In this chapter, I detail the steps I have taken to produce the statistical methods used in this study, and I discuss the data I have used to test my arguments. I begin with a discussion of the data I have gathered and used, specifically the interest rates on government bonds of the countries in this sample. Secondly, I discuss my dependent variables; the cumulative and absolute abnormal returns for each individual surveillance report generated by the event study. I am concerned with maximising the reliability of my method in capturing the real-time impact of surveillance releases, I therefore provide my rationale for selecting abnormal market returns on sovereign debt yields as the dependent variable. I also discuss alternative methods found in previous literature and justify their exclusion from this study. The third section of this chapter is dedicated to describing how I have operationalised my independent variable, which is the sentiment of economic surveillance releases. A large portion of this third section focuses on the coding of economic surveillance texts and the method I have employed to do so. Similarly, I provide justification for selecting the method I have used while also discussing alternative techniques. Following this, I move on to provide an overview of the control and robustness check variables I have selected for this research. These vectors of variables are comprised of country-level macroeconomic data. I once more discuss my rationale for selecting these variables, along with how each variable has been coded. For all variables selected as controls or robustness checks, I provide the source and coverage information.

5.1 Interest Rate Data

To test my hypotheses, I gathered a large body of data. Firstly, I collected data on the daily interest rate of 10-year government bonds issued in national currencies traded on the secondary market. I gather these data from Thompson Reuters financial and economic database; Datastream. The 10-year bond is the benchmark of sovereign debt instruments, meaning it is the most liquid and issued, removing the problem of maturity. Some studies

have used the price of 5-year credit default swaps to measure sovereign risk in similar research environments. Credit default swaps are a cleaner measure of default risk because they strip out the risk of inflation that is inherent in bond prices. However, I exclude them from my study for several reasons, primarily on account of data availability. Data on credit default swap prices are largely consigned to advanced economies from the mid-2000s. Credit default swaps are also a relatively new financial instrument, with corporate contracts having only been invented in the mid-1990s (Kolhatkar, 2014). This has meant their liquidity has considerably lagged the bond market, and has even contracted steadily in the last decade (Childs, 2014). This is largely because of two factors, firstly because of the nature of credit default swap contracts themselves. CDSs are insurance against default, which was largely ignored as a threat to investments in recent years because of loose monetary policies and increased risk appetites. This meant that investors were less eager to protect against the worst case scenario of sovereign debt repudiation, as a result, credit default swap trading volumes dropped. The second reason was the EU's ban on naked short selling of CDSs in 2010, which represented betting on the price of a debt instrument falling, contributed heavily to declining interest in the instrument. Conceptually, the inflation risk that is present in bonds also means the full impact of economic surveillance reports can be assessed (Whittall, 2013). As noted, I conceptualise surveillance reports as indications and judgements of economic policy in general, not simply indications of the likelihood of repayment. Therefore, a surveillance report that indicates a drastic overhaul of a country's monetary policy is necessary should impact more on bond rates than credit default swap prices.

I gather data on all available countries, which amounts to 42 emerging and advanced economies in total. Most countries cannot issue debt on financial markets, which restricts the sample to the 42 countries in this study. As noted, the data I collect is sourced from Thomson Reuters Datastream, and dates back as far as 1970 for some advanced economies but much later for most. Data for emerging markets is much less readily available, South Africa is the only emerging market for which data stretches back to 1997, when most economic surveillance reports were declassified. Thomson Reuters' Datastream is a financial

and macroeconomic database that facilitates economic research and financial strategy development. It covers a broad range of financial instruments such as fixed income securities, commodities, stock market indices, currencies and more. Thomson Reuters is one of the leading service providers to financial market participants for both research and strategy development purposes, it also claims to own more critical data sources than any other provider (Thomson Reuters, 2017). Furthermore, it is commonly used as a data source for researchers working in an academic environment (Harvard Business School, 2017; LSE, 2017). The data is available to those with access to a Datastream terminal, ensuring easy replicability.

5.2 Collection of 'Events'

The second task was to create a new database of all available economic surveillance releases produced by the EU, IMF, and OECD on the 42 countries in my sample. As noted, economic surveillance dates back to the League of Nations, yet only recently has it become a more transparent function of IO activity. The database is comprised of all available surveillance releases of each country for which corresponding interest rate data is available. In the case of the IMF, this comes in the form of their 'public information notices' (PINS), which contain condensed staff appraisals and executive board summaries of performance for each country. It is important to note that PINs were not just released following the conclusion of a surveillance operation, but also following executive board discussions of post programme monitoring and other exercises. However, I examine only PINs that were released in relation to the conclusion of a surveillance mission, and where a board approved report is released to the public. The IMF also produced and released traditional 'press releases', which detailed a wide range of developments at the organisation, for example the announcement of a new member. Press releases also covered updates by mission teams to members, often providing analysis on the economic environment in the member state. The distinction between these releases and PINs was that the final, executive board approved surveillance report and summary was only released in the PIN. I exclude press releases and

other forms of IMF information dissemination from this study as my argument conceptualises PIN as a homogenised judgement and trajectory indication from the directors of different countries. Press releases and PINs were distinguishable by the inclusion of the input from the executive board, however, PINs were discontinued in 2013 and consolidated into press releases by the IMF.

The stability and growth pact initially outlined in 1997 includes a clause that all member states of the EU must submit yearly forecasts of their fiscal plans for the coming 3 years. Following this submission in April of each year by all members, the European Council produces an assessment of the data and provides their own analysis, known as the 'Council's opinion'. The official mandate of this function is to assess the forecasts produced by member states by comparing with those of the Council. This is different to that of the IMF or OECD, who describe their surveillance procedures as exercises designed to maximise structural reform through public and peer pressures. In effect, however, the Council opinion analyses the wider economic environment in each member state, rather than just the forecasts. I therefore use the Council opinion produced for each member state from the earliest available year of 1998 until 2014.

To analyse the impact of OECD surveillance, I focus on country 'surveys', the core surveillance production of the organisation. Country surveillance is performed by the Economic and Development Review Committee of the OECD, and is comprised of representatives of all 34 member governments. It was created in 1961 and is tasked with examining economic trends and policies in individual OECD and partner countries, along with assessing their performance and recommending ways to improve this. The country surveillance procedure is, like the function of the IMF and EU, designed to promote reforms that ensure stability and boost growth. Country surveys focus heavily on structural reforms and their potential to contribute to further growth in the economy, however, they also focus on issues such as education or healthcare. I include only country surveys that occur around every 18 months, and focus on the economy as a whole, rather than other reports that examine individual issues.

The IMF and EU have declassified reports dating back to 1997, while the OECD has released their surveys from 1996 onwards. The sample contains 196 OECD observations running from 1996 until 2012, 212 EU observations running from 1998 to 2014, and 419 from the IMF from 1997 until 2013, totalling 827. Where there are gaps between years, for example, if a certain country year is absent, it is either because of incomplete interest rate data, which makes a reliable event study impossible, or no report has been released for that year. There does not appear to be a pattern to years in which no report was produced, for example, reports appear to be released regardless of the economic climate during that year. The sample for advanced economies is considerably more complete than for emerging markets, again, this is due to the lack of data on government bond interest rates, or the fact that some emerging markets could not issue debt at various times. Each report was retrieved from the official website of the corresponding organisation, and in the cases of the IMF and EU, saved as a plain text file for analysis.

5.3 Dependent Variable Generation

This study attempts to capture the influence of economic surveillance releases on financial markets. One technique that has been widely employed in finance to answer similar questions is an 'event study' methodology. Event study methodologies have been used to examine the impact of a great variety of macro and micro level events, both at the private and national levels. Some typical examples from the field of finance are reactions of stock markets to earnings announcements, mergers and acquisitions, and turnover of management. In economics, event studies have been used to examine the impact of macroeconomic announcements such as employment data figures, manufacturing data releases and sovereign debt issuance. Alternatively, event studies have been used in practical environments by professionals in other fields, for example, they have been used to calculate damages for legal actions (Mitchell and Netter, 1994). The event study technique has been used in research for a considerably long time, with the earliest published study to my knowledge released in 1933 (Dolley, 1933). While the longevity of the method is a

testament to its reliability and versatility, it has evolved over time to become more sophisticated. My research relies on the event study technique to measure the impact of economic surveillance releases on financial markets. The process therefore merits attention, which I acknowledge by providing a practical overview of the event study structure.

5.3.1 Event Studies in Practice

In an event study, researchers are interested in examining the impact of a particular or multiple occurrences over a certain time period. Therefore, specifying this time period is of particular importance for event study practitioners. Firstly, one must focus on the event itself, and the period from which the impact is measured. For example, a researcher may be interested in examining the effects of a company's earnings announcements on its share price. In this scenario, the study could use daily price data from a stock exchange. The event window is the period over which the impact is assessed, in this case it would be the day of the earnings announcement. However, depending on the particular study, the event window can be specified according to data availability and the theoretical framework. For example, if an event occurs on a weekend, stock prices will fail to capture any impact as the markets are closed, therefore it must be extended, or the model adjusted. Alternatively, news of some announcements may spread more quickly throughout the investment community than others, or theory may suggest a more long-term impact, in these cases the window would be extended. Another focus of research that can use event studies in finance would be an examination of inside trading or information leakages. Theory may predict that certain economic information or data is leaked before an event, in this case the event window would include the days prior to the event to capture this.

With an event window specified, attention must then be turned to estimating the impact of the event within that window. This is accomplished by specifying a window in which the asset price is traded prior to the event, the estimation window. The estimation window spans a longer time period than the event window. When estimating the 'normal'

returns of the asset, the observed period must be sufficient to provide a representative account of how the price has moved over time. For example, an economic shock which occurs in an estimation window of only a few days prior to an event may inaccurately represent the asset as more volatile than it has been over time. The estimation would therefore be biased by this shock. Alternatively, an estimation window that is too long will most likely not be representative of the asset value in the period around the event. For example, an overly long estimation window will probably include anomalous occurrences in an economy, such as a political scandal, economic shock, or geopolitical developments. Therefore, an estimation window must cover a period of time prior to the event that is sufficient to provide a representative account of the asset's value around the time of the event. Similarly, a window that is too long may account even for structural changes in the asset's price. In academic literature, the estimation window usually spans 120 days of daily data, and excludes a certain period prior to the event itself. The excluded period is often a month of daily data, this is done to account for possible information leakages or anticipation of the event by market participants. When this window is specified, its returns are used as the estimation of the 'normal' return, which is the price of the asset if the event had not occurred. An essential part of the event study methodology is determining the model for estimating normal returns from the data.

5.3.2 Estimation in Event Studies

There are several methods that can be used to estimate normal returns. A more restrictive and simple method is the constant mean returns model. This model assumes that although returns may differ between assets, they remain constant over time through a normally distributed mean value. The model also assumes that the returns on different assets are contemporaneously correlated, and this remains over time. The constant mean return model therefore uses a simple regression where the return of an asset equals the mean returns, a random normally distributed variable with a mean of zero. While the model has clear limitations, previous research has indicated that its results do not deviate significantly

from more sophisticated event study techniques (Brown and Warner, 1985). Yet it must be noted that their review is of short-term event studies, and the more sophisticated 'event studies' they compare with are even now somewhat outdated. With the technological advancement and progress in the field of forecasting more generally, the constant mean return model is somewhat obsolete, but may serve as an indicative starting point for researchers examining the determinants of asset returns.

This research uses the market return model of event study techniques. The market return model is a method that estimates the returns of an asset against the cumulative returns of a broader market index or asset in which the asset of interest is categorised. For example, a researcher may be interested in the impact of earnings announcements on a large, publicly traded company. In the market returns model, the returns of the particular company are estimated by the returns in the overall market, hypothetically, in this case the researcher could use the S&P500 weighted index. Event studies using this method employ ordinary least squares regression techniques with a specified estimation window, for example, a researcher might regress their individual stock against the broader market index or a particular company to predict the normal returns of the asset.

There are several other statistical models that can be used to estimate normal returns in event study analysis. One method that can be used expands on the market return model to increase the amount of variance explained in the normal return. The market return model includes one factor that predicts market returns in general, for example, the stock market index or the US interest rate. A multi-factor model simply increases the number of factors in the equation to restrict variance in the estimation of normal returns. An example of this could be a researcher interested in a particular company's share price. In a multi-factor model, both the market index along with an industry-specific index, for example manufacturing data or another theoretically relevant factor could be used. An alternative method for using a multifactor model is to measure the returns of one asset against a group of similarly sized assets, for example, measuring one firm against a panel of 10 similarly sized firms. The assumption therefore in such a specification is that equity size

sufficiently captures variance in asset returns. MacKinlay (1997: 18) argues that the gains offered by multi-factor models are negligible due to the limit explanatory capacity of including additional variables. However, additional variance may be explained where an industry specific characteristic or similar trait can be included for firms in the sample

5.4 Cumulative Abnormal Return

This study focusses on individual, country level data within sovereign debt markets, rather than for example, stock markets, where an aggregate daily average is easily calculated and available for researchers. For this reason, it is necessary to select a benchmark debt asset that should adequately capture broad trends, movements and occurrences in sovereign debt markets. This is particularly important to ensure a reliable estimation of normal returns derived from the regression analysis. This study therefore uses the United States and German 10 year sovereign debt yields as the benchmarks for regression analysis in estimating normal returns of individual assets. I select these as they are the most stable, most liquid sovereign debt assets on the market, with the United States being a large driver of the global economy, and Germany the benchmark European economy. I use three different combinations of these interest rates in the regression model, with a US, US-German, and German regressor all used. My main dependent variable is the abnormal return generated following the release of economic surveillance reports. I select an estimation window of 120 trading days, with the previous month prior to the event excluded to account for leakages and anticipation by market participants. Within this estimation window, I regress the 10 year bond of each country in the sample against the benchmark interest rates to generate the normal return for each asset. Following this, each predicted daily return in the event window is subtracted from the actual return, which provides the abnormal return for each country following the event. This is then aggregated over the event window of several days to provide the cumulative abnormal return (CAR), which serves as the main dependent variable of this study. In total, including IMF, OECD,

and EU surveillance reports, I produce 827 observations. I also create an additional variant of the CAR; the absolute abnormal return following each surveillance release. This variable accounts for the possibility that economic surveillance releases may lead to significant movements in asset prices, but not necessarily in the same direction. For example, a particularly uncertain surveillance release may lead to more trading of the asset at broader ranges than prior to the report's release. The absolute abnormal return therefore uses the same estimation techniques, but strips away the directional effect of the abnormal return for each day of the event window. This then provides an additional measure of impact; volatility.

5.4.1 Alternatives to the Market Model

Finally, there are several alternative models that can be used in event study analysis. Capital Asset Pricing Models are used to calculate risk-adjusted returns for investors, for example the predicted return of a particular share or asset. The model uses a variable to capture the risk of the asset itself, and this is subtracted from a risk-free asset, for example a 10 year bond of a large advanced economy. The risk of the asset is judged by its relative price volatility compared to the market in general. In the field of event studies however, it has been argued that the CAPM method lacks statistical robustness, with considerable anomalies discovered (Fama and French, 1996). MacKinlay (1997: 19) argues that the sensitivities introduced to an event study by the CAPM mean that it is of little use when the market model can be used at little extra cost.

The Arbitrage Pricing Theory (APT) is a statistical method formulated by Stephen Ross (1976) to predict asset returns. The APT model measures returns on assets based on their relationship with a common set of risk factors. The intuition behind the model is that the factors that influence the asset price are included to provide an accurate prediction of the returns on the asset. Market models use a similar theoretical framework in the sense that the overall return of the market in which the asset is categorised should hold some predictive capacity. The APT, however, is driven more strongly by theoretical interpretations

of asset price determinants. By definition, the practice of arbitrage is when investors identify mispriced assets in a market, and by making a combination of long and short bets, they profit from such mispricing. The APT model, therefore, incorporates several theoretically relevant risk factors of an asset, along with its own risk premium to predict its returns. From this, investors categorise an asset's return that differs from the model's prediction as an arbitrage opportunity. Examples of the relevant risk factors for government bonds may include economic growth, inflation, debt, and the price of oil. While the APT model has a strong theoretical foundation, in the sense that the inclusion of several relevant risk factors should provide increased predictive power within the model, Brown and Weinstein (1985) argue that their inclusion allows for negligible improvements. They argue that in an APT model, the strongest predictive factor behaves in a manner similar to the market model, where most variance is explained by this single factor. However, an argument for utilising the APT model is that it can provide a more representative account of asset price determination, and that it can eliminate the over-reliance on one variable.

5.4.2 Why Government Bonds?

The dependent variable in this research is the abnormal return for each country's 10-year bond interest rate, aggregated over a number of days to generate the CAR. In financial research, there are innumerable studies that use the CAR as the dependent variable, so it is not novel. The CAR represents an opportunity for political economy scholars to incorporate a strong statistical model from the field of finance into the robust theoretical frameworks associated with political science research. One of the strengths of the CAR is that it has the ability to capture reactions of financial markets in real time. The unit of analysis, 10-year government bonds, are some of the most frequently traded instruments in financial markets. One of the reasons is that they are the most issued financial instrument by governments, with the ten year maturity period representing an ideal balance of risk and reward for investors. Yields for advanced economies on shorter instruments, such as 2-year treasury bills are often extremely low and even negative, and represent little more than

safe havens for investment. While the maturity of 30-year bonds is considerably long and is a distinctly different asset to the 10-year instrument. Some researchers use the yield at issue (Bernoth, Van Hagen, Schucknecht, 2012), which reflects the true cost of borrowing at the time the bond is sold. I am concerned however with the real-time impact on the bond market, which is captured in the secondary market, I therefore use the daily yield on government bonds.

Certain studies in political economy have used credit default swaps on sovereign bonds as the dependent variable. Credit default swap (CDS) prices represent the cost of insuring the buyer of the asset against a sovereign default, when risk goes up, CDS prices increase. The selection of CDS as a dependent variable is not necessarily a weakness, but government bonds have certain theoretical strengths. Most simply, bonds are traded more frequently than credit default swaps, which means that prices react more quickly to events, the focus of this research. Bonds have become the most frequently traded sovereign debt asset in recent years for a number of reasons, making them ideal for using the efficient markets hypothesis as a framework to test the information content of economic surveillance. Research had noted previously that when comparing bond and credit default swap prices, the latter was the leader in the price discovery process within market movements (Coudert and Gex, 2013). The main reason for this was the liquidity of CDS contracts during the period. However, there was research that doubted the conventional wisdom that CDSs were as liquid as imagined, at least in the corporate debt market (Fulop and Lescourret, 2009). Despite the lack of a clear consensus in the literature on the liquidity leader in debt instruments, CDS contracts were one of the most frequently traded assets in sovereign debt markets, and were under intense focus during the Eurozone crisis of previous years. Indeed, this focus on CDSs during the crisis led to the EU arguing that the scrutiny of CDS contracts was going to drag market sentiment down in bond markets as well (Ruffoni, 2014). This led to the introduction of a set of regulations designed to limit risk-taking in the CDS market. In October 2011 the EU produced a set of guidelines regarding CDS contracts, with the most binding condition being that ‘naked’ trading, meaning the trader could buy the insurance contract but not the asset, was to be banned. The ban came

into force in November 2012, but even before this, trading began to drop considerably as investors unwound their positions in the CDS market. CDS trading for European countries continued to drop to the point where traders no longer saw their prices as indicative of market movements, and chose instead to look at bonds as indicators of sovereign risk (Whittall, 2013).

In addition to this, bond yields also capture additional aspects of risk that credit default swaps do not. Investors purchasing government bonds, similarly to those who purchase CDSs, are concerned with default probability. However, investors in government bonds also buy the inflationary risk that default contracts do not. Crucially, daily government bond data for both emerging and advanced economies is both more reliable and readily available than that of credit default swap contracts, which have large gaps over time. For example, sovereign bond interest rates dating back to the 1970s can be accessed easily from Datastream, as I and others have done, while CDS data is often incomplete. Furthermore, the CDS is a relatively new debt instrument, having been created in in the 1990s. Data availability is particularly important for not only maximising the sample size, but also for ensuring a reliable estimation window using the 120 day trading period prior to each event. In terms of the event window, aggregating the abnormal return over a number of days allows a more representative assessment of the impact that economic surveillance can have. For example, a report can be released at any time of the trading day, meaning that the most observable impact may be on the day following the press release. In certain cases however, surveillance reports have been released on either a Saturday or a Sunday. I account for this by modelling the event window to begin on the following Monday. If the event is on a Friday, I model the event window to include the start of the following week. Additionally, as government bond interest rates are non-stationary, meaning that the data drift from the mean over time, I use the first difference of the interest rate. There are still alternative measures of sovereign risk that I have opted not to use in this study, primarily on theoretical grounds. For example, some studies focus on alternative financial markets, such as equities (Oshiro and Saruwatari, 2005). Of considerable interest also would be the impact of economic surveillance on exchange rates. There would be a strong theoretical

case for choosing exchange rates as a dependent variable in this study, as the liquidity and availability of data would allow the real-time impact to be observed in an event study. Furthermore, the emphasis placed by international organisations in their surveillance reports on the monetary climate and policies of each member economy should be highly relevant for market participants. Currency prices are also vitally important for bond markets and the global economy in general, this factor alone is sufficient to warrant scrutiny in future research by scholars in this area.

However, money markets are often ignored as a measure of sovereign risk due to the complex process of interaction between financial, economic, and monetary conditions of countries, which are in turn affected by exchange rates, which makes reliable empirical frameworks more difficult to generate. In terms of utilising equity market prices as a possible dependent variable, there are several reasons why I have not done this. Equity markets, particularly the larger exchanges such as the S&P500, FTSE100 or Dax, are highly liquid, transparent markets with large capitalisations. Similarly to bond markets, stock markets are sensitive to information releases, making them a good candidate to examine the impact of economic surveillance releases. However, theoretically, and empirically, they are not as suitable as government bonds for the purposes of this study. Naturally, stock prices are sensitive to macroeconomic developments (Li and Hu, 1998), yet the mechanisms behind such sensitivities differ to bonds. This is because of the differences in structure between the instruments, fixed income assets such as bonds carry obligations to pay or be paid by the holder (the coupon), while equities carry no such obligation. This means that the risk profile of each instrument differs significantly. Secondly, economic surveillance by international organisations is an exercise designed to maintain macroeconomic stability through influencing members' economic policies, not corporate policies. While certain policy recommendations, such as increasing labour market flexibility, would be of interest to those operating in the corporate debt or equity markets, much of each surveillance release focuses on other aspects of the economy. The causal mechanism in a relationship between stock movements and economic surveillance would therefore be less clear. Thirdly, generating testable hypothesis and a statistical framework that would accurately

capture stock market reactions to economic surveillance reports is difficult. This is because of the nature of stock markets in general. For example, the largest stock markets such as the S&P500 and FTSE100 are comprised of the largest, and most stable publicly traded companies on the market. As noted, this makes them highly liquid and important pillars of each economy. However, this also poses theoretical questions. Specifically, it is difficult to model exactly how stocks should move following a surveillance release in one particular country. For example, some companies are listed on several exchanges to maximise their availability to potential investors. Making it difficult to analyse the impact of surveillance on them. Furthermore, the range of companies, their target markets, and fields of expertise is so diverse that multiple surveillance releases could drive prices. It would be complex to model such a relationship as there could be many drivers of price movements across economic sectors and markets. While examining individual firm level data could circumvent this problem somewhat, there remains a considerable number of variables that would need to be controlled for in order to accurately measure the impact of surveillance on stock markets. Lastly, I am primarily interested in examining how economic surveillance impacts on sovereign risk, not how it impacts on the wider economy in general. For this reason, I focus on government bonds as a more accurate measure of this risk, as noted, this selection is in line with previous research on the topic. However, the importance of stock markets and firms to economic growth is so crucial that future researchers should explore the relationship between equity markets and economic surveillance.

5.5 Economic Surveillance Releases as Independent Variables

IMF Surveillance

The primary independent variable in this research is economic surveillance, produced by the IMF, OECD, and EU. I construct a database of each available economic surveillance release for which I have the corresponding daily data on 10-year government bond interest rates. As I employ an event study methodology, the statistical model uses the date of the

surveillance release to generate the event window. Each event is tested using the same regression method described in the previous section, with the cumulative abnormal return serving as the dependent variable. In a typical event study, the researcher may only examine the reaction of markets to the event, however, I attempt to complement such a focus by explaining the variance in market reactions. To do this, I also focus on the content of surveillance reports. Economic surveillance varies in frequency and format according to each international organisation that produces it. For example, the EU and IMF produce usually annual assessments of their members' economies, while the OECD produces surveys of their members every 18 months. IMF surveillance releases are publicly available from 1997 to the present day. The organisation releases a detailed staff report, which is a relatively long document, and also a condensed version called a PIN. The PIN is produced as an easily accessible, shortened version of the staff report, with an additional section provided by the directors of the IMF. As the surveillance exercise itself is designed to maximise both peer and public pressure, the PIN is designed to stimulate the latter. An IMF PIN is broken into two sections, a staff appraisal that provides an overview of the broader macroeconomic background, and an assessment by the executive directors at the organisation. The section produced by the staff of the IMF discusses developments in the economy over the period since the last report, it also offers policy implications for the government. It is important to remember that the staff section is produced by field economists employed by the organisation, and is the technocratic aspect of the surveillance operation. The assessment by the executive directors is more the product of political negotiation and peer pressure than technical analysis. Furthermore, the executive directors' assessment typically contains little economic data, but is comprised almost entirely of policy discussion. Most of the technical analysis is contained in the staff's Article IV report. The directors assess the pace at which previously recommended reforms are being implemented, while also advising further reforms in light of recent events.

OECD Surveillance

Economic surveillance performed by the OECD however, involves the production of a much more comprehensive document. The process is largely the same as that used by the IMF, again with a heavy use of peer pressure to maximise reform among members. The eventual report is considerably larger than the IMF PIN release, but has a similar intention of promoting reform among members. This is highlighted by the structure of the report, which begins with an executive summary of the main findings of the survey and how to address these concerns through policy reform. There are also additional inclusions in the report that are not present in IMF surveillance, such as a discussion on environmental challenges facing the country and data on emissions. OECD surveillance contains a brief, easily digestible summary of the economy and ways to improve it, while it also contains a detailed overview of the economy in general. It is well researched, contains attractive figures and tables, and is dispassionately written. More recent surveys have also included a section that details the recommended reforms in previous surveys, and the actions taken to address these. As a result of such a comprehensive analysis, each OECD survey is released as a PDF document of around 40 pages in length. In addition to this, the web page that each survey appears on has in recent years contained a range of informative figures, summaries, and slideshows.

EU Surveillance

EU surveillance is very similar to that produced by the IMF, both in terms of its structure and regularity. The surveillance documents they release are uniform in structure and size, with a focus on implementing structural reforms in the economy. I argue that similarly to IMF and OECD surveillance, EU Council opinions represent the political judgement of the member states of the organisation regarding their economies. The emphasis on structural reforms, coupled with the language used, homogenises the produce of the surveillance operation across organisations. Specifically, each organisation's surveillance regime appears to provide a judgement of the trajectory of its members' economies regarding the willingness to enact structural reforms. As argued, the lack of economic data along with their subjective nature renders the economic surveillance texts used in this study a process

of political judgement between members, rather than an exercise in robust statistical analysis. This presents an additional concern for researchers interesting in explaining the reactions of markets to surveillance releases. Specifically that in an economic context, political texts are considerably more difficult to interpret in an objective fashion than economic data. In this research I attempt to explain variance in financial market reactions to reports by examining the content of such texts.

I use quantitative text analysis techniques to code all available surveillance releases by the EU and IMF from 1997 until the present day for countries where data on government bond interest rates are available. This amounts to 419 IMF observations, 212 EU observations. I do not code OECD economic surveys for several reasons. Firstly, OECD surveys are considerably longer than IMF PINS and EU Council opinions, making word content analysis scores of the reports incomparable. OECD surveys are also available only in PDF format, which would mean that converting them to plain text files for analysis would take a considerably longer amount of time than for IMF and EU reports. Additionally, as I have noted, the web page that each report appears in contains additional information than just the survey itself. This means that when actors are operating under the time and resource constraints inherent in financial market participation, they may simply examine the quick slideshow which often appears on the webpage of the survey, or the brief summaries of each sector of the economy. While this does not weaken the theoretical strengths of surveillance as an important tool for participants, it does mean that the full report itself may not be the first point of contact for participants. As I use the day of release as the event that generates the CAR, I retain the benefits of the descriptive statistics but lose the predictive power of the sentiment in OECD surveillance. Future research should seek to address this.

Content analysis is an ideal choice for coding such a large number of reports. In similar studies, such as Fratzscher and Reynaud's effort, (2011) hand coding is used. Unfortunately, this greatly limits the size of their sample due to time constraints. Conversely, I am able to expand the sample considerably from their size to include not only

all reports for both emerging and developed economies, but also those by the EU. Also, I avoid concerns of subjectivity by using automated content analysis, which is easily replicable. In terms of suitability, surveillance reports are ideal for content analysis. As noted, they are uniform in both size and structure, with little variance over time or between countries. An additional strength is that IMF and EU surveillance reports share an almost identical structure and emphasis, while all three organisations share the same focus on promoting structural reforms within their members' economies. The writing style of both IMF and EU surveillance is factual, without descriptive or informal language, ensuring they are easily coded during content analysis.

5.5.1 Coding Qualitative Data

Content analysis is part of a wider field of textual analysis. This process involves the conversion of qualitative data, often in the form of readily available texts such as newspapers, into a quantitative format where it can be statistically analysed. Yet there are notable examples of research that examine qualitative information that is not textual in nature. For example, Coval and Shumway (2001) analyse the relationship between noise levels in trading pits and liquidity of futures contracts. Another example is the work of Mayew and Venkatachalam (2012), who attempt to extract private information from the vocal cues of managers during conference calls. As I employ a content analysis process to extract the sentiment from economic surveillance reports, I focus primarily in this chapter on the various methods that could be used to achieve this. A wide range of techniques have been used by researchers examining the tone of texts, such as the use of Bayes' theorem (Das and Chen, 2007), likelihood ratios (Antweiler and Frank, 2004), or other classification algorithms (Li, 2010). I choose not to employ these primarily because the strongest argument for their use comes from the possible weaknesses of reference category selections in word counting, a problem I discuss later in this section.

Techniques for Analysing Word Frequencies

Methods of textual analysis have been evolving over time since the introduction of the term to the English language in 1941 (Krippendorff, 2012: 11). Additionally, technological advances and moves towards greater transparency mean that access to text documents is greater than ever before. This has obvious advantages for researchers, but also brings challenges, specifically, how such large bodies of text can be accurately interpreted for academic purposes. Traditionally, researchers were forced to rely on the highly time consuming and labour intensive process of 'hand coding' the texts they were interested in. This method has proved remarkably successful, with a notable achievement being the creation of a large text based data resource by the Comparative Manifestos Project. The project had trained researchers to code 2,347 party manifestos issued by 632 parties in 52 countries in the post-war era. However, the project had taken over two decades to produce these results, which highlights the costly level of labour necessary to produce results of note. Furthermore, as Loughran and McDonald (2011: 36) point out, the length of time and level of work that has been committed to such a project explain why no research team has attempted to challenge the distinctive theoretical assumptions behind the coding. Additionally, to my knowledge, no research team has even attempted to replicate or review the data generated by the project. Replication is a crucial aspect of ensuring transparency and promoting academic rigour in published works of the social sciences. Hand coding can be as rigorous as any process in political science, but it fails to be replicable for other researchers, or is at least very difficult to do because of the subjective nature of the technique. The concept of integrity is at the heart of research in general, but so too are the time and resource constraints that face those who operate in an academic environment. In this regard, hand coding processes remain very costly to implement on a large scale over short time periods.

An alternative approach that departs from hand coding to a certain degree is the use of computerised coding schemes to analyse texts. This technique attempts to reproduce the hand-coding process, but with the implementation of algorithms to match texts with coding dictionaries. This process produces results similar to hand coded texts when cross

referenced against each other, but actually fails to circumvent the problem of the time intensive production process used to generate the algorithms necessary. Furthermore, the process of manually generating dictionaries for each specific context is so labour intensive that a large, generalisable dictionary is more practical, but even more costly in terms of labour. One of the disadvantages of using context specific dictionaries is that not only does the high level of human involvement result in costly labour, but it fails to resolve the epistemological problems of subjectivity. I expand further on this technique in the following section of this chapter.

Lastly, a final method for the scoring of texts comes from Laver, Benoit and Garry (2003). Their approach largely departs from the hand coding practices and dictionary-based analysis of texts described above. They too note their reluctance to use dictionaries to analyse the content of texts, citing the weaknesses I have noted. They attempt to dispense with high levels of human involvement in the creation of dictionaries, both to economise on labour and to avoid subjectivity. A further claim is that their approach can be used to expand the scope of research, even across different languages. The underlying theoretical assumptions of the technique they develop are broadly in line with content analysis more generally, in that the words in texts from general patterns that are comparable by producing 'scores'. Essentially, they treat words in texts as formations of data, rather than discourses to be analysed and understood. The fundamental difference in how their approach differs is that rather than using dictionaries, they use reference texts as starting points for examining additional documents. They take a set of sample reference texts about which something is known, their examples are of the UK Labour, Liberal Democrat and Conservative party manifestos in a given year. From these texts, word frequencies are used to generate scores to estimate policy positions, from which, further texts can be analysed to produce a score relative to the reference text. Similarly to the use of dictionaries for referencing texts and producing word scores, the selection of whole texts against which 'virgin' texts will be referenced, is a crucial component of this process. It is clear that appropriate texts must be selected as references, essentially ensuring unit homogeneity. Laver, Benoit and Garry use the example of using cookery books to estimate the policy

positions of political speeches as a poor selection of a reference text. Their selection of reference texts is based on selecting theoretically relevant texts from which references can be made for future texts. Furthermore, they argue that there must be some level of certainty regarding the policy positions in the reference texts, as they form the basis of the scores for future texts. To this end, they compare their own estimated policy positions within the texts selected as candidates for reference texts, against those found in existing published literature.

Coding Economic Surveillance Reports

I use dictionary-based sentiment analysis to code economic surveillance texts. The coding process is straightforward, with each report entered into a content analysis programme known as 'Yoshikoder', which has the ability to reference texts to dictionaries of the user's choice. In the case of this research, I am concerned with extracting the sentiment of the report through a simple measuring of word repetition. Analysing sentiment is a suitable strategy for surveillance reports as I am working with political data, which is not as easily interpretable as economic data is (Young and Sokora, 2012). There exists a debate within the social sciences on the validity of content analysis, with many arguing that discourse analysis is a more appropriate technique for analysing political texts (Fairclough, 2013). However, political economy researchers are afforded the benefit of often analysing actors who are outside this generally academic debate, in this case I am concerned with how financial market participants react to surveillance. I therefore ignore this debate as those who operate in markets are primarily concerned with profit maximisation, and often share the same socio-economic and normative backgrounds. In line with previous research, I examine the content of surveillance reports not as words to be understood and interpreted, but as data to be collected (Laver, Benoit, Garry, 2003).

I use a specially constructed, finance-specific dictionary developed by Loughran and McDonald (2011) to capture the sentiment of economic surveillance reports. As noted, dictionary based content analysis is a widely used method for examining texts. The choice of

dictionary is crucial to the reliability of such a method. Traditional dictionaries used for analysing texts in other disciplines misclassify up to 75 per cent of words in financial texts (Loughran and McDonald, 2011: 36). An example of this is the commonly used Harvard Psychosociological Dictionary, which is often used in financial analysis. General 'word bag' dictionaries group words together based on their language based meanings, rather than contextual setting. Misclassifications are naturally a result of applying the wrong dictionaries to texts. In a financial context, misclassifications can occur around seemingly simple statements, such as the use of positive words in a negative context - "did not benefit" (Loughran and McDonald, 2011: 38). It can also occur where financial terminology is used - "target rising inflation". In such a case, for example a statement by a central bank, could be describing policies that are intended to increase or decrease inflation. Examples of words placed in categories within the Harvard dictionary include 'positive' words such as "company", "shares", and "outstanding" (Engelberg, 2008: 8). The implications of such inaccuracies are clear, and are at the core of criticism levelled at content analysis. The problem is underscored by Berelson (1952: 147), who in a survey of textual analysis claims that "content analysis stands or falls by its categories". Therefore, it is necessary to use a specific, finance orientated dictionary to extract an accurate sentiment from surveillance reports. Loughran and McDonald's dictionary is an ideal candidate due to its very construction coming as a response to the lack of finance specific dictionaries available to researchers.

When an appropriate dictionary is selected, research indicates that automated analysis of texts produces high cross-validity against hand-coded content techniques used on the same texts, or even independent data sources (Laver and Garry, 2000). The intuition behind such a method is that by taking a sample of texts about which something is known, the appropriate dictionary can calculate word frequencies that allow the researcher to accurately extract the sentiment from the text. This technique can even be applied to texts in different languages, producing similarly reliable results (Loughran and McDonald, 2011). In my research, I apply this technique to extract the sentiment within economic surveillance

texts produced by the IMF and EU. Sentiment extraction procedures are largely established in academic literature, and the creation of dictionaries and wordlists has become more intuitive over time. The problems of hand coding sets of texts for individual studies are resolved with the creation of larger dictionaries using one scoring method. Furthermore, researchers are continuously adding words to dictionaries in line with those used in practice (Loughran and McDonald, 2011). As noted, one of the largest criticisms of creating dictionaries to score texts is that they because of their laborious nature, researchers are reluctant to challenge the theoretical implications or to cross reference the results they produce. Loughran and McDonald (2011) created a dictionary by accomplishing just this feat, while in the process they discovered the inaccuracies in existing dictionaries. This demonstrates that while context specific dictionaries still suffer from certain weaknesses, primarily their cost in time and labour, along with concerns of subjectivity, it is still possible to continuously update and expand their scope and accuracy. Furthermore, criticisms of subjectivity are somewhat unjustified if a dictionary is collaboratively constructed and is hedged somewhat by the replicability of results and versatility. Singular manual or automated codes and algorithms developed for individual studies for example, could be seen as more subjective.

The content analysis process interprets texts across three dimensions; negative, positive, and uncertain. The fact that most of the text falls under the negative category is theoretically in line with the surveillance operation in general, which is a process designed to highlight weaknesses and flaws in member economies. Furthermore, previous research that has used content analysis in a financial context has indicated negative sentiment as a driving force behind market movements (Tetlock, 2007). However, I use frequencies of language across all three measures of sentiment generated by the content analysis procedure to classify economic surveillance reports. I then use this score to test several of my hypotheses generated in the previous chapter of this research. Specifically, to test hypothesis H1A: if markets react to positive (negative) surveillance with unexpected decreases (increases) in yields. Secondly, to test if sentiment matters more during times of economic uncertainty. In each case, I use both the sentiment score for each year, along with

its yearly change to test the predictive capacity of surveillance on unexpected market returns.

5.5.2 Predicting Abnormal Returns with Sentiment

In chapter 8, I bring together the generation of the CAR and sentiment scores to test the relationship between the two. The first research question of this study concerns the impact that surveillance has on sovereign debt markets. This is explored through the absolute and aggregate abnormal return chapters of this study. The second research question examines the extent to which the content of economic surveillance reports is associated with these returns. I use a standard OLS regression with robust standard errors to estimate the predictive capacity of economic surveillance sentiment on abnormal market returns. In this equation, each CAR, and each absolute abnormal return serve as the dependent variables, with the sentiment score for each report serving as the independent variable. I provide a full discussion of the equation used in the corresponding empirical chapter of this study. However, the data I use fulfil the Gauss-Markov assumptions to leave OLS as the best, least unbiased estimator in this case. I use this model primarily to test H1A, which tests the impact of sentiment on abnormal financial market returns to surveillance. I use the same equation with two variations of the independent and dependent variables. Specifically, I test the predictive capacity of yearly sentiment scores of negative, positive, and uncertain language on both the absolute and aggregate abnormal returns for each surveillance release of the EU and IMF. Secondly, I test yearly changes in the three sentiment scores on both the absolute and aggregate abnormal returns. I also split the sample by IO in order to explore variation in the predictive capacity across institutions.

5.5.3 Control and Robustness Check Variables

Macroeconomic Variables

The price a government pays on its debt is a function of perceived uncertainty on the part of financial market participants. From this premise, researchers have produced a considerable body of literature that examines the determinants of this uncertainty, and the prices that governments pay to borrow as a result of it. I now provide a basic overview of the macroeconomic and political economy determinants of government bond prices. Naturally, I am interested in their explanatory capacity, but am focussing on the effect that economic surveillance has on determining prices, over and above the variables discovered in previous literature. I therefore control for a number of the most commonly cited variables in the literature on sovereign debt pricing.

One recurring set of variables appears in both the political economy and finance literature as a strong determinant of prices in sovereign debt markets. Macroeconomic variables are unsurprisingly found to be a predictor of asset prices in sovereign debt markets. For example, research on the determinants of credit ratings (Cantor and Packer, 1996), developing country loans (Edwards, 1986) or emerging market prices (Eichengreen and Mody, 2000) all indicate the ability of macroeconomic variables to predict prices. The research of these authors is based on large, quantitative analyses that attempt to provide maximum explanatory power from a large set of variables in their models. However, as I draw upon theories of both finance and political economy, a range of financial and political variables need to be incorporated into my statistical methodology. I therefore use only macroeconomic controls with the largest explanatory power found in previous research on sovereign debt. Furthermore, including extra variables from a theoretical viewpoint stands to offer little explanatory power, as most of the associations are incorporated into the CARs themselves. I include the yearly inflation rate for each country in the study, which as the key indicator of the ability held by a government for generating revenue other than printing its own, is found serially in the sovereign debt literature noted previously. Inflation is a key concern for investors in sovereign debt markets for obvious reasons. Along with default risk, inflation is the most likely reason that sovereign debt market participants will make a loss on their investment. Government bonds are sold by the paying of a premium by the investor, which is returned with interest by the sovereign, if inflation rises, this return loses

value. Additionally, inflation rates are a proxy for the sovereign's flexibility in the area of monetary policy along with the stability of the economy more generally. Furthermore, my theoretical framework interprets economic surveillance releases as indications of future behaviour. Inflation rates, therefore, fall along a similar dimension as they signal the medium term outlook of an economy's stability and monetary policy trajectory. I also include a binary variable that takes the value of 1 if a country is part of the European monetary union. Countries within the EMU lack the ability to use monetary policy tools during crises, while also lacking the ability to devalue to boost competitiveness, therefore I must control for these factors that should concern market participants. I only include the EMU in the study as members of other currency unions are not found in the sample, for example, a selection of sub-Saharan African nations.

Similarly, research on sovereign debt has noted net debt to GDP ratios as a strong predictor of risk prices. Once more, the logic behind this inclusion is straightforward, as much literature on sovereign debt alone yields findings that large debt ratios impact on the perception of risk that investors price into debt, but also the ability of an economy to grow and service this debt. The most notable example comes from Reinhart and Rogoff (2010) who quantitatively examine the impact of debt on growth and find that past a point of 60 per cent to GDP, debt reduces economic growth substantially. This research was later found to contain certain statistical errors, but with corrections, similar results were produced. For investors, their aversion to debt is moderated by the market they are investing in, with a marked distinction made between emerging and advanced industrial economies. Indeed, large advanced economies have considerably larger debt ratios than many emerging or even less developed economies, but are able to borrow on financial markets at much lower rates. In these cases, investors perceive advanced, democratic economies as safer bets, regardless of their debt levels. Yet if a political or economic shock should occur, debt ratios would become a much more important consideration for investors, as sovereigns may struggle to service their borrowings. This is particularly pertinent in the Eurozone economies, which, without the ability to address their debts through monetary policies, are particularly vulnerable to high fiscal imbalances.

Additionally, there are a range of variables that have been shown to have a strong association with government bond yields. Unfortunately, for large parts of my sample, these data are unavailable. Either because of simple availability constraints, or require paid subscriptions to data providers. Future research should seek to incorporate their predictive capacity into methodological frameworks that capture market reactions to surveillance. Yet for now, I simply present them and discuss their relevance to the current research. One of which is the government deficit to GDP ratio. This second debt ratio is consistently found within the literature on sovereign bond risk pricing, and is enshrined in the institutional framework of the EU, as a measure of fiscal stability within the Maastricht Treaty. However, rather than using the deficit at the time of the surveillance release, researchers should seek to use the projected deficit to GDP ratio of 12 months in the future. The logic behind this inclusion is straightforward. As noted, financial markets are concerned with short-term performance and medium term certainty in government debt. My theoretical framework models surveillance releases as projections of future performance, which impact on immediate prices. If financial market participants are therefore concerned about what will happen in the future, and surveillance reports address this concern, I should control expectations that investors already have of macroeconomic performance. Additionally, debt service to current government revenues should be of note to scholars. This measure is in essence, a more specific ratio of the sovereign's ability to roll over its short-term debt commitments. Debt to GDP is a blunt measure that is used widely in the literature and in policy debates, but debt service costs to revenues is a finer measure of debt structures and the level of constraint exerted by these debts on a government.

To capture perceptions of the strength and liquidity of each currency, a binary variable that equals 1 when a country's currency is a global reserve could be incorporated. In terms of monetary policy and flexibility to monetise debt and maintain a strong exchange rate, the yearly figure of foreign currency reserves held at the central bank of each country should suffice in this regard. This inclusion is again based on wide appearances in the literature and the emphasis placed on reserves from International Organisations. Additionally, in this sample, foreign currency reserves would be particularly crucial for

countries outside the Eurozone area. The rationale is again simple. The IMF maintains that central banks need to maintain at least enough foreign currency reserves in their central banks to cover three months of imports in the event of a currency crisis. This figure is somewhat low and varies according to economy size and structure, therefore warranting the inclusion of the total figure as an indicator of the government's ability to maintain the strength of its currency in the event of a crisis, rather than the 3-month figure. Furthermore, larger foreign currency reserves indicate that an economy should be able to service its foreign currency denominated debt. Similarly, research models should include total exports as a proportion of GDP for each country. A higher proportion of exports for each country indicates that more hard currency is entering the economy, strengthening the liquidity and balance sheets in the domestic market. Lastly, as the most basic measure of the size and growth of the economy, I include the gross domestic product (GDP) for each country and year in the sample, along with its yearly percent change. GDP is the crudest measure of the size of the economy, encompassing the sum of government spending, investment, consumption, plus net exports. The inclusion is merited as it is frequently used in both financial and political economy literature. Furthermore, as I am trying to examine the impact that economic surveillance has on financial markets, I must control for the size of the economy being surveyed. Even if surveillance reports are uniform, the economies they examine are quite the opposite, with vastly different structures, compositions and degrees of health. If investors are truly concerned with macroeconomic variables, then GDP must be one of the most likely moderating effects on the impact of economic surveillance. Additionally, I include the yearly change in GDP as a measure of the performance of each economy, although these effects are largely incorporated into the abnormal returns. Also of note should be per capita income for each country in the sample. This variable is found to be a determinant of sovereign credit ratings (Cantor and Packer, 1996) and has a theoretical basis for its inclusion in future studies. Income per capita represents the taxable base of income afforded to the state for servicing its debts. Further to this, it can be seen as a proxy for development level and political stability in an economy. I conceptualise economic surveillance as an exercise in homogenising beliefs and offering insights about the trajectory

of an economy, in terms of growth through structural reforms. These macroeconomic variables are all related to growth, but those that do not appear in this study would not greatly add to the explanatory capacity of the current research. While I include inflation, growth, economic size, current account balance to GDP, and debt to GDP, these variables merely control for perceived bias on the part of market participants. The event study that I employ is ideally suited to testing the real-time impact of surveillance on borrowing costs, and my primary hypotheses. However, future studies could incorporate the additional macroeconomic variables I have discussed in a panel environment using a spread measure as an alternative variable. This would be a natural way to extend research of this nature.

However, my argument is that one aspect of economic surveillance provides a judgement on the economic policies of a government, particularly their efforts at enacting structural reform. Similarly, the other main provision is an indication of how strongly structural reforms are needed, along with the willingness of the government to implement them. To this end, researchers should control for the extent to which the policies of a government, and the economy, are in line with the desired wishes of financial market participants. In order to operationalise this concept, a simplified variable of economic openness that measures total trade as a proportion of GDP for each country could be used. This is a crude measure of policy support from market participants that captures mainly the extent to which an economy is open to foreign investors, but does not capture the judgement on supply side factors that economic surveillance often addresses. These data can be sourced from the World Bank's World Development Indicator database. While all other macroeconomic data listed detailed above is sourced from the IMF's World Economic Outlook database.

In terms of macroeconomic fundamentals, these variables cover fiscal policy, economic performance, and cyclical monetary policy flexibility. According to Mosley (2003b), select macroeconomic variables such as these are the core focus on investors in advanced economy debt. Therefore, if I am trying to isolate the impact that economic surveillance has on financial markets, I must control for the variables that market actors first

consult. As noted, however, the relationship with the reaction of bond market participants to surveillance is primarily captured in the CAR scores themselves, leaving little reason for employing a time-series, cross-sectional panel dataset.

Political Economy Variables

This study is one of the first large, quantitative analysis of how economic surveillance affects the global economy. I have developed an extensive theoretical framework that encompasses a broad body of literature on international organisations, theories of financial market movements, and investor psychology. Naturally, central to much of the political economy literature on financial markets and the global economy in general, is the influence that political factors have on economic phenomena. Therefore, this research includes a selection of the political economy variables found in previous literature on the determinants of sovereign debt prices and credit ratings.

The first political economy variable I include to illuminate the relationship between the CARs and IPE variables is the default history of each economy in the sample. I measure this as a simple binary variable that equals 1 if a country has defaulted on their international debt during the period for which data is available. In actuality, I use two different measures to capture the concept of a defaulted debtor. The first is a more constrained definition, which means that fewer countries fall into the category of those that have defaulted, the data comes from the rating agency Moody's. I also use a less constrained definition of default as per the Bank of Canada's database. While economic surveillance reports are available only from 1996, I include default history for each country from 1970 onwards. Indications that default history plays a role in sovereign debt markets goes against the logic that bond investors are forward looking. Default history should be of interest to investors if an economy has failed to make adequate structural changes to ensure default does not recur. It could also be useful in determining prices if the same government that presided over the default is in office at a later date, or even the same party. Yet Cantor and Packer (1996) find that default history has a strong relationship with credit ratings for governments

regardless of their political system or polarisation. Research on the concept of reputations in sovereign debt markets discusses how debtors are bound by their prior actions in the international financial arena. As noted, literature on the theoretical underpinnings of reputations in sovereign debt markets notes that reputations develop for countries depending on their history of payment, interacted with the economic climate at the time (Tomz, 2007). To capture conceptualisations of creditworthiness and to test H3, and H5a; that market reactions to surveillance vary according to group categorisations, I use ratings from the agency Fitch. To complement this, I use a binary variable that indicates membership of the acronym 'PIIGS', for Portugal, Ireland, Italy, Greece, and Spain. Lastly, to capture the uncertainty of an election period, researchers could employ a binary variable that measures 1 if the report is released in an election year. While from the literature on the political economy of IMF lending and conditionality, researchers could include a binary variable on whether the country being surveyed has a native director on the executive board at the time of the report.

Continuing to draw on the literature that examines the conditions under which confidence crises can occur in sovereign debt markets, several inclusions could represent improvements in future studies. Specifically, those that control for market perceptions of vulnerability. Banking exposures to the largest (G5) members of the IMF, OECD, and EU, along with a binary variable of 1 if a country is currently drawing on IMF credit, with the former sourced from the Bank of International Settlements database and the latter from the official IMF website (IMF, 2016) would help to explore variation in market returns. To measure structural imbalances and the risk they pose to an economy, the value of both the agricultural and oil sectors as a proportion of each country's GDP would be significant additions. In this study, I use the London Interbank Overnight Rate (LIBOR) as a measure that captures liquidity and health in the interbank market. I complement this with the Chicago Board Options Exchange Volatility (VIX) index as a proxy for investor risk appetites and global economic conditions more generally, I source these data from the Federal Reserve Bank of Saint Louis' economic database. Finally, the use of debt maturity structures for each country, measured as the percentage of bonds issued with a maturity of 1 year

would be ideal additional measures to capture perceptions of default risk among investors (Arellano and Ramanarayanan, 2013). The intuition here is that investor perceptions of a debt crisis are partly driven by short-term debt commitments, with a longer maturity structure reducing short-term rollover costs (Cole and Kehoe, 2000).

I test several models using macroeconomic variables as controls to isolate the relationship between sentiment and the CARs. All the variables I have included are also used to generate a broad range of descriptive statistics which help to explain variation in both the CARs and sentiment scores. In the following chapters, I bring these techniques into an empirical environment and test the hypotheses I have generated in the previous chapter. Specifically, I use the event study method to generate abnormal returns, a measure of unexpected reaction to economic surveillance reports. In chapter 6, I use this method to test H1, that surveillance should on average, reduce interest rates. The same dependent variable is used along with categorical classifications to split the reactions according to level of market development, category, and during times of uncertainty and crisis, testing H2, H3, and H5A. I do not formally test any hypotheses in chapter 7, but rather explore the data I have generated on the sentiment within economic surveillance reports. In chapter 8, I employ an OLS regression to test H1A, that the reaction to a surveillance report relates to the sentiment within its text. I also test H4 in chapter 7, that reactions are stronger for yearly changes in sentiment. In chapter 9, I use the absolute abnormal return primarily to test H2, while I also explore the data more generally and also employ OLS regressions to test the relationship between sentiment and absolute abnormal returns.

Table 5.1 Description of Variables

Variable	Measure	Source	Time Period
10 Year Sovereign Bond Interest Rates	Daily Yield Generated by Trades On Secondary Market	Datastream	1997-2014
Corruption Index	Ordinal Data Ranging from 0 to 100	Transparency International Index	1997-2014
Credit Rating	Scaled (1-5)	Fitch Ratings	1997-2014
Current Account Balance / GDP	Percentage	IMF WEO	1997-2014
Default History (Constrained)	Binary of 1 if Defaulted	Moody's Global Credit Research	1983-2007
Default History (Unconstrained)	Binary of 1 if Defaulted	Bank of Canada	1970-2015
External Debt to GDP	Percentage	IMF WEO	1997-2014
GDP Per Capita	US Dollars	IMF WEO	1997-2014
GDP Yearly Change	Percentage	IMF WEO	1997-2014
GDP Yearly	US Dollars	IMF WEO	1997-

Total			2014
Geographic Region	Categorical (1-9)	N/A	1997-2014
Global Financial Crisis	Binary of 1 ≥2008	N/A	1997-2014
Inflation Rate	Annual % Change	IMF WEO	1997-2014
Level of Market Development	Scaled (1-4)	FTSE	1997-2014
Level of Market Development	Scaled (1-3)	MSCI	1997-2014
Membership of European Monetary Union	Binary of 1 if member	http://europa.eu/index_en.htm	1997-2014
PIIGS Economies	Binary of 1 if member	N/A	1997-2014
Risk Perception	LIBOR Interest Rate	Datastream	1997-2014
Sentiment of Surveillance	Word Frequency	Loughran & McDonald (2011)	1997-2014
Uncertainty	VIX Index	Reserve Bank of St Louis	1996-2014

6. The Impact of Economic Surveillance

The surveillance function of international organisations is designed to stimulate both peer and public pressure on member governments. This pressure is thought to stimulate reform and therefore foster stability and growth among members of IOs. Academic research on this function has focused almost exclusively on its effectiveness. As a result, there has been almost no empirical research produced on the impact of economic surveillance more generally. This chapter is dedicated to presenting my findings regarding financial market reactions to economic surveillance releases from 1996 onward. While market reactions represent only one aspect of the impact that economic surveillance has, it is a particularly pertinent indicator, given the overall purpose of the function. Furthermore, as the literature on such a topic remains so scant, this overview represents a valuable starting point for researchers and policy makers alike.

A most basic question therefore, and one of considerable importance, is whether economic surveillance has any impact at all. According to the CARs, financial markets react strongly to economic surveillance in the initial days following its publication. In the following sections of this chapter, I describe and analyse these reactions. I first describe my findings in terms of the most general impact that economic surveillance has on markets. This entails providing an overview of the data on market reactions to surveillance releases overall, where I include all three institutions in the sample. I then move on to examine the data more closely, providing an overview of how market reactions have evolved over time. Following this, I split the data according to the organisation that has produced the surveillance reports, before analysing these along various categorical dimensions. These sections outline in detail, the two other main findings of this research, that investors care about when a report is released, and even more importantly, they care about who is releasing it.

In terms of hypotheses testing, this section tests a number of these. Specifically, using the descriptive statistics of the CAR scores, I test three hypotheses on market reactions. H1; that surveillance on average, reduces yields, H2; that reactions to emerging

market surveillance are greater than to surveillance of advanced economies, and H3; that financial market reactions vary according to categorical classifications. I test these hypotheses in a pooled sample.

6.1. Does Surveillance Matter?

I test if economic surveillance is important for one of the largest sections of its target audience, financial market participants. Additionally, I seek to test if economic surveillance produced by three of the most significant actors in the global economy, moves financial markets. Specifically, this research studies these questions by looking at sovereign debt market reactions to surveillance by the EU, IMF, and OECD, between 1997 and 2014.

The number of CARs generated from economic surveillance releases in this research is relatively large at 827, for example, the closest study to the current research examines only 157 events (Fratzscher and Reynaud, 2011). In this sense, a study that examines all available economic surveillance releases by IOs is a rich addition to the political economy literature. I also use an event study methodology that is underemployed in the political science literature, further boosting the strength of the study. In this section, I attempt to provide the most comprehensive analysis possible of these data given the natural time constraints. The descriptive statistics generated by the CARs for each surveillance report released by the EU, IMF, and OECD from 1997-2014 provide some interesting findings on the impact that economic surveillance has in the days following its release. I use these scores as a test of the most basic hypothesis in this research, H1; that economic surveillance should reduce yields on average.

Overall, the mean figure for the CAR from the entire sample of 827 EU, IMF, and OECD surveillance reports is .0044205. This figure translates into an increase of just over 0.4 basis points on the yield of 10-year bonds issued by countries in the sample in the two days following the release of an economic surveillance report. Essentially, surveillance releases, on average, cost governments money. The change in cost is relatively low, for example, the yearly yield range for one of the world's safest assets, the US 10 year bond, is over 130 basis

points. For scholars of IOs, however, this is interesting, such a finding actually goes against foundational research which argues that one of their unique and most powerful functions is the release of credible information to a range of actors, including financial markets, which should reduce uncertainty. It does not provide strength for the most basic hypothesis in this research, that surveillance should reduce interest rates.

Such an interpretation of information dissemination by IOs could make sense during times of increased uncertainty, particularly in the field of international relations. However, it does not necessarily translate into a credible theory of how financial markets should react to economic surveillance, which are regular events that occur regardless of the economic climate. Indeed, financial markets have evolved greatly since the theory was pioneered in the 1980s (Keohane, 1984). Most notably, the speed at which financial market trading occurs now stands in stark contrast to that of even the early years of this century. Sovereign debt markets have also increased dramatically in depth and global scope, with new issuers continuously entering the market. With this in mind, the interest rate yield on government debt, particularly the 10-year benchmark bond of each country, is more likely to represent a 'daily judgement' of the economy in question than it would have in previous decades. Furthermore, as one intention of the release of economic surveillance is to stimulate reactions from the public, it makes sense that such reactions may sometimes be unfavourable. In reality, what the CARs demonstrate is that from a sample of 827 surveillance reports issued by the EU, IMF, and OECD, there is considerable variance in financial market reaction. The mean figure is a marginal increase of over .4 basis points on the 10-year bond yield. As noted, this is a small movement, and given the large sample size, is not unexpected. The main finding of note around this figure is that it does not support the hypothesis that surveillance should on average, reduce interest rates.

One interpretation is that a typical report does contain new, negative information, resulting in an average increase in the cost of issuing debt. However, the movement is so small that it is hard to imagine that reports contain something that is both notable and negative, but only to the point that markets increase costs by 0.4 basis points. Of greater

interest is the more broad range between the most positive and most negative reactions by financial markets. For example, the strongest reaction from financial markets to a surveillance release resulted in a reduction of over 137 basis points in the interest rate on Greece's 10-year bond following the release of the EU's 2012 report on the economy. Conversely, the most negative reaction from financial markets came in the wake of the EU's assessment of Ireland's economy in 2011, which saw the interest rate on the country's 10-year bond increase by over 64 basis points in the days after the report was released to the public. Another natural way to explore variation such as this is to examine market reactions over time to surveillance releases, which I do in the next section.

6.2. CARs over Time

In terms of how the CAR scores have evolved over time, there are notable trends highlighted by a simple scatter plot of all CARs over time. Figure 6.1 displays the entire sample of EU, IMF, and OECD CARs, ranging from 1996 until 2014. The sample uses all available surveillance reports produced by these IOs. Despite this, it is only possible to produce CARs of reports for which corresponding interest rate data is available, this largely restricts the sample to advanced economies in the early years, with emerging market data usually only available in later years. Yet the period from 1996 until 2014 is a good period to examine because of the rapid increase in financial market liquidity, expansion of debt markets, good variation in economic conditions, and relevance for policy makers in the current economic climate. At the most basic level, a scatter plot of all CARs over time highlights general movements in the reactions of financial markets to surveillance over time. The most obvious trend in the data coincides with the period before, during and after the most recent global financial crisis of 2008. The most notable move is the convergence of CARs in the years of 2005, 2006, and 2007. This period was one of stable growth in the global economy following the dot-com crash and Russian sovereign default, amongst other events. It was also a period of unprecedented liquidity and availability of cheap credit. The mortgage and stock markets of the US and Europe were at their highest valuations ever,

and public consumption facilitated the growth of export and commodity orientated emerging markets.

From this viewpoint, two theories come to mind as to how surveillance was interpreted during this period. One is that international organisations could have viewed the global economy at the time as overheated, and that a crash was impending, with surveillance reflecting this position. Indeed, several of the organisations noted the disproportionate growth of mortgage markets as a threat to stability in certain economies (IMF, 2006; OECD, 2006). However, the CARs during this period are heavily concentrated around the mean, with no outliers in the data. Indicating that regardless of the content of economic surveillance produced at the time, financial markets did not react negatively to surveillance releases in an overall sense.

An alternative interpretation, based on the efficient markets hypothesis, is that market participants simply anticipated the information coming from IOs in their surveillance reports. Within this interpretation, there are a number of potential explanations as to why this was the case. For example, that the content of surveillance reports was overly optimistic for the stability of the global economy (IEO, 2011). As the slowdown in the US mortgage market began in 2007, the CARs appear to become more varied in their range. The summary statistics demonstrate there is a clear change in not only the mean scores of CARs, but also in their range from 2007 onwards. For example, the mean figure for the CARs in 2006, from 52 observations, is an increase in the interest rate yield of .9 basis points, with the largest single movement being a drop of 11 basis points that year for Hungary's 10 year bond yield, and the largest increase being an increase of just over 10 basis points. Naturally, the standard deviation in 2006 is relatively low at slightly over 0.56. If this is contrasted with the 2011 scores, where the sovereign debt crisis in the Eurozone was reaching a critical level, there are marked changes in the same measures. The average CAR in 2011 is over 173 per cent more unfavourable to economic surveillance releases than in 2006, with only two fewer releases than that year. Additionally, and more broadly in line with expectations I

have outlined above that may suggest economic surveillance could be met with considerably varying reactions, the range is far greater.

The most positive reaction from financial markets in 2011 to an economic surveillance report was for the interest rate on the Turkish 10-year bond to drop almost 28 basis points in the wake of the IMF releasing its survey of the economy. In relative terms, the reaction of sovereign debt markets to Turkey's 2011 report, compared to Hungary's 2006 report, is 252 per cent more positive. One tentative indication here is that this finding is broadly in line with the foundational research on IOs as noted earlier, which claims that they are a force for uncertainty reduction, particularly during extraordinary times, or when information is limited. However, when considering the negative movements following surveillance, the theory is less credible. Similarly to positive movements in the data, the most negative reactions to surveillance during each year also demonstrate considerably disparate behaviour from financial markets. In 2006, the most negative movement following a surveillance release was for markets to increase the yield on the Canadian 10-year bond by almost 11 basis points. However, by 2011, markets appear to react much more negatively to surveillance, not only at the mean level but also at the range of interest rate increases. The worst reaction to a surveillance release in 2011 was for the interest rate on Irish 10-year bonds to increase by over 64 basis points after the EU released its survey of the economy. This reaction is the most negative in the entire sample of EU, IMF, and OECD CARs, and stands at 591 per cent more unfavourable than the worst release in 2006. This brief comparison between the years of 2006 and 2011 highlights a wider movement in the data following the onset of the global financial crisis in 2007 and 2008. Indeed, the data indicates a shift towards more negative reactions in 2009 and 2010 in addition to the example of 2011. These movements come following surveillance releases during a period of great uncertainty in the global economy, and are therefore a good test of the uncertainty reduction hypothesis.

Without a more robust examination of the data, it is difficult to draw any comprehensive conclusions. Indeed, there are contradictory hypotheses that could each be

strengthened by the data generated by the CARs. This initial exploration has served to highlight the broadest and noticeable trends in the data when the entire sample is pooled together. It is clear that the global financial crisis affected the way in which surveillance has been interpreted by markets. In the subsequent sections of the empirical analysis, I will attempt to explain this variation by employing regression-based analysis to explore the impact that sentiment within surveillance has had on these reactions. However, before this, I further examine the summary statistics generated by the CARs for each country. As this first section has shown that the data holds considerable variance, I now move on to examine the extent to which this variance occurs by the organisation that is producing each report.

6.3. CARs and Groups

This section is dedicated to examining how market reactions vary according to the group in which the country is placed. As noted, the Anova test, used as an analysis of variance between groups confirms (see Table 6.1) that the sample of CARs can be pooled together when testing H3 and H5a; market reactions by categorical grouping and level of development. I therefore use all 827 CAR scores across the three organisations, employing binary variables to indicate membership of a particular group; level of market development, creditworthiness, PIIGS members, and Eurozone status. I also use year indicators to further explore these data. The results of these specifications show that market reactions vary considerably across groups and over time, providing strength for both hypotheses (see Table 6.2). The descriptive statistics show that such variation is not limited to the average scores, but also the range and standard deviation of market reactions to surveillance.

6.3.1 Market Development and Abnormal Returns

As one of the first large research projects that focusses on the impact of economic surveillance, a pooled sample is illuminative as to the broad trends in the data on market reactions. In terms of the most general disambiguation in the data, that of market

development, the CARs demonstrate that market participants responded to surveillance with great variance depending on the type of economy that was surveyed. Advanced economy debt, on average, became marginally more expensive for governments to service following an economic surveillance release, with yields unexpectedly rising .6 basis points in the following two days. Naturally, this is a small figure, even for advanced economy 10-year bonds, which have lower trading ranges than higher yielding debt instruments. However, when comparing to emerging market returns, there is a striking difference. Emerging market debt on average, was made unexpectedly cheaper by .7 basis points following a surveillance release. Similarly, this figure is relatively insignificant in the broader picture of market movements, particularly for emerging market debt, yet the contrast with advanced economy returns is notable for several reasons. Firstly, by the average scores, there is little strength for H2, that emerging market returns should be greater following surveillance than those of advanced economies. However, the direction of the abnormal return following a report is in complete contrast to advanced economy returns, a notable finding. Secondly, the standard deviation and range of CARs demonstrate a different picture. An alternative measure of the impact that surveillance has on markets lies at the extremes of the market returns. The standard deviation, along with the minimum and maximum figures are two examples of these. Interestingly, the standard deviation, and both the minimum and maximum CARs are all more pronounced for advanced economy surveys. These results also complement the differences in mean scores between emerging and advanced economies, a particularly interesting finding given previous research on this topic. Interestingly, when the CARs are split into pre and post-crisis periods, and according to level of market development, the returns appear to homogenise. Before 2008, markets reacted unexpectedly negatively following surveillance releases of advanced and emerging market economies. However, from 2008 onwards, the average surveillance release led to more improved reactions, with both emerging and advanced economy abnormal returns becoming more favourable relative to the pre-crisis period. The average abnormal return for emerging markets is far greater from 2008 onwards compared to that of advanced economy debt, which gives strength to H2. Specifically, the mean figure for emerging

market abnormal returns from 2008 onwards is drop in yields of a basis point, compared to an increase of .2 basis points for advanced economies. The variance of abnormal returns also increases from 2008 onwards, with the standard deviation and range of returns shifting upward for both asset classes.

6.3.2 PIIGS and CARs

To test H3, that market reactions to surveillance varies by group, I use a simple binary variable to indicate membership of the PIIGS acronym; Portugal, Ireland, Italy, Greece, and Spain. Overall, from 1996-2014, the average surveillance report released on these economies led to an unexpected increase in yields of 1.7 basis points. Additionally, both the most positive and most negative returns came for members of this group. The standard deviation for these scores is naturally one of the highest in the sample categories. Each of these indicators is stronger than the average of the full sample without the PIIGS, where the mean score demonstrates an unexpected increase in yields of just .07 basis points. These scores, and those when the sample is split by the crisis period, give considerable strength to H3. Before 2008 the average abnormal return for PIIGS members was a .7 basis points increase in yields. From 2008 onwards this jumps greatly to over 3.6 basis points. The comparable score for the full sample without the PIIGS is actually a reduction in yields of just over a basis point. This shows that not only did markets respond on average in a more negative direction when surveillance of an emerging market was released, but they also responded with much greater force. This finding should be of particular interest to future researchers.

6.3.3 Creditworthiness and CARs

The final category of note that I split the CAR scores is that of individual country credit ratings, as issued by the agency Fitch. In contrast to the PIIGS acronym, membership of a particular rating tier actually denotes a measure of creditworthiness. In an ideal research environment, the impact of being labelled in a particular group would be isolated by a

battery of control variables in a robust statistical model. However, because of time constraints, I simply present the data as generated in my model as an initial exploration of this topic. The results show that market reactions vary greatly by credit rating, providing strength to H3. In general, market reactions become far more pronounced as the level of creditworthiness declines. Those with the highest category of rating, faced on average, greater borrowing costs following surveillance releases. The figure is only marginal however, at .2 basis points of unexpected increases. Countries that were issued with credit ratings below investment grade were faced with larger increases in yields when surveillance of their economies was released. Countries in the second highest category saw their yields move unexpectedly upwards by over a basis point when a survey was released. Those in the second lowest category of credit rating issued by Fitch were also charged more in the days after a surveillance report was published, with their costs increasing by over 2 basis points. The largest unanticipated movement to surveillance is the average CAR for those in the lowest category of credit rating, whose yields on average, dropped 7 basis points when surveyed. This movement is by far the largest average CAR score for any group. It is primarily being driven by one outlier in the data, Greece's unexpected reduction in 2012. However, the trend of average CARs increasing in magnitude following surveillance releases holds as creditworthiness declines, providing a significant finding for financial market scholars.

Overall, as an initial exploration of market reactions to surveillance, and a test of H3, these findings have highlighted that market participants react with great variance to surveillance according to the different categories in which countries are placed. Furthermore, the magnitude of these reactions varies again according to the timing of surveillance releases. The crisis period appears to have amplified such group effects, with the extent to which returns deviated from a predicted pattern increasing dramatically. This was particularly pronounced for the PIIGS economies. In the following sections of this chapter, I begin to analyse the CAR data according to the institution that has produced it and examining the broad trends over time.

6.4. IMF CARs

In terms of how CARs vary according to the organisation that releases surveillance, there are notable disparities in the data. For example, from the 419 IMF surveillance reports of 42 countries over the entire period, the average reaction from markets was an unexpected drop in 10-year bond yields of 0.3 basis points. This is a small figure, even by intraday trading ranges for the most stable bonds during normal times. Although, it does provide support for H1. However, such a magnitude could be expected considering the huge variance in the countries, economic climates, and content of IMF surveillance in the sample. As noted, there are 42 countries (see Table 6.1) that range from the largest, most stable sovereign debtors in the global economy, to serial defaulters and recent entrants to the sovereign debt market. Furthermore, as noted, the time period is also one of vast movement in the overall economic climate, this is even before the micro determinants of bond yields specific to each country are taken into account. In this sense, the mean figure serves as an interesting, but broad benchmark given previous research. IMF CARs do become more pronounced at the extremes, however.

For example, the most negative reaction in the IMF sample comes from market responses to Canada's 2009 survey, which resulted in an increase of over 29 basis points in the immediate days following the release of the report. One possible reason for the strength of this reaction is that the report outlines how Canada's fundamentals were actually very strong entering the crisis a year earlier, yet its impact still "significantly affected" the Canadian economy. Market reactions to this admission by the IMF might indicate a behavioural 'overreaction', where markets overreact negatively to bad news about well performing assets (De Bondt and Thaler, 1985). Yet more interestingly for this study, a market reaction of almost 100 times larger than the mean figure illustrates how surveillance can have hugely varying effects. Similarly, the most positive reaction from markets in the IMF sample was to reduce the interest rate of Filipino 10 year debt by almost 33 basis points, a movement of almost 107 times greater than the mean score. A tentative indication as to why markets may have been so pleasantly surprised by this report in

particular might be that the extremely uncertain global economy at the time, particularly in the Eurozone, might have led market participants to expect a report that was highly negative, when in fact the survey notes how the Philippines "shrugged off weakness abroad". I attempt to explore the predictive capacity of such content in the following chapter however.

IMF CARs over Time

To explore how the reactions to IMF surveillance vary over time in this sample, I again analyse the mean figures for each year. Interestingly, the average figures of CARs in response to IMF surveillance reports vary considerably, particularly around the onset of the crisis, which again serves as an indicative focal point in this initial exploration. When looking at the mean figures for each year, there does not appear to be a standout pattern that indicates any general movement. For example, the mean figures jump between being marginally positive and marginally negative in terms of abnormal returns, while the standard deviations do not move noticeably either. Even if the same reference years are used as in the previous exploration of the data as a whole, 2006 and 2011, there is no clear pattern visible. In 2006, the average response to an IMF surveillance report was a reduction in the interest rate of 0.6 basis points. The most positive reaction was a reduction of over 11 basis points, and the most negative an almost 11 basis point increase. In 2011, during the global financial crisis and debt crisis in the Eurozone, the mean figure was a reduction of over 2 basis points, with the best reaction at an almost 30 basis points drop. The greatest increase stood at over 15 basis points. However, while these figures are relatively large, and note clear interest from markets in economic surveillance produced by the IMF, they are not so large as to provide an overall pattern in the data. For example, the standard deviation is greater in four other years; 1999, 2008, 2012, and 2013, although notably, 3 of these are in the post-crisis period.

Interestingly, however, if the sample is split into the period until 2007, and from 2008 onwards (see Table 6.4), the data displays a certain trend that is less visible in a scatter

plot or even by the yearly summary statistics. The mean figure for IMF CARs in the years from 1997-2007 was a reduction in interest rates of just over .0008822, a marginal movement. In terms of the strongest reactions in the same period, the largest interest rate decrease was almost 26 basis points, while the largest increase was just over 21 basis points, both comparatively large movements. However, in the period including 2008 onwards, the mean figure increases significantly to demonstrate a reduction in yields of over .006709. Of note, however, are the largest movements, where the biggest single drop stands at almost 33 basis points, and the largest increase is almost 30 basis points. These movements show the influence of the global financial crisis in modulating the impact that IMF surveillance has. When considering previous literature on the topic, several theories stand out as potential explanations of this variation. Indeed, it is possible that the reaction of the IMF to the crisis was delayed, and that their surveillance only began to take on a more negative outlook when the downturn had already begun, compounding the bearish view held by investors at the time. As noted, this argument has been offered in previous literature that examines the surveillance function of the IMF in detail around this period (Moschella, 2012). Such an interpretation places considerable weight on the content of the surveillance reports themselves. Alternatively, it is possible that the actual content of surveillance mattered little at the time, and reactions by financial market participants were in line with the risk aversive tendencies that are exhibited by financial actors during times of uncertainty (Akerlof and Shiller, 2009). An advocate of the efficient markets hypothesis might simply argue that the relatively low mean figures in both periods reflect the average reaction of markets to reports that contained unanticipated language that was both negative and positive. Overall, the unexpected rally in bonds following economic surveillance releases in the crisis period, along with the increase in the largest downward movement overall indicates that an 'animal spirits' interpretation of reactions to economic surveillance during this time is not robust. In fact, the increased ability of economic surveillance to reduce interest rates in the crisis period is actually more in line with the arguments offered by Keohane (1984), as noted previously.

6.5 EU CARs

Firstly, it must be noted that the composition of observations in the EU sample has far less variance than that of the IMF. This leaves the EU sample at 14 countries and 212 observations from 1998-2014. Naturally, EU members must meet a set of economic and political criteria before accession to the union, further reducing the variance of the sample. However, the economic diversity of EU members, along with the shifts in the broader macroeconomic environment over this period still leaves the sample in a strong enough position to warrant an exploration of the CARs. Upon initial examination of the summary statistics of EU CARs, it is clear that their mean impact varies considerably from that of IMF surveillance. While IMF releases unexpectedly reduced yields .3 basis points, EU surveillance actually increases abnormal rises by a basis point on average. This too, gives no support for H1. Furthermore, EU surveillance also has a much larger impact than IMF surveillance in terms of the biggest movements in the sample. The largest unexpected increase in yields following an IMF surveillance release stands at over 29 basis points. However, the corresponding EU figure is around 217 per cent greater, at over 64 basis points. The most pronounced drop in interest rates after an IMF report is an almost 33 basis points reduction, however, the corresponding benchmark for downward pressure exerted by EU surveillance is over 137 basis points, around 420 per cent greater.

Market responses to EU surveillance are substantially larger than those to IMF surveillance releases. This should be of considerable interest to actors in both the academic and policy communities. In terms of how these findings can be initially interpreted, before the sentiment scores are analysed, there are several tentative implications. If IMF and EU CARs exhibited similar ranges, it would make sense to examine the individual CARs in an effort to explain variation at the country level. However, the great disparity exhibited in the data between the two institutions demonstrates that financial markets appear to interpret surveillance by each actor very differently. One possible explanation for this is that while the surveillance function of each IO aims to maintain stability and prevent financial crises,

the organisations themselves are very different in many ways. A comprehensive discussion of variety between the two IOs is beyond the scope of this analysis, furthermore, it is not the focus. However, at a fundamental level, the IMF is an organisation which primarily surveys its members' economies, lending financial aid when members face balance of payment crises. There is also a broad scope of membership, at 189 countries across the globe. The EU however, is a political, economic, and sometime monetary union between far fewer members in a smaller geographical range. The greater level of integration between EU members over IMF members has several implications. Most importantly from a financial viewpoint, EU members are far more interdependent, both in terms of trade generated by common tariffs for non-members, pooled sovereignty in decision-making, and in some cases by the monetary union introduced in 2001. With this fact, bad news about one economy within the union, particularly a member of the monetary union, is bad news for other members. Economic surveillance is a prime example of potentially contagious news for the union. Indeed, financial markets have demonstrated such contagion during the most recent economic crisis in the Eurozone (Mink and de Haan, 2013). However, this interpretation should move markets in both directions. For example, an EMH interpretation would be that the extent to which markets react to unanticipated information is regulated by the integration those countries being surveyed. This may explain why the range of reactions is broader for the EU sample, where integration is greater. Indeed, this would be in line with the strategy taken by IOs to release surveillance reports in a bid to generate public pressure. In this sense, the pressure generated by financial markets might speed up the reforms undertaken by members, as long as the market deteriorations are manageable. However, the integration of the EU members could also lead to a different reaction from financial markets when a report is released that is deemed as good or bad news. The ongoing Eurozone crisis has demonstrated that financial markets have actually been reacting to events within individual members by trading the assets of those economies that are most integrated in the union. For example, debt and equity markets have been exhibiting these co-varying movements between members, notable examples are the PIIGS economies.

There is an additional factor that may explain the stronger reactions of debt markets to EU surveillance over that of the IMF. The IMF exerts only indirect influence over its members when they draw upon credit at the organisation. There is even evidence to suggest that policymaking remains autonomous during IMF programmes, with governments still able to largely dictate decision making while drawing on IMF credit (Nooruddin and Simmons, 2006). During programmes, the IMF retains the ability to withhold funding if certain criteria are not met, this is the only formal mechanism to regulate the behaviour of members. Conversely, the EU has outlined a range of macroeconomic targets for its members that are legally enforceable, following the inception of the Maastricht treaty, along with the Stability and Growth Pact. Members that exceed the budget deficit limits for example, are subjected to the Excessive Deficit Procedure, where they must submit details and timelines for reform. They face fines if these recommendations are not submitted. Naturally, this means that the underperforming economies may suffer not only from the direct economic sanctions imposed by the Union, but also from the political consequences of non-compliance in a highly integrated union. In terms of how this impacts on economic surveillance, it would appear only natural that financial markets subject surveillance by the EU to greater scrutiny than that of the IMF. The largest drops in interest rates following EU surveillance releases might therefore be interpreted as both functions of uncertainty reduction, in line with previous research, and also of political victory for adherents to the targets. Poorly performing economies therefore should be subjected to at least equally strong reactions from markets. A more accurate interpretation could even be that members who miss, or are in line to miss the macroeconomic targets outlined by the EU might receive greater overall abnormal returns in their yields following surveillance releases that indicate this.

EU CARs over Time

The first noticeable movement in the EU data after the start of the sample in 1998 is for the reactions of financial markets to become more negative around the time of the dot-com

crash in 2000. Indeed, the most negative reactions to EU surveillance in this period come in the wake of the UK and French publications, two of the countries most affected by the crash. This finding is complemented by the summary statistics for the first years of the data, where the mean figure for the CARs of each year shifts from an average reduction of interest rates by 3 basis points in 1999, to increase interest rates by over 5.5 basis points in 2001. Following this, similarly to IMF CARs around this time, reactions to EU surveillance become more favourable, with markets reducing interest rates in 2004. The summary statistics compliment this observation, wherein 2004 the mean figure was a reduction of over 2.7 basis points, and no reactions to surveillance saw an unexpected sell-off in bonds. The convergence of CARs around this period of relative calm in the global economy ends around the onset of the global financial crisis in 2008, again in line with IMF CARs. Once more the noticeable pattern in the scatter plot (see Figure 6.5) is strengthened by the summary statistics (see Table 6.5) for the years around the onset of the crisis. For example, the mean reaction to EU CARs gradually becomes more negative as the financial crisis unfolded and evolved into the sovereign debt crisis in the Eurozone. The mean figure in 2008 was an increase of over 2 basis points for interest rates, while by 2011, the corresponding result was an increase of almost 10 basis points. These figures complement the mean scores before and after the crisis, where the pre-crisis CAR demonstrated marginal unexpected drops in yields, while from 2008 onwards, surveillance releases by the EU lead to unexpected yield increases of a basis point.

Furthermore, following the same pattern exhibited by IMF surveillance CARs, the variance in CARs increases as the crisis progresses. This is demonstrated by the large increase in the standard deviation of the CARs for each year. In 2006 the standard deviation was just over 0.02, while in 2012 it had increased to over 0.377. Similarly, the most negative reaction in the pre-crisis period before 2008 was an almost 20 basis points increase in the UK interest rate after the EU released its report in 2000. However, in the post-crisis period after and including 2008, the worst reaction was for markets to unexpectedly increase the interest rate on Irish 10-year debt by over 64 basis points in the days after the 2011 report was released. Furthermore, surveillance reports do not appear to exclusively contain

unanticipated levels of negativity in the wake of the crisis, rather, they were often unexpectedly optimistic. For example, the most positive reaction to an EU surveillance release prior to 2008 was for markets to reduce interest rates on Finnish 10 year debt by just over 17 basis points. Yet after 2008, financial markets appear to increase the magnitude by which they reduce interest rates on the debt in certain cases. This is evidenced by the largest drop in the sample, a reduction in the Greek interest rate of over 137 basis points after the EU released its 2012 report on the economy. At this juncture, it seems appropriate to explore the Greek and Irish cases in more detail, as they are by far the largest movements in the entire sample of CARs generated from all three IOs. However, an exploration of these cases is only robust if the reports from which the CARs are produced are analysed, too. I therefore return to the specific cases in further detail later in the analysis of sentiment scores in subsequent sections of this research. Instead, the core finding from the EU surveillance CARs over time is that, similarly to the IMF surveillance CARs, the financial crisis appears to have a clear impact on how economic surveillance has been interpreted by financial market participants. In both cases, EU and IMF surveillance appears to have been subjected to considerably more scrutiny in the wake of the most recent financial crisis, and in the case of the EU, the dot-com crash in the early years of this century also appeared to influence how surveillance was received.

6.6 OECD CARs

Lastly, the CARs generated from OECD surveillance reports are analysed in this section. The summary statistics generated from these reports too, provide interesting findings, and represent a considerable addition to the collective understanding of a function that has largely been ignored in the literature on both IOs and financial markets. Once more, it must be noted that there are considerably fewer observations of OECD surveillance reports than those of the IMF or even EU. Of course, one reason is that there are far fewer members of the OECD than there is of the IMF (35 versus 189). Additionally however, the OECD surveys its members' economies only every 18 months, further reducing the sample size available.

Yet at 196 observations, the OECD sample still holds sufficient variance to employ a quantitative analysis through the CAR scores.

The mean figure for OECD CARs is bigger than both the average scores for the IMF and EU surveillance reports, and on average, increases interest rates by almost 1.5 basis points. This is an interesting finding for two reasons. Firstly, the OECD is an organisation dedicated to promoting policies that improve the economic and social wellbeing of people around the globe (OECD, 2016). However, as an organisation, it lacks the financial influence of the IMF, and is not a political-economic union like the EU. It may seem surprising therefore that the surveillance function of the OECD can generate the strongest reactions on average from financial markets relative to reports released by the IMF or EU. Secondly, the standard deviation of the OECD sample (.0987661) is also less than that of the EU (.1268984), whose surveillance function solicits the next strongest reactions from markets. This means that the average score is not being driven by outliers that are disproportionately large. For example, one observation in the EU sample, the reduction of Greek interest rates in 2012 of over 137 basis points is driving down the mean score, a factor I acknowledge in the subsequent section of this chapter.

The range of the OECD CARs does not reach the levels of EU surveillance, but are broader than the IMF CARs. For example, the most negative IMF CAR is an unexpectedly negative abnormal return on yields of over 29 basis points, while for the OECD, it is an increase of almost 44 basis points. The most positive reaction to an IMF report was 33 basis points more positive than the predicted return, while for the OECD sample, the corresponding figure is almost 37 basis points. This finding is especially interesting given the difference in the sample size, with the IMF sample dwarfing the number of OECD observations available. Additionally, the IMF sample contains observations from emerging and less developed economies, while the OECD members are all advanced industrial economies. These findings are also interesting given the institutional differences between the EU and OECD, where the former plays a considerably stronger role in political and economic policy making of member states.

Overall, however, the figures demonstrate that the content of OECD and EU surveillance is more surprising for financial market participants than IMF surveillance. This finding itself represents incremental progress in understanding the influence that not only economic surveillance has, but also IOs in general. Naturally, it is necessary to test whether comparisons such as these are appropriate at all. A simple Anova test (see Table 6.1) demonstrates that there is no statistically significant difference in the variances of the CARs across the three producers, ensuring a pooled sample analysis is suitable. The obvious question therefore that is presented from these findings is why the OECD and EU surveillance procedure solicits such stronger reactions from markets.

OECD CARs over Time

Figure 6.6 is a scatterplot displaying all OECD CARs. Interestingly, the trend is broadly similar to that exhibited in the IMF and EU samples. Interestingly, there is considerable variation in the data prior to the convergence of interest rates, and CARs of OECD members around 2005, a pattern which can be seen in both the IMF and EU samples. Around the period of the Asian financial crisis and dot-com crash, the CARs vary considerably, with one clear outlier being the strongly negative reaction of financial markets to the Japanese report in 1998. Following this period, the CARs begin to converge around this era of stable growth and cheap credit. Then, as seen in the plots of CARs from the IMF (Figure 6.2) and EU (Figure 6.5), 2007, 2008, and 2009 sees CARs diverge from being concentrated around marginal returns. Interestingly, after 2009, OECD surveillance appears to be met more favourably by financial markets, with CARs becoming less negative. The mean figures for each year however, fail to present such a clear picture. At the onset, the summary statistics fall in line with expectations, given the eruption of the Asian financial crisis. In 1997 and 1998, the average surveillance release increased interest rates by just over 1 and 8 basis points respectively, by 1999 this drops to almost 3 basis points. These figures make sense given the contagion of the Asian crisis, along with the onset of the Russian economic and political crisis in 1999. The average CAR scores denote upward movements in yields in 2000,

2001, and 2002, around the period of the dot-com crash, and Argentine sovereign debt crisis. In 2003, market reactions turn positive as the average report reduces interest rates by over 4 basis points. Following this, in both 2004 and 2005, the average CAR increases interest rates by over 2 basis points for each year, this then reverses in 2006 with rates decreasing by 2 basis points on average. One possible interpretation is that during this period, OECD surveillance was accurately portraying risks in the global economy. There is evidence of this, given the fact that the OECD noted overheating mortgage markets in the economies of certain members. If this argument holds, and is strengthened by the research noted previously that describes the OECD as an 'ideas' institution that delivers clear policy prescriptions, then negative reactions to surveillance around this period makes sense. Furthermore, if the IMF has been indicated as failing to pursue its mandate of financial stability because of inadequately rigorous surveillance, then the OECD could be seen as 'truth telling' institution during this period.

A comparison of the data between the IMF and OECD CARs for these years may illustrate this point, where IMF CARs in 2004 and 2005 were exerting the opposite effect of OECD surveillance, reducing the interest rates of members. The finding of the 2006 mean figure reducing interest rates by 2 basis points, where just a year previously OECD surveillance had increased interest rates by around the same magnitude is perplexing, but not incomprehensible. Of course, it is possible that the content of OECD surveillance took a more positive outlook from 2005 to 2006, meaning either that the surveillance teams interpreted the data of their members more favourably, or that member governments moved towards implementing prescriptions in the 2005 reports. The data from 2006 onwards is just as inconsistent, where CAR scores oscillate between negative and positive until the end of the sample period in 2012. For example, the mean score for each year after 2006 is never consistent, with only the 2012 average of 7 observations following the same upward movement of interest rates in 2011. This finding is particularly difficult to explain given the onset of the global financial crisis in 2008. While the movements in market sentiment swung wildly over this period, it was only on a scale relative to movements in the pre-crisis period. In this sense, it should be expected that CAR scores follow a distinctive

pattern demarcated by the financial crisis. However, if economic surveillance is genuinely new information, it might not be expected to follow the contours of market sentiment completely. One key aim of surveillance is to promote reform among members, which therefore means that surveillance will indirectly report on the *amount* of reform deemed necessary. If an economy is performing poorly, additional reforms may be warranted, but if the respective government is genuinely working towards enacting the prescribed reforms, economic surveillance should not necessarily be negative in terms of its sentiment. Therefore, the CAR scores witnessed in the post-crisis period are not completely surprising, especially considering that the weight of the financial crisis varied considerably from member to member.

At a more basic level, the summary statistics of the OECD CARs before and after the onset of the crisis display a clearer trend. The mean figure of OECD CARs in the pre-crisis period sees that interest rates increase by almost 2 basis points on average. However, the same measure changes in the post-crisis period with a drop to marginally negative territory. Furthermore, in line with the findings of the IMF and EU CARs, the range of the OECD CARs increases following the onset of the crisis in 2008. In terms of the range of figures by individual observation, there is less variation within the sample of OECD CARs, the most favourable reaction to surveillance releases comes from 2008 onwards. This is notable because the most unfavourable reaction to surveillance, an almost 44 basis points increase comes before 2008. This is in contrast to the findings of the CARs generated from surveillance by the IMF and EU. However, it must be noted that the 44 basis points increase was for the Japanese 10-year bond yield, which came during the Asian financial crisis. The finding that OECD surveillance reduces interest rates in the post-crisis period falls in line with arguments offered in previous research that notes the policy prescriptions offered by the OECD as being clearer. If the OECD is known as an 'ideas' institution, its ideas should be worth more during times of uncertainty. Furthermore, if the argument holds that the OECD produces credible information, its influence must be extended during economic uncertainty, as theory on IOs in general suggests (Keohane, 1984). However, as noted, the research on the influence held by the surveillance function of IOs is in its infancy, making any deductions

speculative at best. The novelty of a dataset such as the CARs in this research means that tentative explorations must be made, while future research can benefit from more robust theoretical frameworks and research designs. In order to explore the data on the CARs further, I disambiguate the dataset by categorical grouping, while retaining the format of summary statistics such as the mean and range. The following section is dedicated to providing an overview of these findings.

6.7 Conclusion

This chapter has provided a comprehensive review of the data I have generated on financial market reactions to economic surveillance produced by the IMF, EU, and OECD. As I have noted, research on both the impact of economic surveillance and the function itself is in its infancy. This means that any initial advance on the topic represents an addition to our collective understanding, with the CARs being a prime example of this. I have attempted to provide an overview and exploration of the data I have generated rather than an explanation. While I discuss the data in the context of previous research that might explain variation, it is clear that an additional research design and theoretical framework are necessary to progress further. Future research can build on the findings within the CAR data. The findings provide support for several of the hypotheses outlined in the theoretical framework of this study. The ability of surveillance to reduce uncertainty appears to be moderated not only by the general economic climate at the time of its release, but also by the organisation that produces it. Categorical variables also illustrate some interesting trends regarding market reactions to surveillance, where the interest rate movements are greater for economies that are under pressure. Market reactions to surveillance are also moderated by level of market development, an unsurprising find, but one that merits further investigation.

Overall, the findings indicate that while the literature on IOs and financial market movements are both well-developed bodies of scholarship, their interactive effects are still largely unclear, this is exacerbated by the speed at which financial markets have developed

in recent years. Researchers are therefore afforded a broad range of potential avenues to explore. Specifically, the finding that markets differentiate between the surveillance operation of each institution should be the focus of researchers in subsequent studies. Future research should attempt to explain this variation. Additionally, future researchers might consider using alternative or complementary variables to capture the impact of economic surveillance releases on financial markets. One obvious way to do this would be to use stock, currency, or credit default swap data as an alternative dependent variable. My research was focused specifically on sovereign risk, making bond market reactions an ideal measure. However, similar tests of market efficiency could be performed on these markets, too. As research on the impact of economic surveillance is so limited, this would represent an excellent advance. Alternatively, future studies might examine the bond market with an alternative measure of impact, a good example of this might be a simple spread over a relevant benchmark, a common technique in the literature. Of course, an entirely different model may prove suitable for this topic. One candidate might be an error correction model, a particularly powerful technique which is used in similar time-series studies (Corbet, 2014). Such a model would also be particularly useful for capturing spill-over effects, a notable feature of financial market movements in recent years. Indeed, spill-over effects of economic surveillance seem particularly plausible given the extent of structural linkages in the global economy today, naturally in the Eurozone more than anywhere. While I attempt to capture some of these effects by employing categorical variables to distinguish between market movements, a more robust statistical framework may prove fruitful.

Similarly, this finding also provides significant policy implications for the IOs concerned, particularly for the IMF, whose surveillance operation appears to have been received with more muted reactions than that of the EU or OECD. Stronger reactions from markets does not necessarily mean that surveillance is ‘effective’, but rather that variance in the data between organisations and over time indicates that improvements are necessary. The function is designed to stimulate public pressure, which at least by using the CAR as a measure, does not appear to be working. Secondly, the onset of the global financial crisis changed the way in which market participants reacted to surveillance

releases by all three organisations. This too indicates that reform is necessary. While market movements demonstrate that surveillance is important to investors in some regard, pronounced changes in the magnitude of reactions are not ideal for stability. One way to smooth these reactions would be to become more invasive in the surveillance procedures, as noted in previous research. This should allow more accurate assessments of member economies, presumably smoothing levels of criticism or revelations of new information. Additionally, surveillance should become a more regular event. In its current format, surveillance often appears to lead to significantly different reactions from markets from one year to the next, more regular information dissemination could reduce such volatility. Of interest would be future studies that can benefit from an increased number of observations in this regard. Specifically, an examination of market reactions in the post-crisis period would be insightful for gauging changes in the market perception of surveillance and information produced by IOs in general.

These implications are just some of the policy-relevant findings from this research thus far. In the following section, I depart from analysing financial market reactions to surveillance and move towards examining the content of the surveillance reports themselves. I use a quantitative, content analysis procedure that codes EU and IMF surveillance texts, OECD texts are not analysed for reasons noted in the methodology chapter. The next section of this study is structured in the same vein as the last, where I examine how sentiment scores vary according to institution, group, and over time.

Table 6.1 Surveillance Coverage across Institutions

IMF	EU	OECD
Australia		Australia
Austria	Austria	Austria
Belgium	Belgium	Belgium
Brazil		
Canada		Canada
Colombia		
Czech Republic		
Denmark	Denmark	Denmark
Finland	Finland	Finland
France	France	France
Germany	Germany	Germany
Greece	Greece	Greece
Hong Kong		
Hungary		
Indonesia		
Ireland	Ireland	Ireland
Italy	Italy	Italy
Japan		Japan
Malaysia		
Mexico		
Netherlands	Netherlands	Netherlands
New Zealand		New Zealand
Norway		Norway
Pakistan		
Peru		
Philippines		
Poland		
Portugal	Portugal	Portugal
Romania		
Russia		
Singapore		
Slovakia		
South Africa		

South Korea		
Spain	Spain	Spain
Sri Lanka		
Sweden	Sweden	Sweden
Switzerland		Switzerland
Thailand		
Turkey		
United Kingdom	United Kingdom	United Kingdom
United States		United States

Table 6.2 Analysis of Variance across Institutions

Source	Z & Probability Scores
Between groups :2	Z: 2.65
Within groups : 825	P: 0.0715
Total : 827	

Table 6.3 CARs (Full Sample)

Category	Mean	Standard Deviation	Minimum	Maximum	N
Eurozone	.00681	.10855	-1.37537	.64045	404
Emerging	-.00734	.09694	-.327117	.26221	129
Advanced	.00603	.09914	-1.37537	.64045	698
PIIGS	.01704	.14693	-1.37537	.64045	172
Fitch:1	.00286	.07584	-.279682	.29400	475
Fitch:2	.01027	.08272	-.366512	.43960	205
Fitch:3	.01120	.11684	-.289093	.64045	77
Fitch:4	.02192	.11202	-.21003	.33968	45
Fitch:5	-.07453	.30048	-1.37537	.20536	25
≥2008	-.00125	.13081	-1.37537	.64045	297
<2008	.00712	.07544	-.259056	.43960	530
CARs	.00412	.09888	-1.37537	.64045	827

Table 6.4 IMF CARs

Category	Mean	Standard Deviation	Minimum	Maximum	N
Eurozone	.0002469	.0714927	-.2890932	.2129273	147
Emerging	-.0042499	.0690423	-.3271174	.2622187	129
Advanced	-.0023024	.0766071	-.3437381	.2940039	290
PIIGS	.0062474	.0699209	-.2890932	.154147	60
Fitch:1	-.0066295	.0743802	-.2590563	.2940039	193
Fitch:2	.008416	.0593582	-.1843736	.1737766	103
Fitch:3	-.0034133	.0853569	-.257998	.2105369	59
Fitch:4	-.0112327	-.0112327	-.2890932	.1876343	41
Fitch:5	-.0301428	.126331	-.3271174	.1641963	23
≥2008	-.006709	.0961163	-.3271174	.2940039	157
<2008	-.0008822	.0693946	-.2590563	.2129273	262
CARs	-.0030673	.0803981	-.3271174	.2940039	419

Table 6.5 EU CARs

Category	Mean	Standard Deviation	Minimum	Maximum	N
Eurozone	.0126651	.140051	-1.37537	.6404519	164
EU	.0014938	.0645797	-.1211424	.1962817	48
PIIGS	.0287178	2020248	-1.37537	.6404519	72
W/Out PIIGS	0005793	.0576728	-.1729764	.1962817	140
≥2008	.0102255	.0961163	-.3271174	.2940039	90
<2008	-.0008822	.0693946	-.2590563	.2129273	122
CARs	.0101357	.1268984	-1.37537	.6404519	212

Table 6.6 OECD CARs

Category	Mean	Standard Deviation	Minimum	Maximum	N
Eurozone	.0073401	.0916027	-.3665127	.2715321	93
Non-Euro	.0122389	.0878935	-.3665127	.2715321	102
PIIGS	.0127922	.1047007	-.3665127	.2663948	40
W/Out PIIGS	.0144744	.097536	-.2796822	.4396013	156
≥2008	-.0014789	.1018706	-.3665127	.205368	50
<2008	.019477	.0974614	-.1971731	.4396013	146
CARs	.0141311	.0987661	-.3665127	.4396013	196

Figure 6.1 Cumulative Abnormal Returns (CARs)(All IOs)

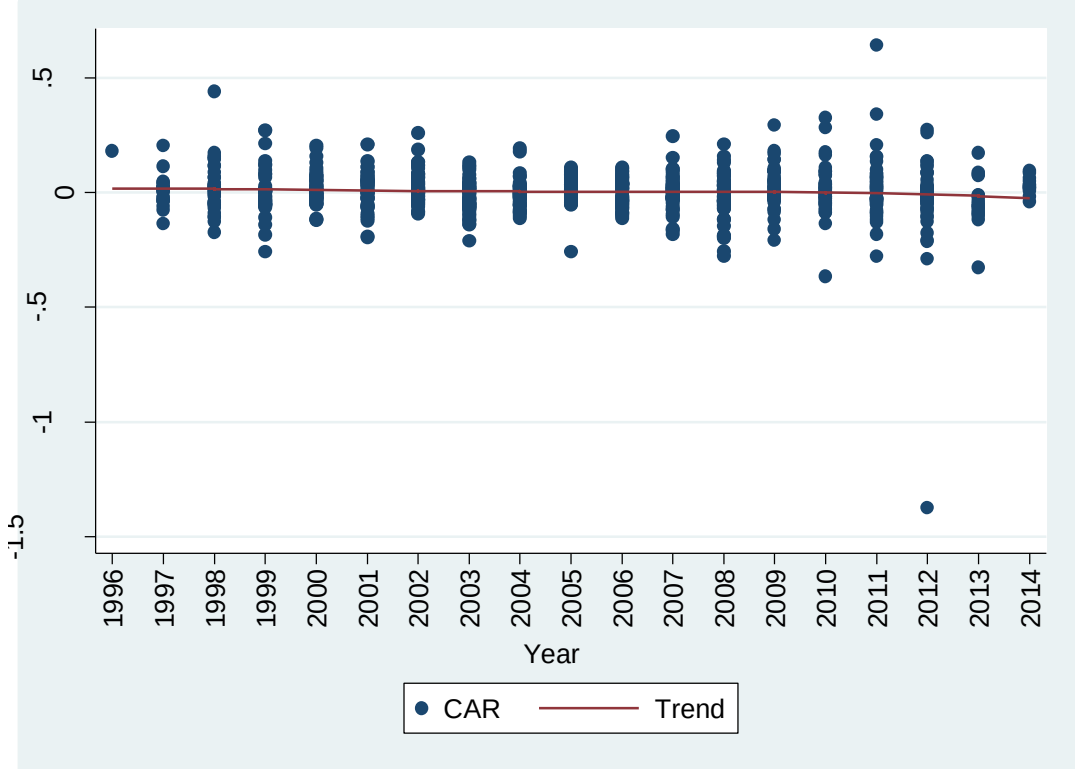


Figure 6.2 IMF CARs (Full Sample)

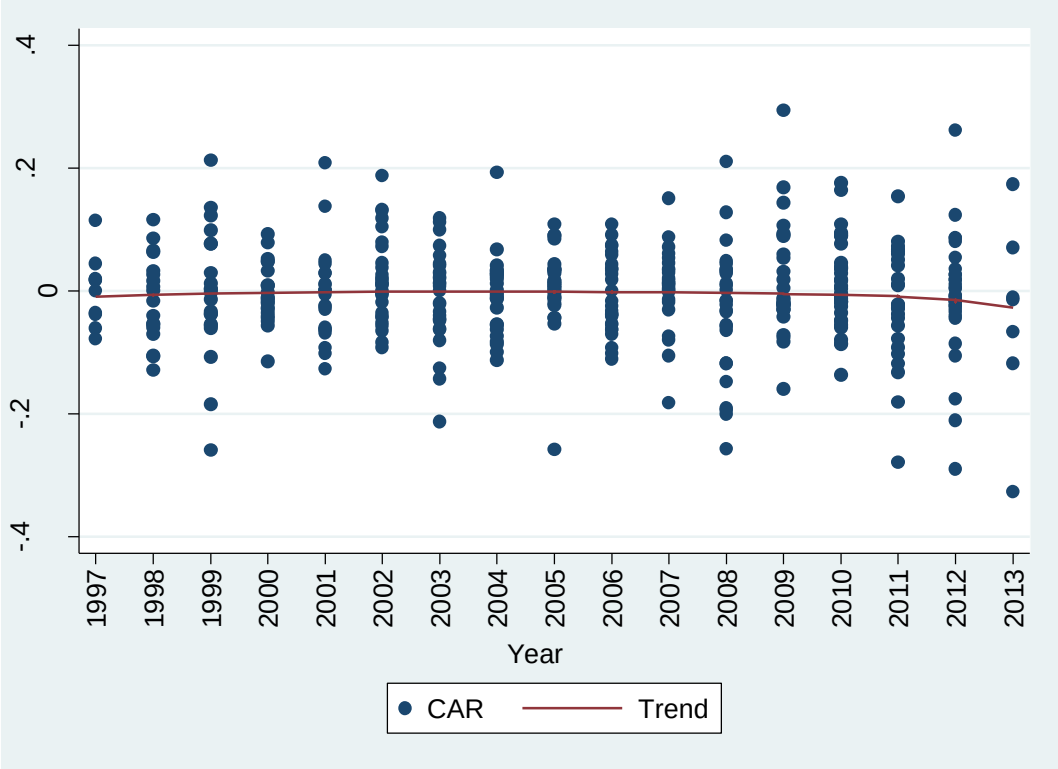


Figure 6.3 IMF CARs (Advanced Economies)

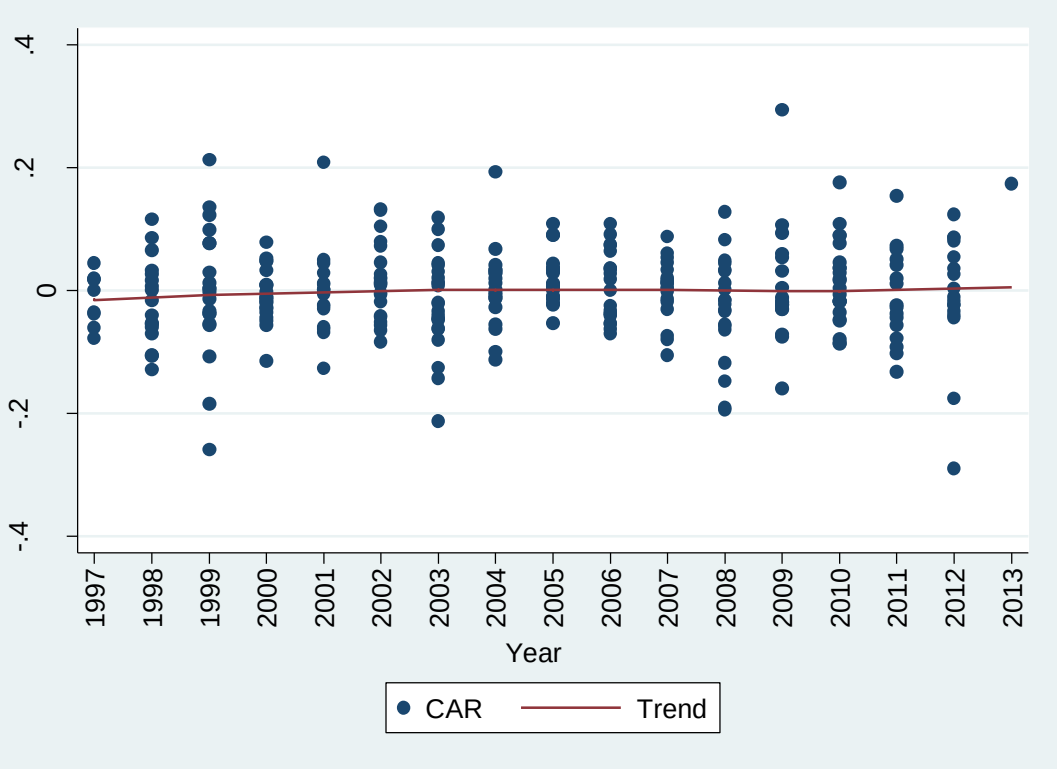


Figure 6.4 IMF CARs (Emerging Economies)

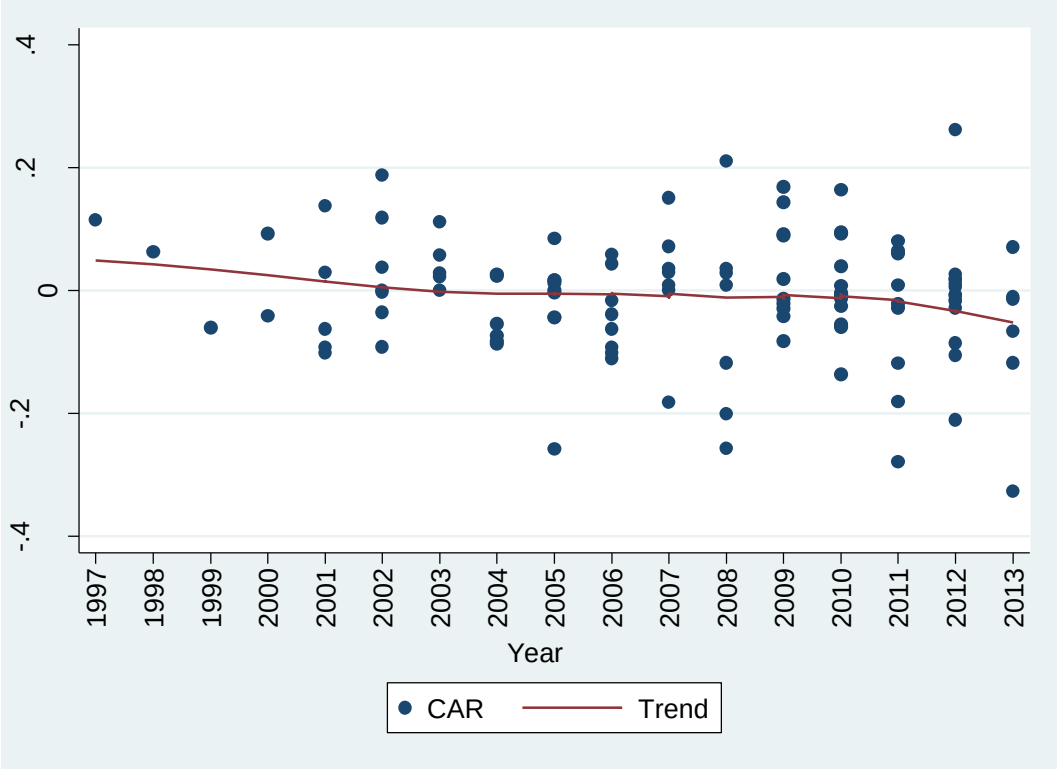


Figure 6.5 EU CARs

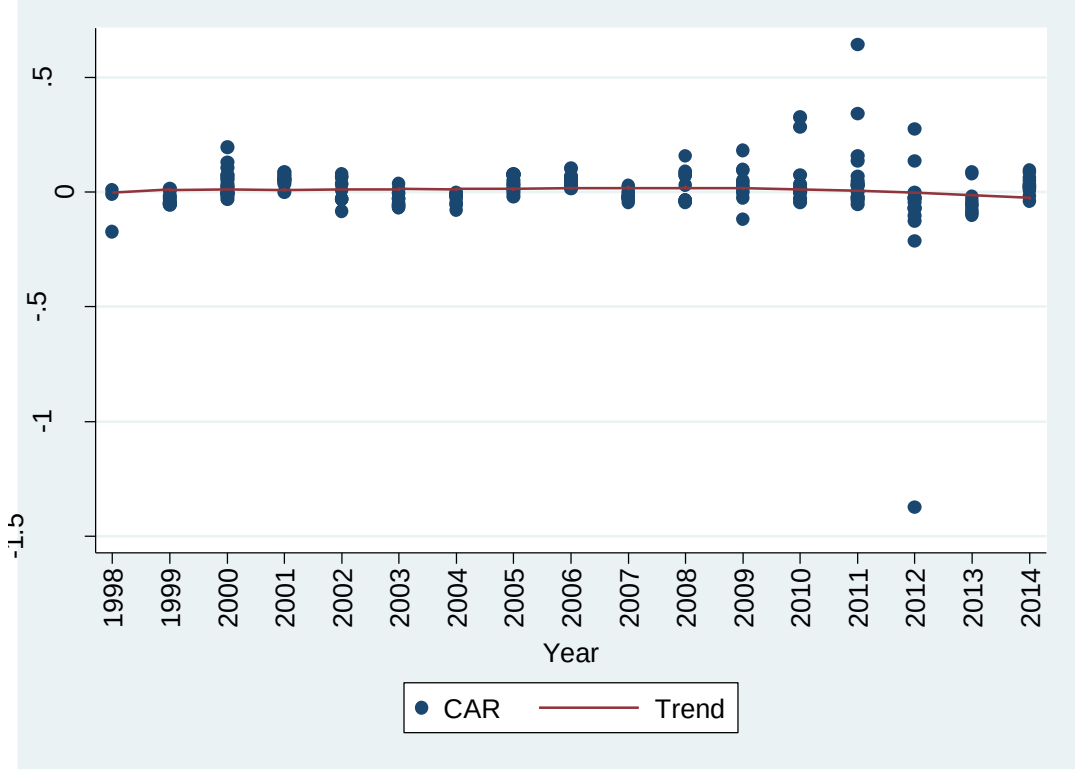


Figure 6.6 OECD CARs

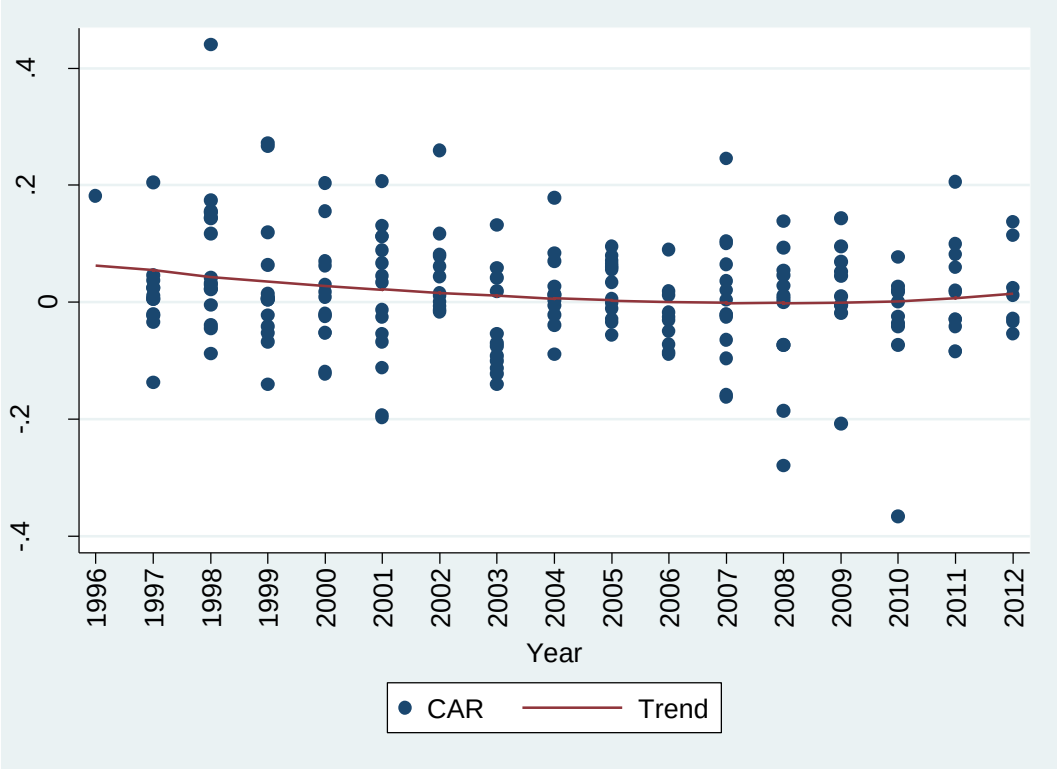


Figure 6.7 Cumulative Abnormal Returns (CARs)(Full Sample)

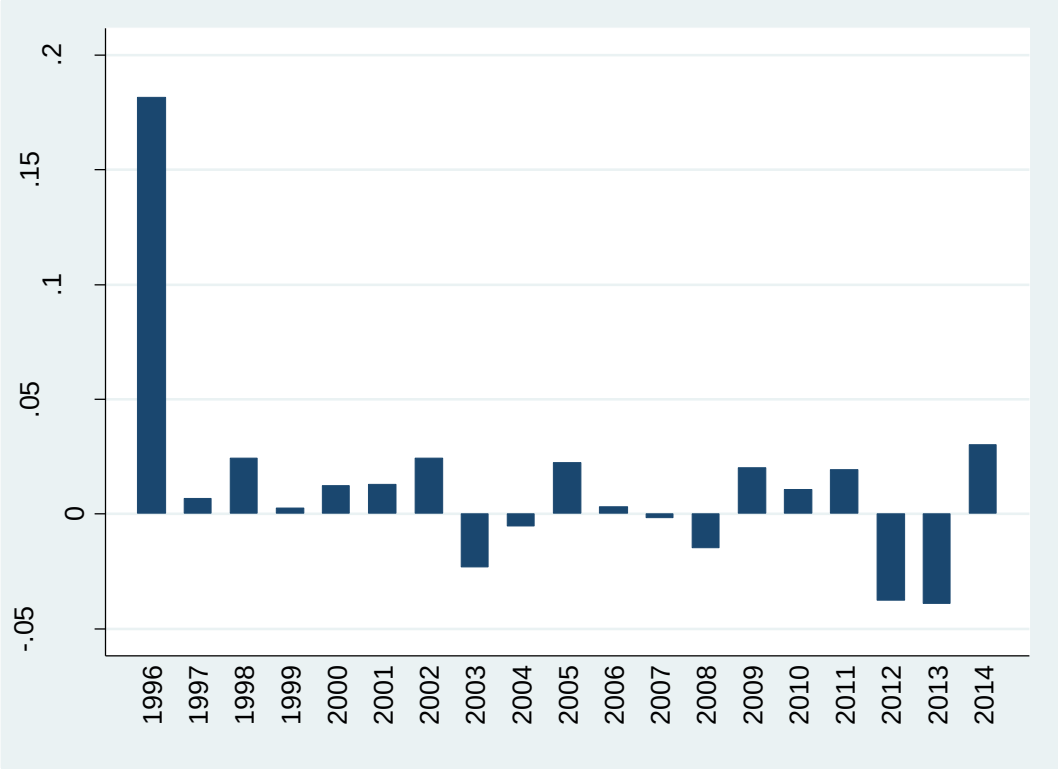


Figure 6.8 IMF CARs (Full Sample)

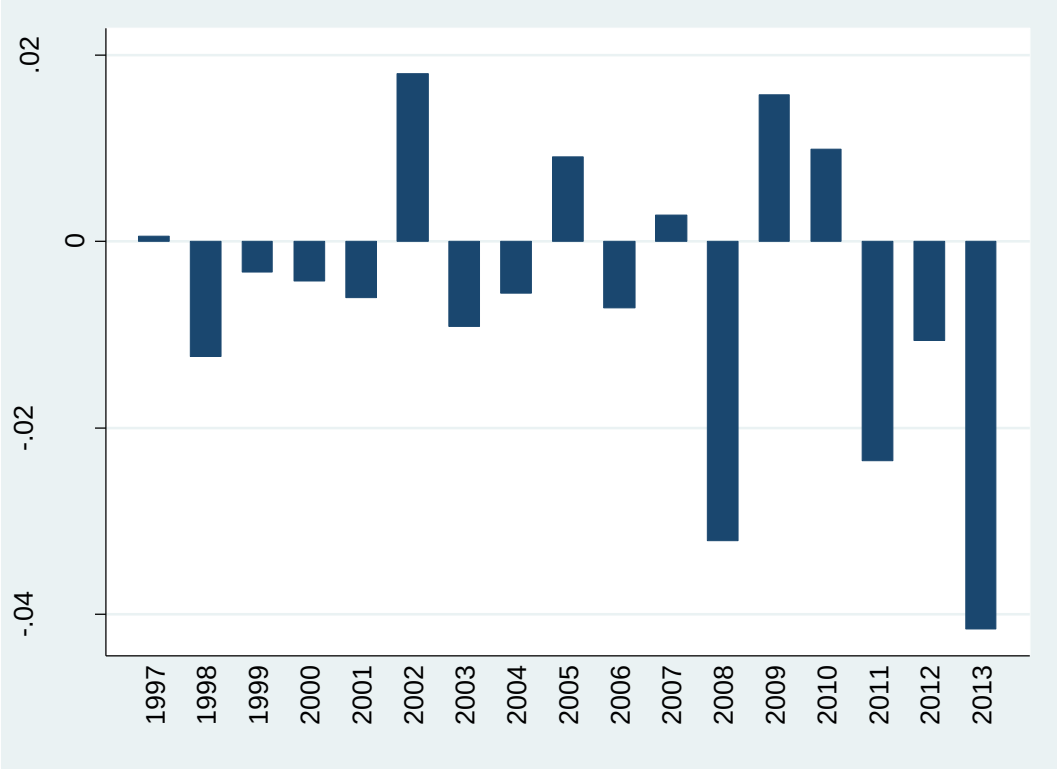


Figure 6.9 IMF CARs (Advanced Economies)

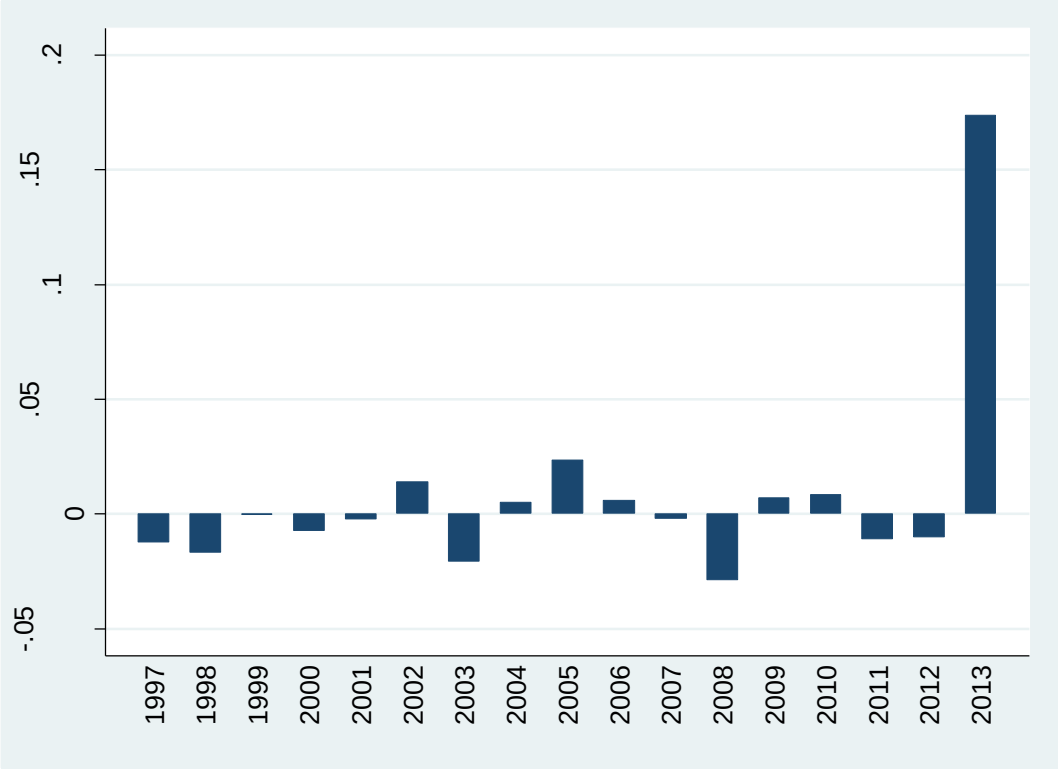


Figure 6.9.1 IMF CARs (Emerging Economies)

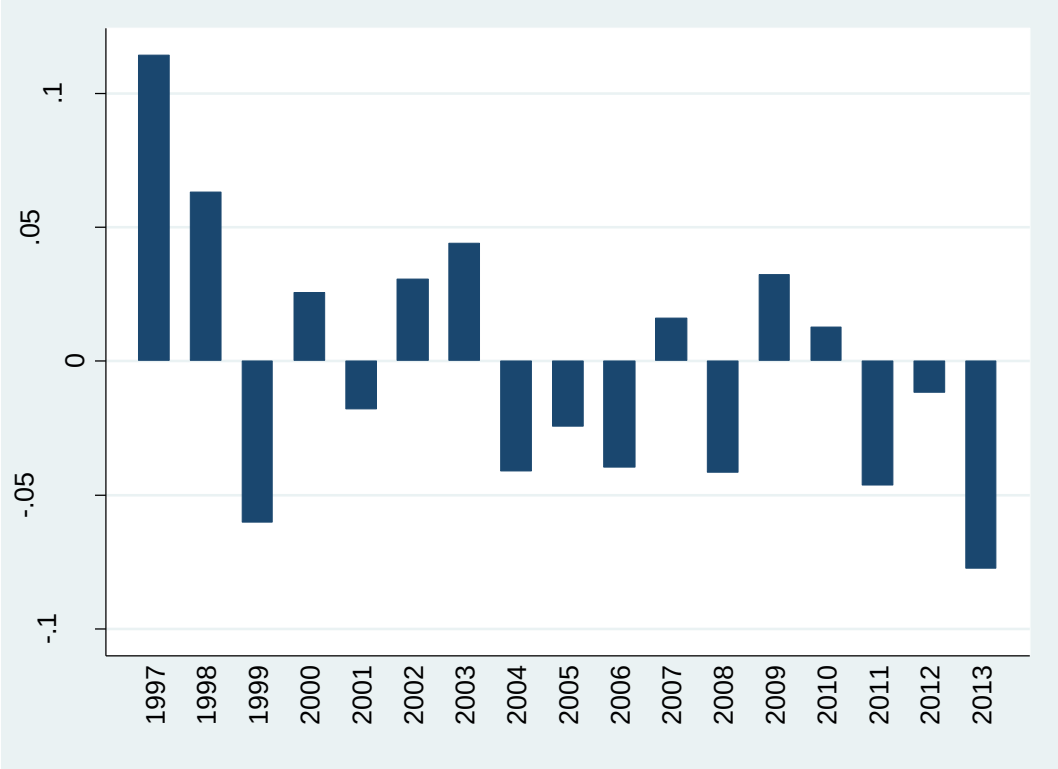


Figure 6.9.2 EU CARs

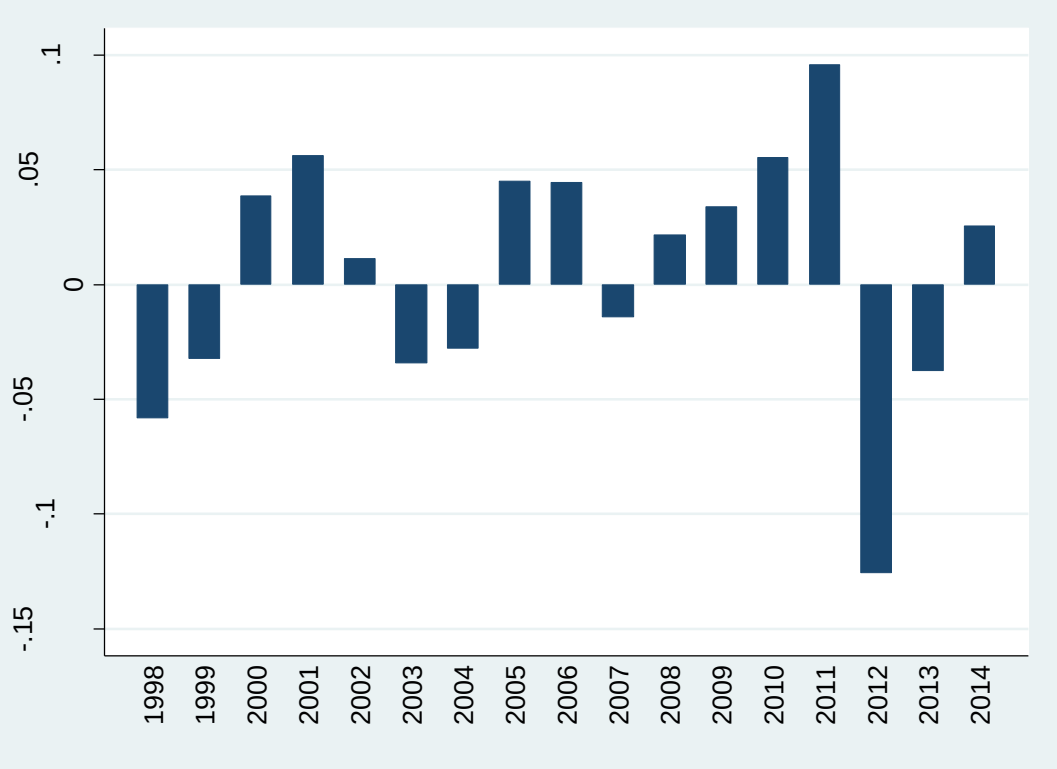
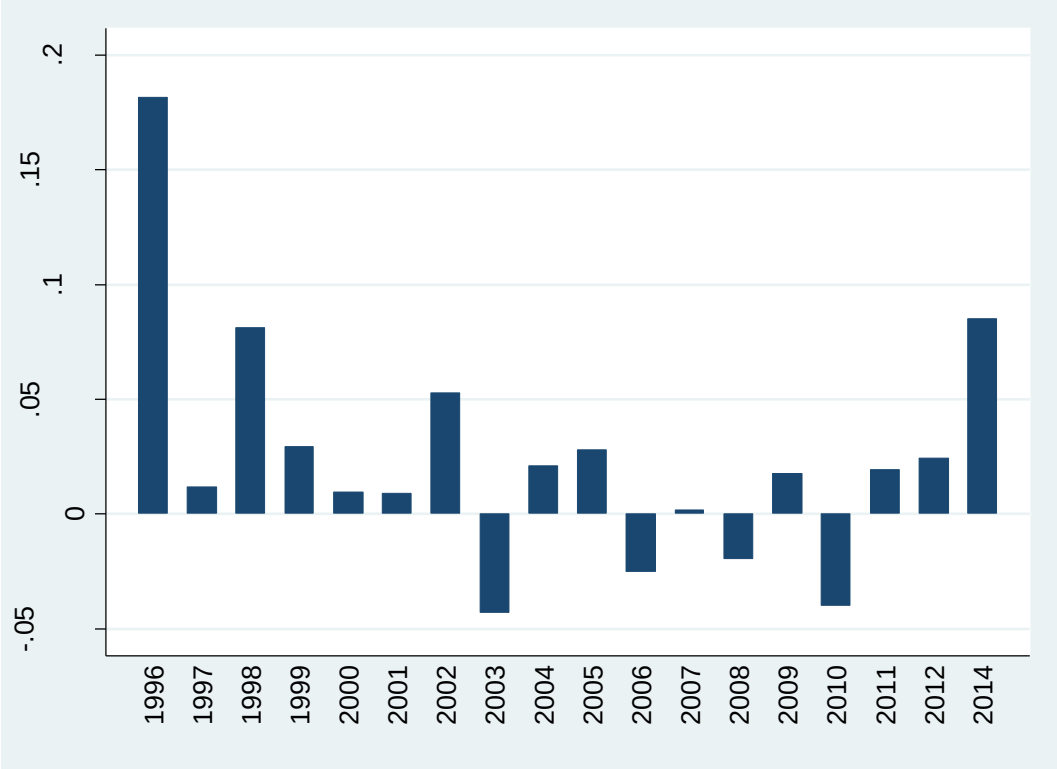


Figure 6.9.3 OECD CARs



7. Economic Surveillance Sentiment

News moves financial markets. Examples in corporate finance are earnings (Aharony and Swary, 1980) and expenditure announcements (Chan, 1990), takeovers (Travlos, 1987), and mergers (Andrade, Mitchell, Stafford, 2001). Discovering exactly how markets are moved by events such as these is a complex task. In some cases, the results have been obvious. The impact of clear signals, such as an interest rate decision from a central bank, is often unambiguous. However, the implications of most events require further analysis.

Economic surveillance is released to the public with the intention of stimulating pressure on the stakeholders within the economy. A glowing appraisal from an international organisation should inspire financial markets, and grant a government cheaper access to credit. Alternatively, an unexpectedly negative surveillance report might frighten investors, increasing the cost and availability of market access for a sovereign. Yet the market implications for surveillance releases remain a puzzle for academics and policy makers. For example, is an unexpectedly negative surveillance report during an uncertain period more damaging that an unexpectedly negative report during good times? In the previous section, I presented an overview of how markets have reacted to surveillance by international organisations, but questions remain.

The next logical step of research on this topic is to analyse the content of economic surveillance reports. This is a particularly challenging task, and one that has rarely been attempted by researchers. The following chapter is dedicated to providing an initial overview of the sentiment scores generated of economic surveillance by the EU and IMF. This analysis represents one of the first attempts to extract the sentiment of a large number of economic surveillance texts over time and across organisations.

The results from an analysis of variance test (located in Table 7), demonstrate that the full sample of sentiment scores should not be analysed in a pooled environment. For this reason, I explore the scores of each institution's surveillance reports independently. Firstly, I take the findings of IMF sentiment analysis in general, before analysing it over time,

and across categories. Secondly, I perform the same task with the EU data, before providing some conclusions and implications for future research on text analysis in this area. While I do not formally test any hypotheses in this section, the novelty of the data still warrants exploration, and provides some interest findings for future research.

7.1 How Negative is IMF Surveillance?

The previous section of this empirical chapter has provided an overview of how financial markets have reacted to economic surveillance releases since 1997. One of the key findings has been that markets appear to react more moderately to surveillance releases by the IMF rather than the EU or OECD. Naturally, this finding warrants further inspection, which I attempt to provide in this and the following chapters. Of interest should be how the sentiment of surveillance reports varies over time and across institutions, given the same macroeconomic conditions. In this chapter, I detail the findings of a quantitative content analysis conducted on the economic surveillance texts of the IMF and EU. This section is dedicated to discussing the findings of the content analysis of IMF surveillance texts. As there are 419 IMF CARs, I therefore produce 419 corresponding sentiment scores. Unlike the CARs, which are objective measures of interest rate movements, sentiment scores are in this case, the product of subjective dictionary-based analysis. One of the drawbacks of this is that there is no real reference point for analysing the extent of negativity in each surveillance report. To circumvent this, I use the scores themselves as within sample reference points, along with a comparison across institutions.

The summary statistics of sentiment scores in this section are only of the proportion of negative language contained in each text. This means that the average, standard deviation, minimum, and maximum figures listed in each table are of the levels of negative content only. The mean figure for the IMF sentiment scores (See Table 7.1) is .0839189, translating into about 8 per cent of the overall text, the standard deviation is just over .016. The former figure is somewhat arbitrary until compared with the minimum and maximum scores of .047 and .138 respectively. Therefore, the most negative text in the sample, which

is the 2012 assessment of the Pakistan, contains over 64 per cent more negative language than the mean figure of the entire sample. Correspondingly, the most positive, or least negative assessment is of the Malaysian economy in 2013, containing around 50 per cent less negative than the average surveillance text in this sample. While a comprehensive analysis of the text behind each sentiment score is beyond the scope of this research, it seems logical at this point to examine some of the outliers in the sentiment score data. I provide a brief overview of several notable reports in each category I have used, beginning with the minimum and maximum of the overall sample. The Malaysian report of 2013 appears to demonstrate a broadly positive assessment of the economy, particularly if surveillance is conceptualised as a mechanism to influence reform among members. The IMF commends the intention of the Malaysian government to implement "wide ranging reforms" of the economy, along with a broad endorsement of the financial and regulatory system in the country.

While emerging markets are of less systemic importance to global financial stability, the naturally require increased levels of reform in order to achieve sustainable and inclusive growth. Key areas in need of reform in emerging markets might range from data collection and dissemination processes to basic enforcement of property rights, issues that advanced economies have already addressed. With these factors in mind, it might be expected that sentiment towards emerging markets is routinely negative. In this case, the IMF appears to focus on the positives of the Malaysian economy, rather than the structural problems at the time. For example, various indicators illustrate a different picture than the IMF report. Malaysian scores a 5/10 on transparency international's corruption index, its sovereign debt was rated A-, four notches above junk status at the time of the report. Crucially, the government's fiscal position was poor at the time, with debt and deficit levels leaving the Malaysian economy vulnerable to shocks. Naturally, the IMF notes this, but the executive assessment focusses largely on the government's intentions to restore prudent fiscal policies. The board also acknowledges the past achievements of the Malaysian authorities, where they use the word "commend" twice. The report also "encourages" future reforms,

while indicating their “satisfaction” with the results of the financial sector stability assessment.

Indeed, the executive board even notes that the Malaysian economy was in a stronger position than fundamentals warranted. This is a startling finding when considering the backlash against IMF surveillance following the onset of the global financial crisis. With so much of this particular report focusing on how the IMF commends the authorities for their intentions to reform, it is a distinct possibility that the report reflects belief in the Malaysian authorities regarding this promise. However, a more comprehensive political economy analysis should serve to address this question in future studies. A range of political economy variables would prove useful in a panel data environment, for example, use of government manifestos, macroeconomic data, and socio-economic data such as the educational profile of cabinets could shed light on the determinants of surveillance. The corresponding CAR score for the Malaysian report of 2013 is somewhat muted, although in the logical direction. Markets responded to the release of the report by unexpectedly reducing interest rates by almost a basis point.

Conversely, the most negative report in the sample, Pakistan’s 2012 survey, paints a different picture. The report is overwhelmingly negative, with both the staff and executive director assessments signalling that substantial overhauls of the economy are needed. Pakistan’s fundamentals at the time of release were dire, with a ballooning budget deficit, chronically high inflation, and high structural employment. These were coupled with inflexible exchange rate policies, rampant corruption, and an illiberal trade environment. These factors alone might warrant a scathing report. However, of interest is that the appraisal phrases the need for reform differently than in the Malaysian example above. For example, rather than praising the Pakistani authorities for indicating their intention to reform, the report uses words like “critical” to describe the necessity of change. This word doesn’t appear at all in the Malaysian report of 2013, yet it is used twice in Pakistan’s 2012 report. Additionally, directors “urge”, “stress”, and “underscore” throughout Pakistan’s survey, indicating possible frustration with the authorities. There are no commendations

from the executive board for Pakistan's government, the closest being a note that progress on structural reforms was "mixed". Overall, there is no indication that economic reform is a possibility, or even a desire of the Pakistani authorities at all from the report. This could be because of previous failures, which are acknowledged several times in the report, for example, missed inflation and deficit targets, or a more fundamental lack of credibility on the part of the authorities. Financial market reactions to the appraisal of Pakistan were poor, with the interest rate on the 10-year bond unexpectedly rising almost 30 basis points in the days following the release of the report. This CAR score is the worst reaction to a surveillance report in the entire IMF sample. The direct relationship between the IMF and Pakistan extends back almost 30 years, with Pakistan drawing on credit since 1989. This has afforded the organisation a unique level of access to policymakers in the country. In this sense, a report from the IMF carries particular weight, perhaps owing to the correspondingly strong reaction from investors.

Overall, these cases are useful illustrations of the variance exhibited in IMF surveillance reports. At an observational level, the sentiment scores appear to largely reflect the tone of the texts themselves, with the market reactions to these texts in the correct causal direction. At both ends of the sentiment range, the implications regarding the extent of economic reform appear to play a key role in determining how economic surveillance is constructed. Executive director assessments in these cases pay particular attention to the intentions of the government. While it is far from conclusive that the corresponding CAR scores are being driven by perceptions of future reform, future research should focus on this possibility.

7.1.1 IMF Sentiment over Time

To observe how sentiment evolves over time, the sample is split and analysed before and after the onset of the crisis in 2008 (Table 7.1 displays the summary statistics, while figure 7.1 displays these figures in a scatterplot). Similarly to the CAR scores, the financial crisis appears to have had a clear impact on the sentiment of surveillance reports. The mean

figure before the crisis stands at just over .079 from 262 observations. However, from 2008 onwards, the average figure from 157 observations rises to over .090. Additionally, other indications are in line with the CAR scores, such as the standard deviation, which increases from .013 to .017 over the same period. Correspondingly, the maximum negative score rises from .122 to .138. Interestingly, while average sentiment becomes more negative after 2008, the minimum figure actually drops marginally, indicating something of 'floor' to positive language. This is broadly in line with the intention of surveillance in general, which is to highlight weaknesses, rather than illustrate strengths.

7.1.2 Credit Ratings and Sentiment Scores

While the sentiment scores appear to move similarly to the CARs over time, scores for the same categorical groupings used to analyse the CAR scores display a different pattern. IMF CARs become more pronounced as creditworthiness declines, yet sentiment does not display such a clear pattern. The average surveillance report becomes more negative as creditworthiness decreases. Those with the highest rating receive an average sentiment score of just over .081, while those with the lowest credit rating receive on average, over .09 per cent of negative language in their surveillance reports. The minimum and maximum scores of each reflect this, where the maximum level of negativity is higher for those with the worst credit rating, and the minimum figure is lower for those with the best credit rating. This is intuitive, if surveillance is designed to foster long-term stability, a core feature of meeting 10-year bond obligations. However, the sentiment scores do not move in a linear fashion as credit ratings worsen. For example, the mean figure drops from .085 for those with the second highest credit rating, to .083 for those with the second lowest credit rating. This is even below the average for the entire sample, but remains above those with the safest credit rating. It must be noted however, that the number of observations decreases as credit rating scores decline, skewing the average scores somewhat. The minimum and maximum figures remain indicative of how surveillance varies across levels of creditworthiness.

7.1.3 IMF Sentiment Across Levels of Market Development

Emerging markets appear to be criticised more heavily by the IMF, with both a higher mean and maximum level of negativity in their reports. The mean figure for emerging markets stands at almost .087, compared to just over .082 for advanced economies. This is not surprising given the figures noted by credit rating. The increase in negative language runs counterintuitively to the CAR scores, where the average surveillance release for an emerging market actually unexpectedly reduces interest rates by twice the extent seen for advanced economies. When the sample is split according to level of market development, and again before and after 2008, the findings exhibit the same pattern as seen in the CARs. Both advanced and emerging markets are subjected to more critical surveillance releases following the onset of the global financial crisis in 2008. The average score for advanced economies increases from a pre-crisis figure of over .078 to .091, with both the minimum and maximum figures deteriorating after 2008. For emerging markets, the average moves from over .083 to .090, with the maximum negativity increasing, while the minimum decreases. These are in line with market sentiment more generally at the time, but not as expected given the CAR scores.

7.1.4 IMF Surveillance of the PIIGS

When analysed along the dimensions of credit rating and level of market development, sentiment scores and the CARs display differing patterns, yet the PIIGS economies appear to be treated in the same way by the both the IMF and market participants. Financial markets reacted to IMF surveillance of the PIIGS economies by increasing yields on their sovereign debt, while IMF surveillance itself appears to be more negative of these members. The average sentiment score of the entire sample is .083, for the PIIGS the same figure sits at .085. The floor to negative language for the non-PIIGS economies is .047, for the PIIGS it is .058. When split before and after 2008, the gap becomes larger. From 1997-2007, the average PIIGS sentiment score was .081, lower than the figure for the overall sample.

However, the figures become much more negative, as the average score rises to over .096 from 2008 onwards. Correspondingly, the minimum figure shifts upward to .078. These findings should be unsurprising given the drastically deteriorated fiscal positions of the PIIGS economies from 2008 onwards. Furthermore, it demonstrates a strong resemblance to the pattern exhibited in the CAR scores, where market movements shifted from reacting favourably to surveillance prior to 2008, towards strong negative reactions during the crisis period.

The final category I have used to split the sample is by membership of the Eurozone monetary union. In the IMF sample, this amounts to 12 of the 42 countries, and 147 of the 419 observations. Although certain other countries within the sample are bound by certain monetary constraints, I only split the sample according to Eurozone membership to retain adequate variation and to illuminate the strongest possible trends within the data. Future research could expand upon the influence of monetary policy, by including for example, those with currencies that are pegged to the Euro, such as Denmark.

7.1.5 IMF Sentiment: Eurozone Membership

The average sentiment score for Eurozone economies stands at over .084, which is higher than the corresponding figure for the entire sample, but lower than the average PIIGS or emerging market scores. Interestingly, this pattern is found also in the CAR scores, where the Eurozone mean figure indicates a negative response from markets to surveillance, but only marginally compared to the maximum and minimum scores, along with other groups in the sample. The range and standard deviation do not necessarily highlight the variance described, as the minimum and maximum scores are less pronounced than for other categories in the sample. This pattern is again exhibited in the CARs for the Eurozone members, where the standard deviation and range are greater for other groups. I then split the sample according to Eurozone membership, and again before and after 2008. Interestingly, the change in sentiment before and after the crisis is greater for Eurozone members than for non-members. Sentiment scores for the Eurozone on average stand at

just over .08 in the pre-crisis period, but shift upward to over .094 from 2008 onwards. While non-Eurozone members also receive more critical surveillance after the financial crisis, the levels of negativity and the extent of the shift is not as great, with the average score moving from .079 to .089. It must be noted however that the standard deviation is greater for non-Eurozone members in the post-crisis period, where the most negative score is also received.

7.2 How Negative Is EU Surveillance?

IMF sentiment appears to vary greatly according to the level of market development, creditworthiness, and the broader economic climate at the time of its release. These patterns are exhibited by the corresponding CAR scores generated from IMF surveillance releases. This next section analyses EU sentiment scores along the same dimensions, while comparing the findings to those of the content analysis performed on IMF surveillance. While as noted, the format of EU surveillance texts is not identical to that of the IMF, but is broadly similar. The first notable finding upon an initial examination of the EU sentiment data is that the average levels of negativity contained in each report are far lower than in IMF surveillance. The mean figure of EU surveillance sentiment is just over .055, compared to the average IMF score, which stands at over .083. Again, the number of EU surveillance texts available for analysis is lower, at 212 compared to 419, the full list of descriptive statistics for EU sentiment scores is located in Table 7.

Taking the least negative case of EU surveillance, Sweden's 1999 report, there are interesting observable trends when the text is analysed. Firstly, as noted, the range in the entire sample is not as broad as that found in IMF surveillance. This is unsurprising given the writing style of EU surveillance in general. While IMF reports contain a staff appraisal, detailing the recent developments in the economy, along with a directors' assessment that judges policy, EU surveillance is uniform in its structure. The most obvious difference this creates between IMF and EU reports is that the former presents far more opportunities to

critique the authorities of the member being surveyed on their performance. For example, each paragraph of the directors' assessment typically begins with an indication of how the board has judged the authorities under question. This can mean that the board "commends" the government, or "stresses" that they must do more to foster growth. Additionally, this format also leads to the natural introduction of an adjective to describe the level of reform that has been undertaken. For example, commending the authorities for their performance in a certain area may read in a text as "the board commended the authorities for their strong performance". As I use a word frequency measure, this means that adjectives such as "strong", along with the broader judgement of "commend", appear as positive or negative words in the overall score. While this does not invalidate the measure, it means that even marginal differences as seen between the surveillance text formats of each institution can lead to great variance in scores. This is the case when looking at IMF and EU surveillance.

While IMF surveillance contains more subjective descriptions of performance and judgement of the authorities overall, EU surveillance is more objective in its tone, the Swedish case of 1999 is a good example of this. From the opening section of the report, the differences in writing style when the EU provides a judgement of its members are clear. Where the IMF might say "praised", the EU opens the Swedish report of 1999 by describing how the Council "notes with satisfaction". Additionally, the EU appears to refrain from praising their members' authorities in general, instead opting to analyse developments from a more objective viewpoint. For example, in the Swedish case of 1999, the EU details how the Swedish krona has "displayed less volatility", where the IMF may have praised authority's monetary policy. These examples highlight how the sentiment scores between the two institutions can vary considerably, and perhaps why EU surveillance sentiment shows less variance. One obvious factor that could be driving the difference between certain sentiment scores of each institution is the word count of each document. However, when staying with the two least negative cases in the sample, the EU's report of Sweden in 1999 totals 653 words, while the IMF's report of Malaysia is only slightly longer, at 710 words. This ensures a strong degree of unit homogeneity.

Additionally, any differences in length of surveillance texts produced by each institution appear to narrow over time, where later surveillance reports by each institution contain roughly the same number of words. This too is evidence that the length of the document being analysed does not explain most of the variation in sentiment scoring. It appears rather that writing style may lead to variance between each institution. In the case of the EU, their relatively lower number of commendations or opportunities to praise performance within the text may explain the overall higher levels of negativity. This is strengthened by the lower standard deviation and range throughout the sample, indicating that surveillance remains relatively fixed in its style of technocratic language.

Overall, the main finding when comparing the sentiment scores of EU and IMF surveillance texts is that despite the more pronounced market reactions to EU surveillance, the language used in IMF surveillance reports is more negative and more varied than the EU equivalent. The following sections explore the EU sentiment data in more detail.

7.2.1 EU Sentiment over Time

While EU sentiment scores at their base levels are on average, more negative and less varied than IMF scores, the trend in their data over time contains certain similarities. Prior to the onset of the global financial crisis in 2008, EU surveillance texts on average had negative word frequency scores of .0528525 (see Table 7.2 for these figures, and Figure 7.4 for a visual representation). This figure is the furthest average score from the mean for all categories in the sample. Additionally, the maximum score of negativity was .084, with a minimum of .026. Following the crisis, these figures all turned towards becoming more negative, with the average figure increasing to .0585055. Both the minimum and maximum scores of negativity also shift upwards, the minimum rising to .03, and the maximum to .086. In contrast to IMF surveillance, the financial crisis appears to have had only limited influence on the content of EU surveillance. While the onset of the global financial crisis pushed the average level of negative sentiment in IMF surveillance to a figure of .09, negativity in EU surveillance only rose to become just over .058. If this is coupled with the

minimum and maximum figures of sentiment, which for the IMF are far more extreme than the corresponding scores for the EU in the post-crisis period, it appears that the EU refrained from criticising its members to the same extent that the IMF did following the onset of the crisis. While the overall sentiment scores show that EU surveillance scores considerably lower in terms of the repetition of negative words, the relative increase in negativity is almost identical from each organisation after 2008. IMF sentiment scores increase from over .079 to .090, a rise of around 14 per cent. Negative sentiment in EU surveillance increases from .052 to .058, a 12.5 per cent rise. These figures demonstrate that while the level of negative sentiment in IMF surveillance is at baseline, higher over the entire sample period, the financial crisis saw both organisations become more critical by almost the same extent.

This finding is particularly interesting given the corresponding CAR scores discussed earlier, which also fluctuated following the onset of the crisis. IMF surveillance became more negative, but abnormal returns became more favourable following the onset of the crisis. EU surveillance appears to have had the opposite effect, where the impact of surveillance shifted from unexpectedly positive, to unexpectedly negative reactions in sovereign debt markets. On average, EU surveillance increased yields on the sovereign debt of its members by around a basis point. However, the period before the crisis in 2008 actually saw yields marginally decrease following surveillance releases. After the crisis, this trend reversed, where surveillance increased interest rates on debt by more than the average for the entire sample and time period. Upon initial examination, EU CARs are in line with the trend observed in the sentiment data, where the pre-crisis sentiment score sits at .052, average sentiment for the sample is at .055, and post-crisis sentiment is .058. As I have done with IMF surveillance, I describe how EU surveillance sentiment varies according to the categorical distinctions in the next section.

7.2.2 EU Surveillance of the PIIGS

The PIIGS members are ideal candidates for examining how EU surveillance sentiment varies according to economic performance. The average figure of negative sentiment that each surveillance report of a PIIGS economy contains over the sample period is just over .056. This score is higher than the mean for the entire sample (.055) but lower than the post-crisis average of .058. The highest level of negativity in a report is contained within two PIIGS economies surveys, where the Greek and Portuguese surveys of 2010 scored .086 in terms of negative sentiment. Both of these reports appear in the post-crisis period, indicating that the financial crisis may have disproportionately influenced how negative sentiment appeared in the PIIGS economies surveys during this time. For that reason, I split the sample once more to observe the PIIGS scores before and after 2008.

The figures shift considerably following the onset of the crisis. The PIIGS economies actually receive only average levels of negative sentiment prior to the crisis in 2008 (.055). This finding might be seen as surprising, given that such members were traditionally, even before the debt crisis, known as slow reformers. However, from 2008 onwards the scores rise to reach .061 on average, the highest categorical mean of the sample. The initial figure that indicates sentiment for the PIIGS economies was relatively muted prior to the onset of the global financial crisis is interesting, particularly given the shift in negativity following the crisis. The Portuguese report of 2010, which receives the joint highest level of negative sentiment in the sample details how the financial crisis struck following “sluggish growth for a decade” in the Portuguese economy. Furthermore, while the crisis resulted in a decline of overall macroeconomic health, the indications are that the pre-crisis years saw build ups of imbalances, which the report describes as “high structural deficits”.

These quotes highlight that naturally, EU authorities were at least aware of the economic imbalances developing in certain Eurozone economies. This fact is further evidence of the clearest policy implication that can be drawn from the findings of this research thus far, that the surveillance function of IOs requires attention at some level. While EU surveillance saw markets react with more rigour than to corresponding releases by the IMF, its ability to signal to markets appears to be insufficient, given the

disproportionate shift in sentiment and abnormal market returns following the onset of the crisis.

The natural takeaway from this analysis is that the PIIGS members were subjected to more critical surveillance by both the EU and the IMF following the onset of the crisis in 2008. This demonstrates at a basic level that struggling economies do receive harsher reports on average from IOs. This represents an important contribution to the literature on economic surveillance.

7.2.3 EU Sentiment: Eurozone Membership

The last dimension along which I analyse the sentiment scores of EU surveillance texts is by membership of the Eurozone. This category could prove to be particularly illustrative given the fundamental integration that a monetary union brings between nations. Additionally, the performance of certain members in recent years has brought increased scrutiny upon all members of the currency, a factor which may be reflected in the sentiment scores of the EU's surveillance releases. Additionally, similarly to IMF surveillance, EU surveillance may be more critical of Eurozone members because of the increased constraints faced by members that have surrendered monetary policy autonomy. Fiscal policy is naturally a more contentious issue for governments, particularly when monetary policy choices are out of its control. This means that the fiscal and structural reforms recommended by the EU or IMF may be more ambitious, or that performance issues are more difficult to address without monetary policy tools, possibly leading to more critical surveillance.

Yet the results show that members of the Eurozone monetary union receive on average a score of .0556. This figure is only marginally more negative than the average of the entire sample, which comes in at .0552, while the PIIGS mean score is .0568. When the Eurozone sentiment scores are split before and after the onset of the crisis in 2008, the figures are broadly in line with most of the findings thus far, Eurozone members received scores on average of .0548, with this rising to .0588 after 2008. This is a marked shift for this

group, and one which reflects the deteriorated performance on average in the Eurozone, but is not necessarily specific to those in the Euro currency union.

7.3 Conclusion

Sentiment scores of surveillance reports reveal novel patterns across institutions and within groups of countries. The most notable finding is that surveillance reports are more negative during times of financial uncertainty. This is consistent for both IMF and EU surveillance, where average levels of negativity increase from 2008 onwards. Surveillance is also particularly negative for countries that are facing greater levels of economic uncertainty. In general, weaker countries are subjected to more critical levels of surveillance. In the case of IMF surveillance, the PIIGS economies, along with emerging markets and those with lower credit ratings in general, were all subjected to more critical surveillance releases than advanced economies or the sample average. Of EU members, those that received the most negative surveillance reports were also the PIIGS economies. Members of the Eurozone were also criticised more heavily by both the IMF and the EU on average. These findings demonstrate considerable variation in levels of criticism across both institutions and the sub-categories within the sample. Of particular interest is the finding that certain members are roundly criticised by both IOs when faced with economic uncertainty, future research should seek to explore the determinants of this criticism. In the following section, I attempt to explain variation in the CARs by using these sentiment scores in a more robust statistical method.

Table 7. Analysis of Variance (Negative Sentiment Scores)

Source	Z & Probability Scores
Between groups: 1	Z: 0.000
Within groups: 630	P: .00024006
Total: 631	

Table 7. 1 IMF Sentiment Scores (Negative)

Category	Mean	Standard Deviation	Minimum	Maximum	N
Eurozone	.0846507	.0153832	.057	.128	147
Emerging	.0872031	.0158697	.047	.138	129
Advanced	.0824742	.0158919	.048	.129	290
PIIGS	.0855667	.0150405	.058	.119	60
Fitch:1	.0810585	.0156285	.048	.129	193
Fitch:2	.0853187	.0157846	.048	.128	103
Fitch:3	.0885614	.0140624	.062	.122	59
Fitch:4	.0837500	.0171204	.047	.121	41
Fitch:5	.0907826	.0169195	.067	.138	23
≥2008	.0906497	.0171453	.047	.138	157
<2008	.0798855	.0138382	.048	.122	262
Sentiment	.0839189	.0160153	.047	.138	419

Table 7. 2 EU Sentiment Scores (Negative)

Category	Mean	Standard Deviation	Minimum	Maximum	N
Eurozone	.0556463	.0131134	.026	.086	164
Non-Euro	.054	.0139523	.027	.083	48
W/out PIIGS	.054461	.0133371	.026	.86	140
PIIGS	.0568472	.0131628	.03	.086	72
≥2008	.0585055	.0129849	.03	.086	90
<2008	.0528525	.0130591	.026	.084	122
Sentiment	.0552676	.0132956	.026	.086	212

Figure 7.10 IMF Negative Sentiment (Full Sample)

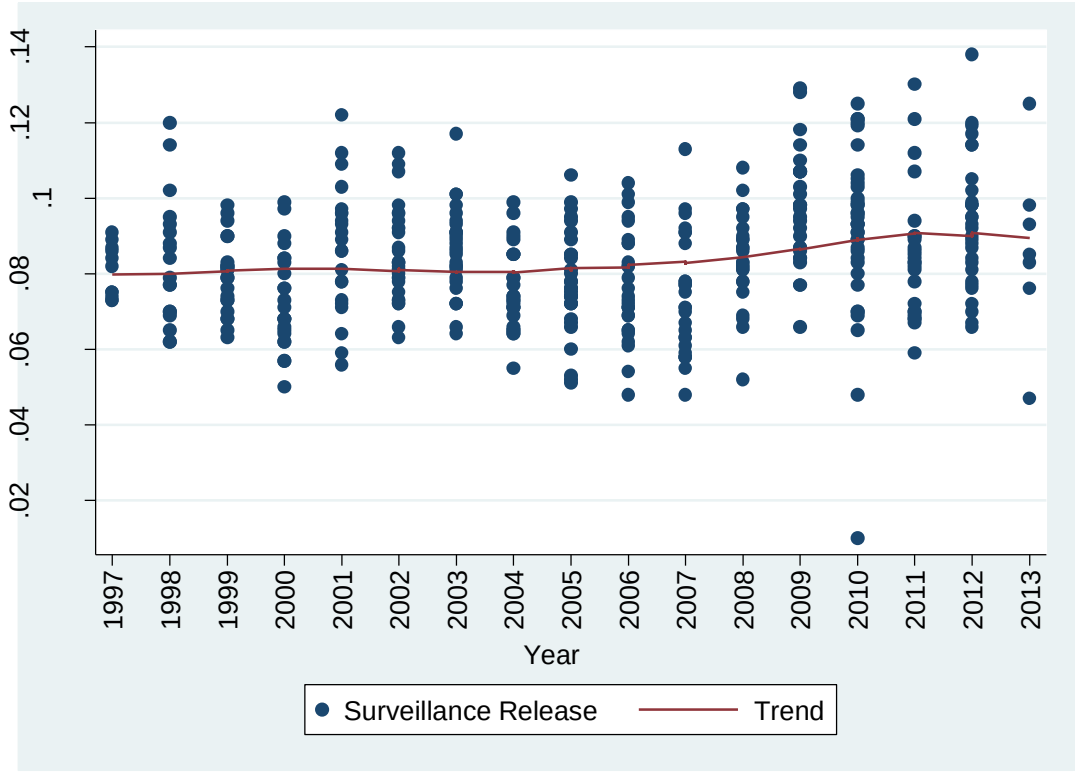


Figure 7.2 IMF Negative Sentiment (Advanced Economies)

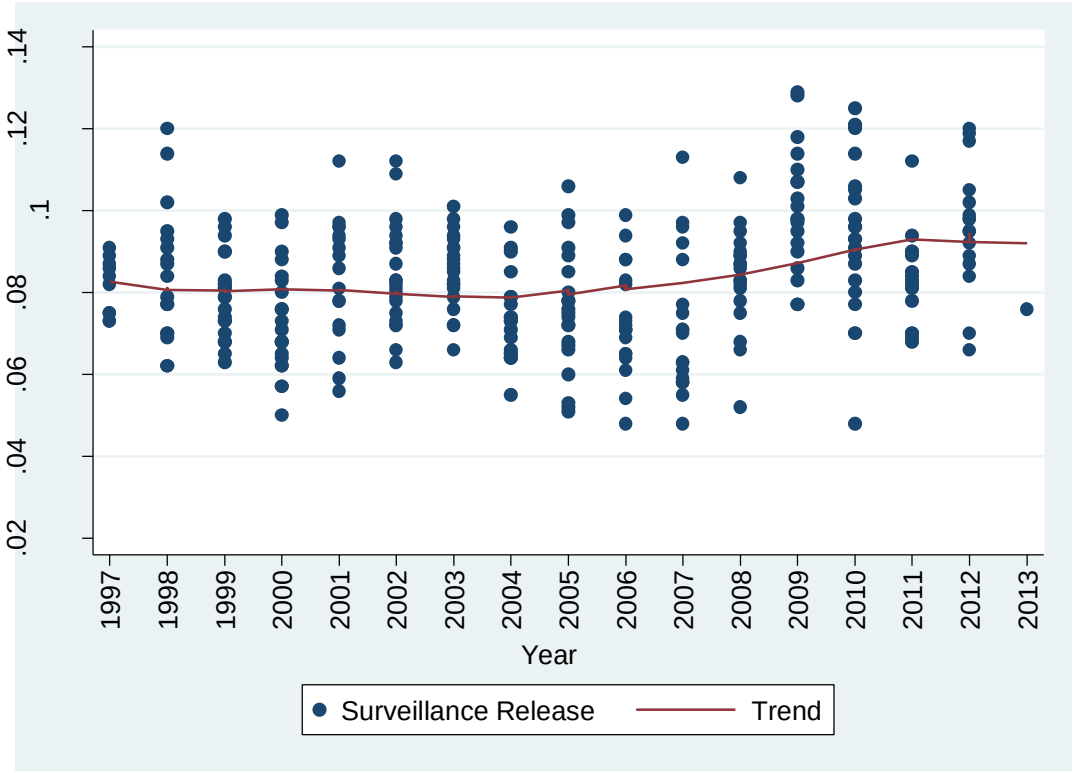


Figure 7.3 IMF Negative Sentiment (Emerging Economies)

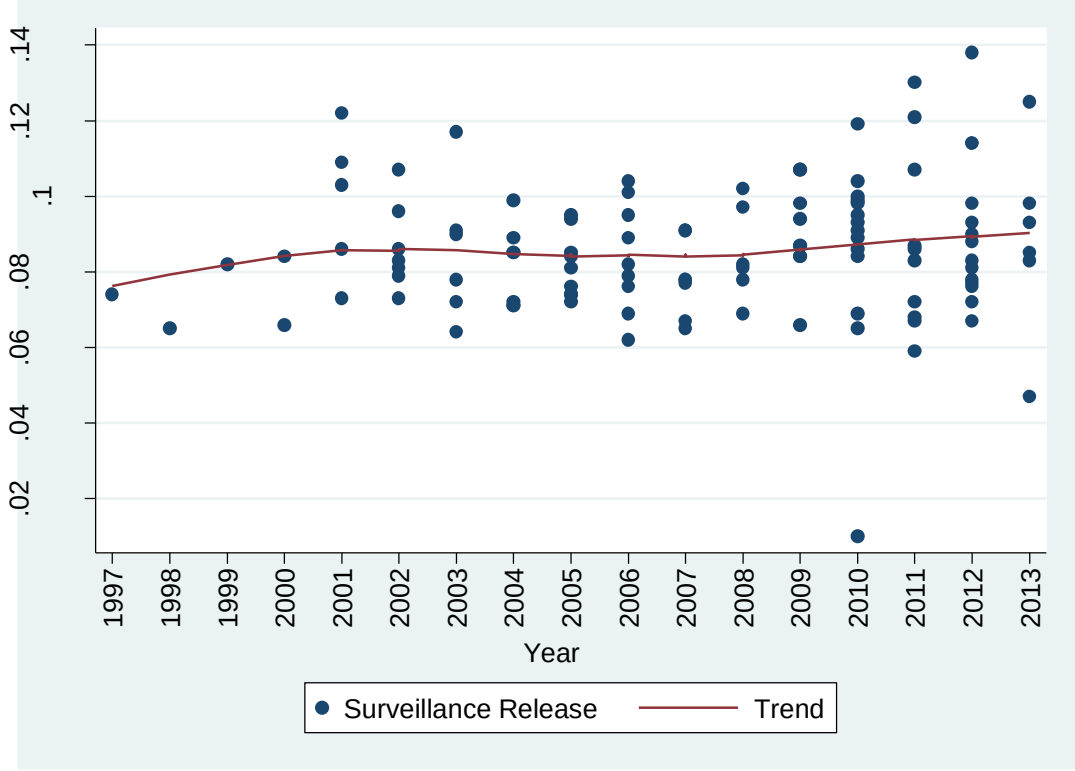
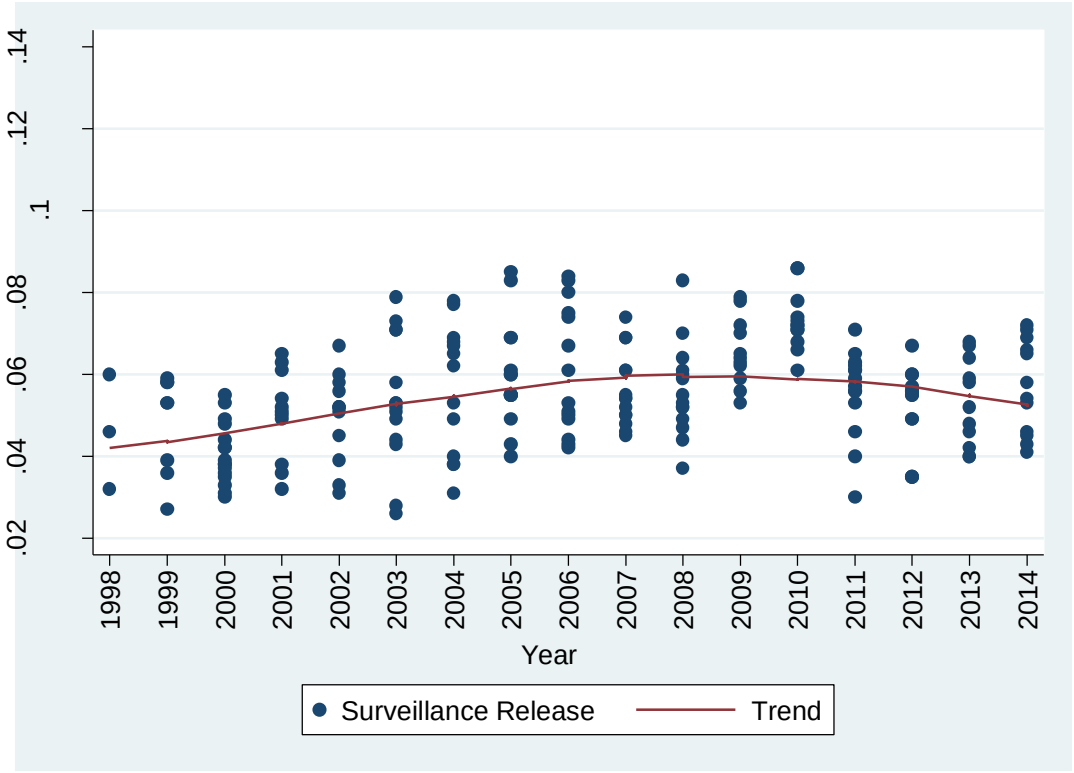


Figure 7.4 EU Negative Sentiment



8. Testing the Influence of Sentiment on Abnormal Returns

Economic surveillance aims to maintain stability and foster growth in the global economy. The primary focus of a surveillance report is policy making. I argue that surveillance reports represent verdicts regarding the levels of policy reform needed, along with the likelihood of implementation, in a member's economy. One example that demonstrates evidence of this dynamic is the ongoing Greek sovereign debt crisis, in which the IMF is a key player. A crucial aspect of this, and any crisis, is fiscal policy. The most recent Article IV report by the IMF on the Greek economy, released on February 7, 2017, noted disagreement between directors on the fiscal path that should be followed by the Greek authorities (IMF, 2017e). The report received significant media coverage, and prompted much speculation over the sustainability of the Greek economy, the participation of the IMF in future programmes with EU members, and even the future of the union itself. High-profile policy disagreements like this fuel uncertainty. Financial markets reacted negatively to this release, with yields on Greek 2-year notes rising 84 basis points in the following 36 hours. Other factors contributed to such a strong movement, such as the impending deadline for a new agreement before elections in key Eurogroup members, along with upcoming interest repayments for Greece. It is clear however, that surveillance by the IMF, and particularly the disagreement within the organisation, played a key role in sparking a market sell off in this case.

Policy disputes have occurred not only within IOs, but also between them and member governments, with the fiscal policy of the UK being the centre of attention. One of the central features of economic policy pursued by the Conservative-Liberal Democratic government in the UK was an emphasis on reducing the budget deficit through austere policies. Chancellor George Osborne had been following this mandate for almost three years since the election of the coalition in 2010. Around this time, the Chief Economist of the IMF, Olivier Blanchard responded to a general question about the pace of austerity in the European Union by claiming that the policies of the UK were failing. This sparked a row between the UK Treasury and the IMF, with Managing Director Christine Lagarde drawing a

clear link between the poor performance of the UK and the pace of austerity. The dispute empowered domestic political parties to oppose spending cuts and advocate for alternative policy choices. There was also significant domestic and international media coverage of the episode (Douglas and Thomson, 2013). Crucially, Chancellor Osborne claimed that the policy advice from the IMF had been "inconsistent" (Douglas and Thomson, 2013). Indeed, a brief examination of the PIN releases indicates that the UK received mixed signals from the IMF over fiscal policy. Specifically, the 2010 report notes that directors "generally supported" frontloaded fiscal consolidation by the authorities, with a further comment endorsing the "appropriate mix" of tax and cuts in the areas proposed. The words "generally supported" indicates wide, rather than complete support from directors. By 2012, such divergence appeared to have widened regarding the UK's fiscal policy. The PIN released that year describes how directors commended the UK authorities for their commitment towards fiscal sustainability in the medium term. Yet the report also draws a clear line between members of the board, where some openly question further consolidation. While these comments note obvious disagreement between directors, the language used is diplomatic compared to Olivier Blanchard's comments. The Chief Economist had claimed the UK was "playing with fire" over its' level of consolidation.

These cases show that policy prescriptions from IOs carry considerable weight, particularly when there is a lack of consensus on them. As one of the primary mediums through which IOs communicate their policy prescriptions, a natural question is whether we see empirical evidence of economic surveillance carrying such weight. The previous chapter has demonstrated that financial markets move when economic surveillance is released. There is also considerable variance in their movements. The general economic climate at the time of release appears to correlate with the movement following a surveillance release, while there is also variance in the magnitude of reactions across institutions. These findings are illuminative, and represent new findings on the relationship between surveillance and markets. However, policy implications can be greatly expanded by attempting to unpack the mechanisms behind these market reactions. I advance this

objective by testing how the content of surveillance by the EU and IMF impacts on movements in the sovereign debt market.

In the previous chapter, I used an expanded sample size which included all available EU, IMF, and OECD reports for which corresponding interest rate data is available. In this chapter, I go one step further and extract the sentiment from the EU and IMF sample. In one way, the focus of surveillance reports is irrelevant, as a financial dictionary doesn't take account of this. It means however that more negative language in a surveillance report reflects the greater extent to which policy reform is needed.

This chapter tests the remaining hypotheses in this research. I test H1A, that positive (negative) surveillance reports should reduce (increase) interest rates; H4, that financial markets reactions are stronger for yearly changes in sentiment than absolute figures. The structure is straightforward; I provide a brief overview of the model specification before discussing the results. I finish with some conclusions on the findings and implications for policy makers and future research on the topic.

8.1 Model Specification

In this chapter, the CAR scores continue to serve as the dependent variable. I now introduce a key independent variable into a robust statistical analysis of economic surveillance content; sentiment scores. As described in the methodology chapter of this research, sentiment scores are essentially word counts along the dimensions of negativity, positivity, and uncertainty. Negative language is by far the dominant category in each report, and holds the most variance, although I do test positive and uncertain sentiment also. I use these data in a simple OLS to examine the relationship between the CARs and sentiment scores. Overall, there are 493 observations from the EU and IMF sample, I test the predictive capacity of negative, positive, and uncertain language in each of these. I also split the sample by organisation, where separate regressions are run using the CARs and reports for just the EU and IMF. Additionally, I run regressions separately by category, time period, and a range of other distinctions to comprehensively test these new data. Surveillance

reports are produced for all members of the IO, meaning there is no selection bias that needs to be accounted for in the CAR scores with an additional model. There are also sufficient data for a standard OLS regression. I also account for the non-stationary, serially autocorrelated interest rate data by first differencing the daily rates to produce the CARs. The model can be put simply as:

$$CAR_i = \beta SENT_{i1} + \beta X_{i2} + \varepsilon$$

Where CAR_i is the cumulative abnormal return for each corresponding surveillance report, SENT is the sentiment score, $X1_i$ is a vector of standard macroeconomic variables; economic growth, yearly inflation, debt to GDP, the current account balance to GDP, ε_i represents the random error term. I also conduct an additional regression analysis to analyze the determinants of the OECD CARs, where each country's output gap as a proportion of potential GDP is included (located in Table 8.9.4).

These data also fulfil the standard Gauss-Markov assumptions for use in an OLS regression. Specifically, I assume a linear relationship between the CAR scores of market returns, and the sentiment scores generated from economic surveillance texts. This assumption is extended to the rest of the data in general, where macroeconomic and political economy variables are included in the model specifications. Secondly, the sample of this study is essentially random. I chose all available reports for which corresponding interest rate data is available. Very few countries in the sample are least developed economies, as they often cannot issue debt on international markets. However, they have only been excluded on these grounds, and would have been included otherwise. The third assumption is that the conditional mean of errors in the sample is zero. Essentially, this assumption concerns the variance of positive and negative errors cancelling each other out. This is usually tested informally with a simple plot of residuals against fitted values from the regression, the results of which are located in figures 8.1 to 8.7. These data appear to fulfil the condition where no clear pattern is visible. The fourth Gauss-Markov assumption is of a model that does not demonstrate perfect collinearity between independent variables. Some of the macroeconomic control variables in this study are related. For example, high levels of

inflation are probably associated with lower levels of growth in gross domestic product, while less corrupt countries might have higher levels of employment. However, in reality, the assumption is only violated by *perfect* collinearity, something that is almost impossible to find in econometric studies. Additionally, the main independent variable of interest in this study is a word count measure generated for the first time, with no reason to suspect it is perfectly collinear with any of the control variables. The final assumption is that of homoscedasticity within the data. I test for this by firstly predicting the CAR from the regression equation, and plotting this prediction against the predicted, squared residuals. Figures 8.1 to 8.7 confirm that the variance doesn't appear to increase with the predicted values. However, to perform a more robust test, I use the Breusch-Pagan technique where the regressant is the squared residuals, and the regressors from the previous equation remain the same. This test demonstrates that the regression is not significant at conventional levels, indicating that heteroscedasticity is not an issue in these data. Following this, I supplement these tests with the White test for heteroscedasticity, both of which are standard diagnostic tests. This test involves regressing the predicted, and squared predicted values of the dependent variable on the squared residuals. Interestingly, this regression demonstrates that the model is significant, and that heteroscedasticity may be present. However, an observation of these data, again possible through a simple scatterplot, shows that the data follows a homoscedastic pattern. The significance of the regression equation is likely being upwardly biased by the few strong observations in the data overall of the CARs. The easiest way to account for this is to employ robust standard errors in the regression equations, effectively using White's heteroscedastic consistent standard errors, a standard corrective measure which I employ throughout. These findings confirm that heteroscedasticity is not a legitimate concern within these data, and that the fifth and final Gauss-Markov assumption is upheld. The next section describes in more detail the various specifications of the model and the resulting findings from each equation.

8.2 Findings on How Sentiment Affects Markets

The regression I have specified tests the predictive capacity of sentiment scores on abnormal market returns. The most significant finding of this analysis is that, under a range of specifications, sentiment scores generated by content analysis appear to have no relationship with the corresponding market returns. Table 8.8 displays the findings of the regression analysis with the entire sample pooled together, which includes all IMF and EU CARs and sentiment scores. In this equation, I use negative sentiment as the main independent variable, with a number of macroeconomic control variables. Negative sentiment is not significant in this particular specification. I also include the yearly change of each dimension of sentiment in the regression equation, the results of which are located in Table 8.3. The intuition here is straightforward, the yearly change in sentiment captures the idea that a country's report a year previously may impact upon how markets interpret the following report. For example, a country might receive a highly critical report from an IO, which is read by market participants. It might be expected therefore that the following report a year later will also be critical. I include this variable to capture this possibility, although it is far from conclusive that markets operate in such a way. It may be the case that because surveillance reports are relatively infrequent, and don't incorporate quantifiable targets, in the way that earnings announcements do, that the previous report is irrelevant. Indeed, the results of the regression indicate that the change in sentiment is not a statistically significant predictor of the CAR scores.

Most of the other controls are insignificant predictors of the CAR scores. The only variable that demonstrates statistical significance is yearly per cent change in GDP growth, with a one unit increase in this indicating a 0.3 basis points reduction in abnormal returns. Essentially, this says that rather than sentiment scores being the key predictor of market movements following surveillance releases, market participants are more likely to react favourably to a release when performance is strong in the country being surveyed. This finding is broadly in line with Mosley's (2003b) findings on how investors assess sovereign debt, where advanced economies are assessed through just a few key macroeconomic indicators. GDP growth is important for a number of reasons, primarily as one of the basic performance metrics. However, fixed income investors and those operating in sovereign

debt markets more generally, prioritise other indicators with more potential impact on their returns. The most obvious risk for bondholders, particularly those with a long bias, such as pension or mutual fund managers is inflation risk. Higher levels of inflation erode the gains and value of investments in fixed income. Inflation, measured as the average consumer price yearly per cent change, is insignificant as a predictor of market returns to surveillance. There is a distinct possibility that the effects of inflation on market returns to surveillance are largely washed out over the sample size. During periods of economic contraction or stagnation, inflation can be low, this problem is evident in the Eurozone at present. In such a case, increased inflation, at marginal levels would indicate a positive outcome for the area, and perhaps lead to more favourable reactions to surveillance. However, other countries in the sample experienced dramatically higher levels of inflation. The highest change year on year was for Sri Lanka in 2008, which experienced over 22 per cent inflation.

The other variables in the equation are staples of the financial literature on sovereign debt. Indeed, their insignificance is somewhat surprising. For example, a variable that has received considerable attention from both the academic community, and the public more generally is the debt-to-GDP ratio for each economy. Debt crises were largely an emerging market problem for several decades before the 2008 crash. Yet the most recent financial crisis has resulted in an explosion of debt in advanced economies. With this, debt burdens, their servicing costs, and policy choices surrounding them became the subject of increased scrutiny. One of the most important questions was over the impact of debt burdens on economic growth more generally. This question was at the root of the austerity debate in the Eurozone particularly. Debt-to-GDP ratios are also of interest for researchers on the determinants of government bond interest rates too. According to economic theory, higher debt ratios might crowd out private investment, leading to greater inefficiencies and costs on growth, prompting higher interest rate premiums. Default premiums are also said to increase through higher debt ratios, where debt crises are linked to the premium to the ratio of debt to income. The coefficient on this variable is in the logical causal direction, but the results show that it is insignificant. This is surprising given the importance of this variable. Indeed, there are considerable grounds to argue that it

should impact on market returns to surveillance. A negative report that urges reform may seem even more pressing if the government is relying on a dwindling stream of income to fund its' increasing debt stock. While a relatively strong economy that may be facing the same challenges to reform could likely be seen as a better prospect at least in the short term.

The only other macroeconomic variable that returns a value even close to statistical significance is the current account balance as a proportion of GDP. The current account balance of a country is of particular interest to investors in sovereign debt markets. Strictly, the variable can be expressed as the difference between imports of goods and services and exports of goods and services, or the difference between savings and investment (national, public and private). This is somewhat opaque, as a country might be running a deficit to invest in the domestic economy. Alternatively, a deficit might capture structural imbalances in an economy. The sovereign debt literature therefore focusses on the current account in relation to the size of the GDP of a particular country. A larger economy running a deficit usually has the strength to settle this imbalance if necessary. This variable too has received increasing attention in recent years, particularly as the US has consistently run a deficit for a prolonged period. The coefficient on this variable is once more in the logical direction, with market reactions to surveillance becoming more positive with increases in the current account balance to GDP of the country being surveyed. This is also an insignificant predictor however. Lastly I also ran the same equation with additional country specific macroeconomic variables drawn from the literature, but are not reported in the regression outputs below. For example, I tested the primary balance for each country in the regression equation. The primary balance is the fiscal balance, excluding interest payments. This variable essentially looks at the current fiscal effort, as previous deficits dictate interest payments. Primarily, this relates to the debt-to-GDP ratio, where a primary surplus is an important condition for reducing this. This is one way in which economists attempt to separate out cyclical from structural fluctuations in growth and potential output. The coefficient on this variable actually runs contrary to theory, where increases in the primary balance are associated with increases in the CAR, indicating negative responses to

surveillance. However, there is extremely limited statistical significance for this variable, with a random probability score of nearly 75 per cent. One of the main issues from this analysis is that the determinants of bond yields change over time depending on the country in question. For example, members of the current Eurozone would have each paid varying levels of currency risk premium prior to joining the monetary union. While there should exist a set of fundamentals that have always impacted on bond prices, these are very difficult to conclusively designate. This is exhibited in the literature on sovereign debt and economics in general, where an incredibly broad scope of indicators has been used over time. Secondly, data constraints also restrict the ability of researchers to prescribe a set of variables for best practice. One example of this is the IMFs WEO dataset which I have used for this study. The inclusion of a variable such as the output gap to GDP, another that has been receiving attention in recent years, reduces the sample size of my study to 493 observations for which IMF and EU reports are available. Unsurprisingly, most of these observations are also of advanced economies. I therefore retain the same set of key macroeconomic variables when I split the sample by level of market development and creditworthiness.

8.2.1 The Influence of Sentiment on Markets Across Institutions

Tables 8.9.2 to 8.9.3 show the results of the same regression equation when the sample is split into IMF and EU samples. The results of the regressions are broadly similar for both samples, where negative sentiment appears to have little impact on the CAR scores. Yearly GDP growth retains its significance as a predictor of the CAR for the IMF sample, while all others remain insignificant bar inflation at the 5 per cent level. For the EU sample, both the negative sentiment, and the yearly changes in sentiment lose the little statistical significance they had when the sample was pooled. The other macroeconomic indicators become stronger predictors for the EU sample, but fall short of reaching statistical significance. This is still an interesting finding, given the legislative emphasis on targets for EU members. The one variable that somewhat increases in its predictive capacity is the

current account balance to GDP ratio, where the coefficient indicates a positive relationship with more favourable CAR scores. However, some of the other macroeconomic variables demonstrate a counterintuitive coefficient, where increased inflation appears to lead to more favourable reactions. Net debt to GDP ratios retain their consistency for EU surveys, with increased debt burdens associated with more negative reactions to surveillance.

8.2.2 Does Sentiment Matter More For Less Credible Debtors?

The final specification using these variables is two separate regressions with the same equation, split according to credit rating. Rather than chop the sample repeatedly, I simply split the sample according to those that are rated AAA, and all below. While this is crude, it allows good scope for how market participants might use ratings in assessments. As noted, AAA rated securities are afforded prioritisation by way of regulatory enshrinement, while those below this rating are not. Additionally, as this section employs regression analysis, splitting the sample any further would lead to disproportionate sample sizes between each notch on the rating scale.

For AAA rated securities, the negative sentiment of surveillance reports appears to have little predictive capacity on abnormal market returns. Table 8.9.1 displays the full table of findings from this specification. The coefficient for sentiment runs counter the hypotheses, where increased negativity should result in unfavourable reactions from market participants. In this case, increasing negative sentiment appears to result in a negative CAR, an unexpected drop in yields following surveillance releases. Yearly changes in sentiment are insignificant. Uncertain sentiment is significant at the 10 per cent level, while all other controls remain insignificant predictors of the CAR scores.

When countries with below prime investment grade debt are analysed, the results demonstrate a similar pattern. Firstly, the key independent variable, negative sentiment, is not a statistically strong predictor of abnormal market movements following surveillance releases. The directional impact indicates that increases in negative sentiment are associated with more favourable CAR scores. Additionally, yearly changes in sentiment are also insignificant at conventional levels, and the coefficient is in the same direction, although it is a stronger predictor of the CARs. Once more, two macroeconomic variables are significant predictors of abnormal returns for countries rated below AAA. Yearly GDP growth is significant, again showing that increases in growth are associated with more favourable reactions in markets when surveillance is released. In reality, the inclusion of more specific fiscal variables in the equation should probably mean that a broad indicator

such as growth should be less likely to predict market returns to surveillance. The significance of this variable demonstrates rather that markets appear to react to surveillance of countries experiencing increased growth more favourably. It gives strength to the idea that abnormal reactions to surveillance are dependent on the general economic climate either within the country being surveyed, or the global economy more generally. Net government debt as a proportion of GDP holds marginal significance, with its coefficient demonstrating a one unit increase resulting in an increase of the CAR by .004 basis points. This value is effectively insignificant in terms of making any noticeable movement in the market. The strength of the relationship is too significant to ignore however. The probability score is just under 1 per cent, meaning it is a lot stronger than the other variables in the ability to predict the CAR for countries below an AAA rating. It is clearly an important variable, and one which is heavily noted in the literature as being closely linked to bond rates and default premia. As a robustness check, I log the net debt to GDP ratio, to effectively reduce the variance over time, a common practice in the literature (Brooks, 2008). Here the variable actually falls below conventional levels of significance, with an increase in the random probability score to over 6 per cent. This is a relatively strong relationship nonetheless, and could represent an angle for future researchers to explore.

Inflation, measured as the yearly change in average consumer prices remains insignificant, the sign on the coefficient turns to become negative. This is more in line with basic theory on bond prices, where higher inflation weakens the future earnings on the asset, thus suppressing their prices on secondary markets. It may also be quite specific to emerging market debt, where inflation is more unpredictable and generally higher than in advanced economies. Higher inflation presents challenges in itself, making the policy environment more difficult. This could worry investors when a surveillance report is released, regardless of its content. The fact that no other macroeconomic variables in this specification are significant is an interesting finding in itself. However, one possibility is that these variables are actually too 'sticky' to be used as reliable determinants of market reactions to surveillance releases. This could be circumvented in future research by employing forward looking indicators or by the use of spreads as a dependent variable.

However, the most notable finding from this section is that the primary independent variable of this research, the sentiment of economic surveillance reports, is largely insignificant in predicting market returns to surveillance. I return to explore the implications of this finding at the conclusion of this chapter, where I also discuss how an alternative selection of variables might shed additional light on the determinants of abnormal market movements following surveillance releases.

8.2.3 Has The Impact of Sentiment Changed Over Time?

Market reactions to surveillance changed in the years that followed the 2008 financial crisis, as shown by the CAR scores over time. In addition, the sentiment in economic surveillance reports changed accordingly. Therefore, I seek to explore the possibility that the predictive capacity of sentiment within economic surveillance has changed over time too. I explore this by splitting the sample into two periods, one from 1997-2007, and from 2008 onwards. I retain the same regression specification, testing the same determinants of CARs. Interestingly, the onset of the financial crisis appears to have impacted on the determinants of market movements following economic surveillance releases. In the period from 1997-2007, negative sentiment scores retain only a marginally significant relationship with the CARs. In one sense, this is unsurprising, given the lesser role played by the IMF and even the EU in these years, coupled with the possible failings of surveillance. Indeed, market reactions to surveillance in general in this period were less pronounced than in the crisis years that followed. Yearly changes in sentiment are also insignificant predictors of abnormal market reactions in this period.

Surveillance reports are not simply overviews of the current economic situation within a country. Indeed, they would be worth a lot less to investors if this was the case. Surveillance is concerned with promoting reform among members, which takes time. Looking back to the most negative report in the sample, Pakistan's 2012 survey by the IMF, the scale of reforms recommended was immense. Logistical constraints alone might mean that a government has implemented very few reforms by the time its next appraisal is due.

When political constraints are included, the task is even more daunting for policy makers. Furthermore, the period until 2007 was relatively calm, arguably making it more difficult to implement reforms (Vreeland, 1999). It is therefore not surprising to expect the previous report to be a tentative predictor of the next one. This result demonstrates that markets were pleasantly surprised by surveillance a year later, where earlier reports were negative. Yet surprisingly, yearly changes in sentiment are no more significant than the yearly figures themselves. From 2008 onwards, both sentiment variables are insignificant. These findings are somewhat unexpected, both from a behavioural and rationalist interpretation of market movements. As shown in the descriptive statistics, negative sentiment in economic surveillance reports increased following the onset of the crisis in 2008. This finding does not support the hypothesis that markets should respond to negative surveillance during times of crisis with correspondingly negative reactions.

In addition to this, several of the other macroeconomic variables gain significance when the sample is split along this time dimension. For example, from 1997 until 2008 yearly GDP growth is insignificant as a predictor of the CARs. Interestingly, from 2008 onwards, changes in growth are associated more strongly with the market returns to surveillance. The relationship is one of the strongest of any variable in the post-crisis period. The lack of significance attached to the other macroeconomic indicators in the crisis period might be unexpected. There were rapid changes to growth levels overall, and fiscal indicators more specifically. One might expect that market returns would be associated with these changes in some way when surveillance was released, especially given the results of the descriptive statistics in the previous section. However, on the other hand, it might not be surprising to see these variables lose significance. A good example of why this might be the case is the situation in the Eurozone at the time. From 2008 onwards, the focus shifted from the performance of its individual members, to the overall future of the bloc itself. Investors still tracked countries at the individual level, but in one sense, macroeconomic indicators were almost irrelevant. Indeed, much research has suggested that asset returns in the Euro area from 2009 onwards were worse than fundamentals dictated (Favero and Missale, 2014). This shift in the focus of investors presumably came as a result of the rapid

deterioration of these fundamentals for peripheral economies. The broader questions were over bailouts, the amount of money made available for such bailouts, and whether all Eurozone members would remain in the union at all. Correspondingly, fundamentals mattered little for bond markets at the time as the core members of the Eurozone experienced traditional 'flight to safety' movements.

Once more, I split the sample by institution to further explore the influence of sentiment over time. Here too, all macroeconomic variables remain insignificant. This finding is similar to the results of the regression when the IMF observations alone are examined, where GDP growth loses significance as a predictor after the crisis. The only variable that comes close to demonstrating significance for the EU sample in the post-crisis period is the current account balance to GDP ratio of the country being surveyed, which also falls short of the 1 per cent significance threshold.

8.2.4 Does Sentiment Matter More for PIIGS?

The PIIGS economies are pooled together in one sample including both EU and IMF observations (see Table 8.9). This regression provides similar results, notably, that sentiment scores are not strong predictors of market movements following surveillance releases. When separate regressions are run for the PIIGS economies where the time period is split by the crisis, there are some distinct trends in the data. The sample size is reduced to 73 observations in the pre-crisis period, and just 40 from 2008 onwards. The sentiment of surveillance for PIIGS economies until 2008 doesn't appear to have had a significant bearing on the CAR scores. Uncertain sentiment is associated with the CARs however. Specifically, greater levels of uncertain sentiment before 2008 are associated with higher CARs. This is a logical move, but is somewhat surprising that its significance is lost from 2008 onwards, where the economic environment was far more uncertain overall. Yet by this logic, it is possible that uncertain sentiment in economic surveillance before 2008 represented one of the few voices of caution in economic commentary and analysis more generally, capturing the attention of market participants even further.

Interestingly, after 2008, no variable in the regression specification is significant in predicting market returns to surveillance of the PIIGS economies. This is similar to the findings of the regression analysis overall, where rather than increase the significance of the variables, the crisis has appeared to lower them. I have provided one interpretation of this finding, essentially that the crisis represented an extraordinary time, where orthodox macroeconomic indicators gave no clear indication of future policy or performance. Primarily, these tests do not provide support for the hypothesis that sentiment is associated with abnormal reactions to surveillance of categorically classified countries.

8.3 Conclusion

This chapter has explored how the sentiment of economic surveillance reports impacts on market returns upon its release. By using a newly created dataset of surveillance episodes, their sentiment scores, and a range of corresponding macroeconomic control variables, this has been a robust test of the impact of sentiment. Overall, the findings demonstrate that economic surveillance sentiment matters little for financial market participants, giving little support for H1A.

Specifically, both the yearly figures, and yearly changes in sentiment fail to predict market reaction to surveillance. I generated a variable that captures changes in sentiment from one year to the next. The standout finding in this regard is that both measures of sentiment are insignificant. This is consistent across almost all specifications, regardless of the level of creditworthiness, market development, or institution. As noted earlier, yearly changes in sentiment may be stronger predictors of CARs, given that surveillance is designed to be forward-looking. Investors know how constrained policymakers are when attempting to reform their economies. Certainly, a statistically significant relationship between the standard measure of sentiment and the CAR scores would still have given strength to the straightforward hypothesis that negative language increases negative reactions from markets.

Overall, the variables I have selected explain some, but not most of the variation in the CAR scores. The financial crisis too appears to have played an insignificant role in the relationship between sentiment and CARs. This is interesting given that basic behavioural arguments on market movements in the crisis period would likely indicate that negative sentiment would have ushered stronger reactions, rather than the trend observed in these data. Researchers should try to examine these competing dynamics more closely in future studies.

Figure 8.11 Residuals versus Fitted Values (Full Sample)

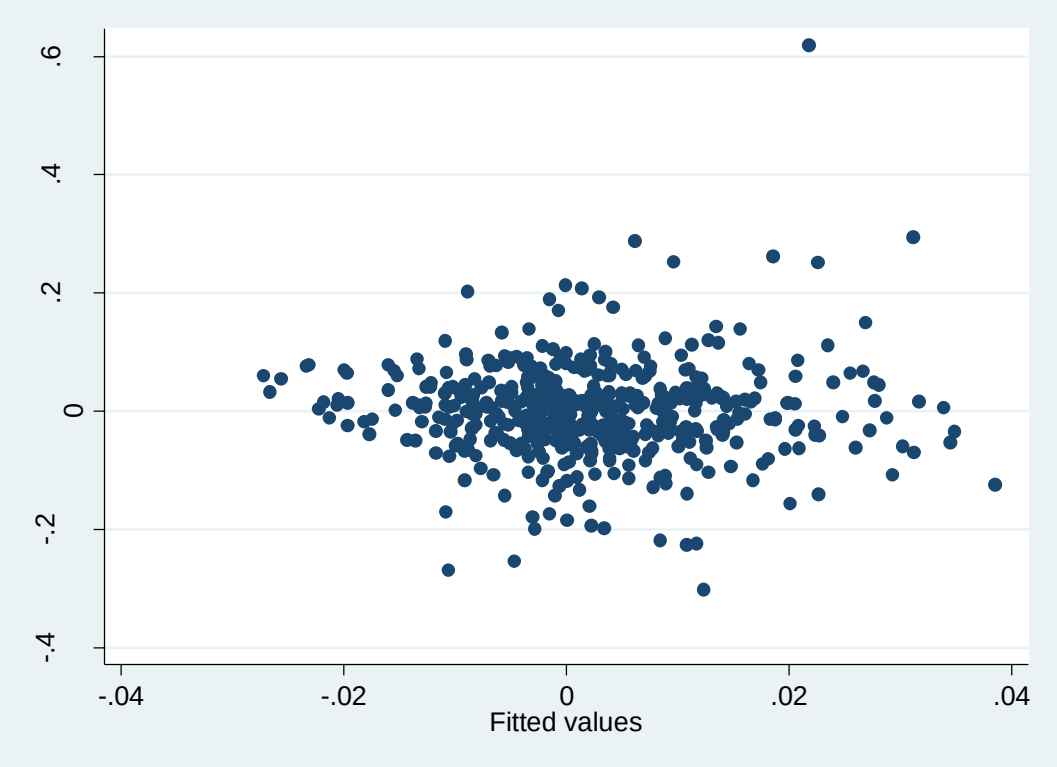


Figure 8.2 Residuals versus Fitted Values (PIIGS Economies)

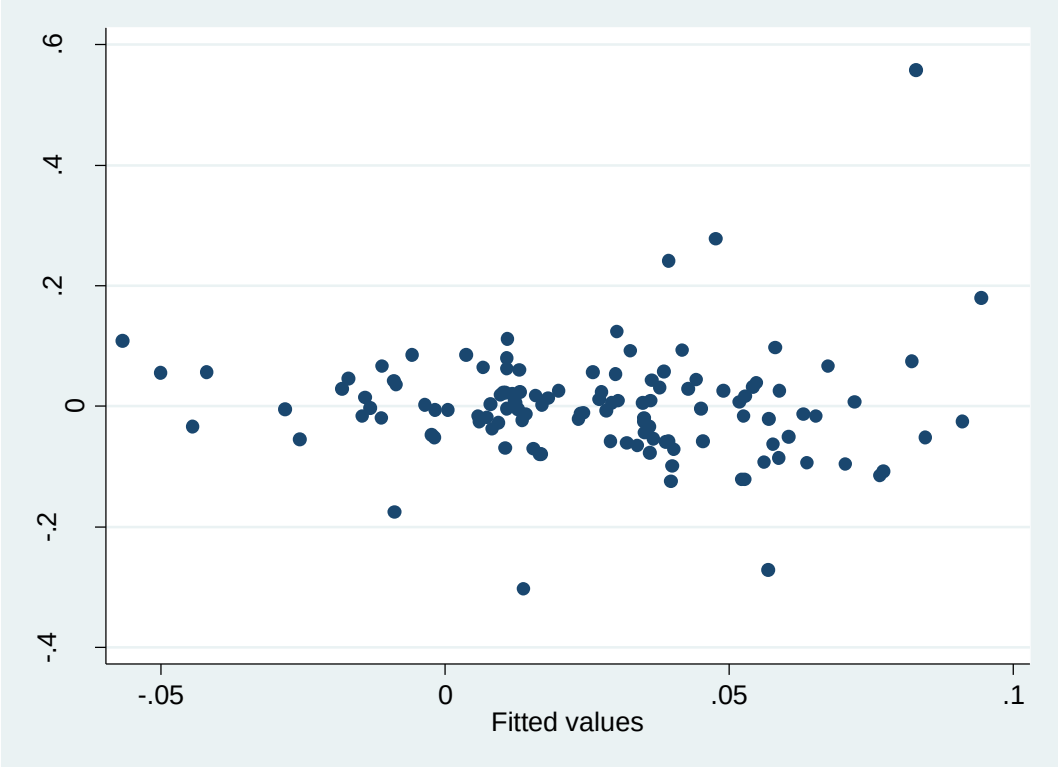


Figure 8.3 Residuals versus Fitted Values (AAA Rated)

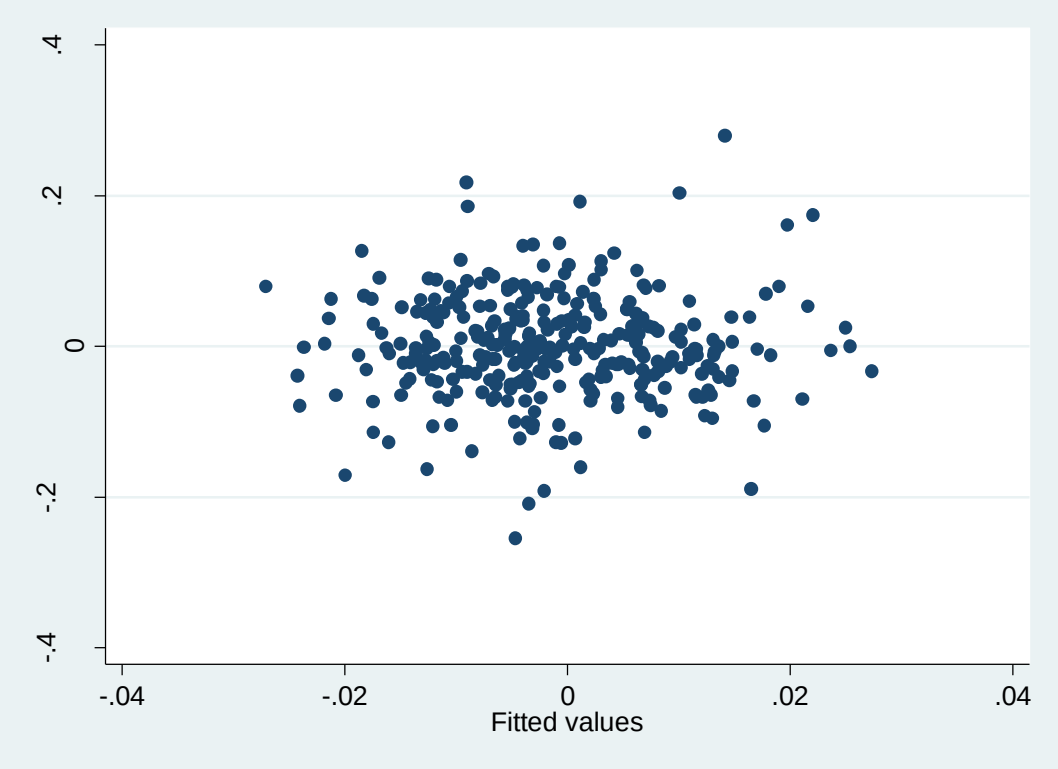


Figure 8.4 Residuals versus Fitted Values (<AAA Rated)

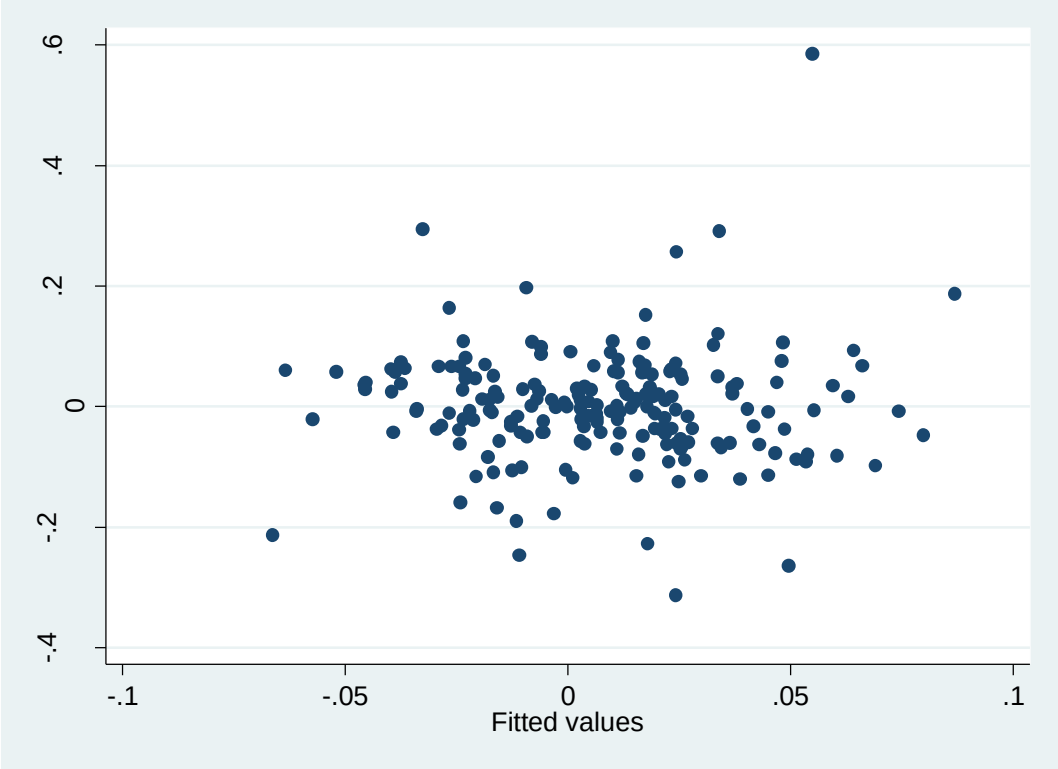


Figure 8.5 Residuals versus Fitted Values (IMF Surveillance)

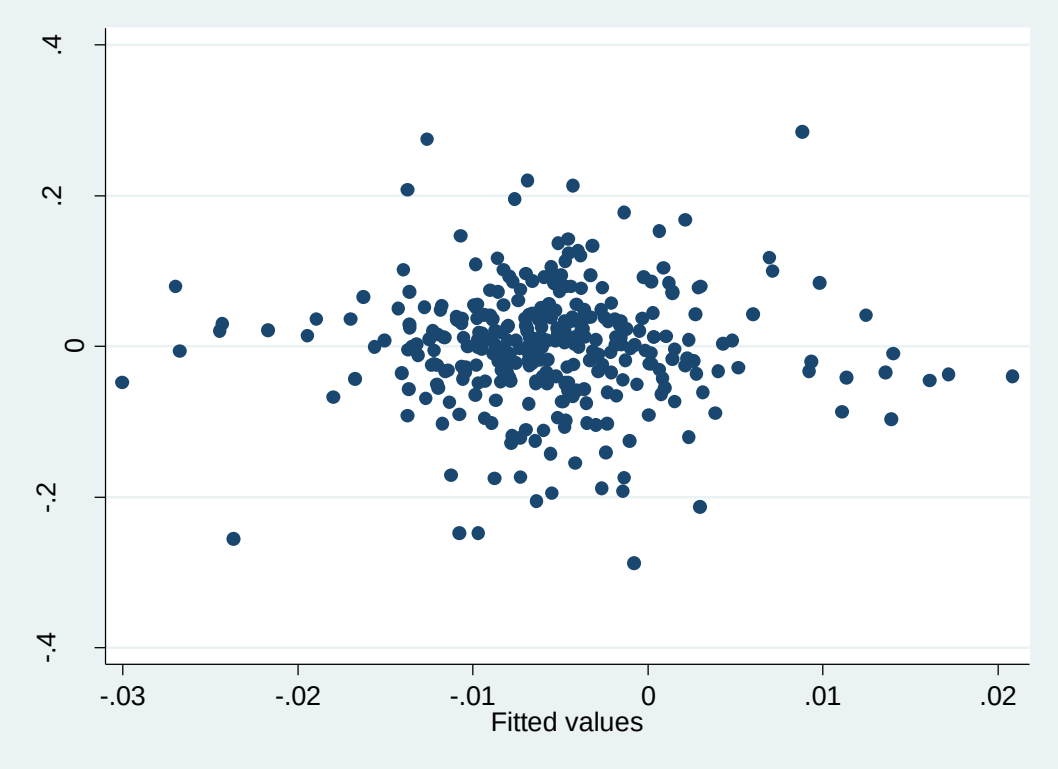


Figure 8.6 Residuals versus Fitted Values (EU Surveillance)

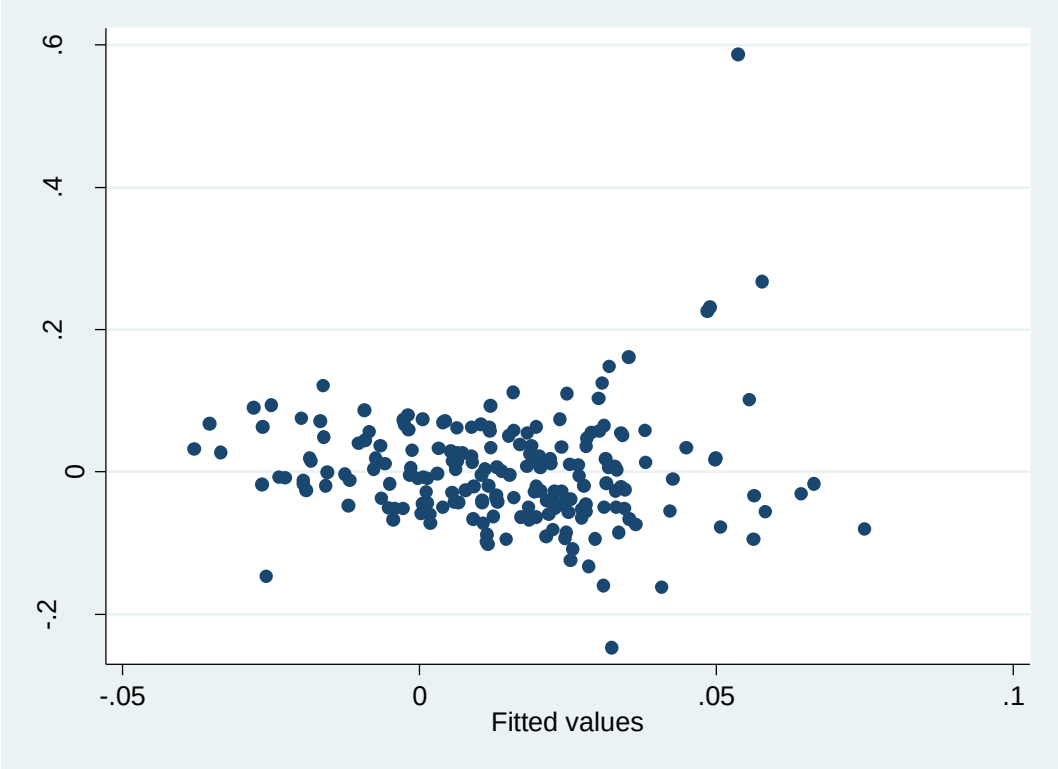


Figure 12.7 Residuals versus Fitted Values (OECD Surveillance)

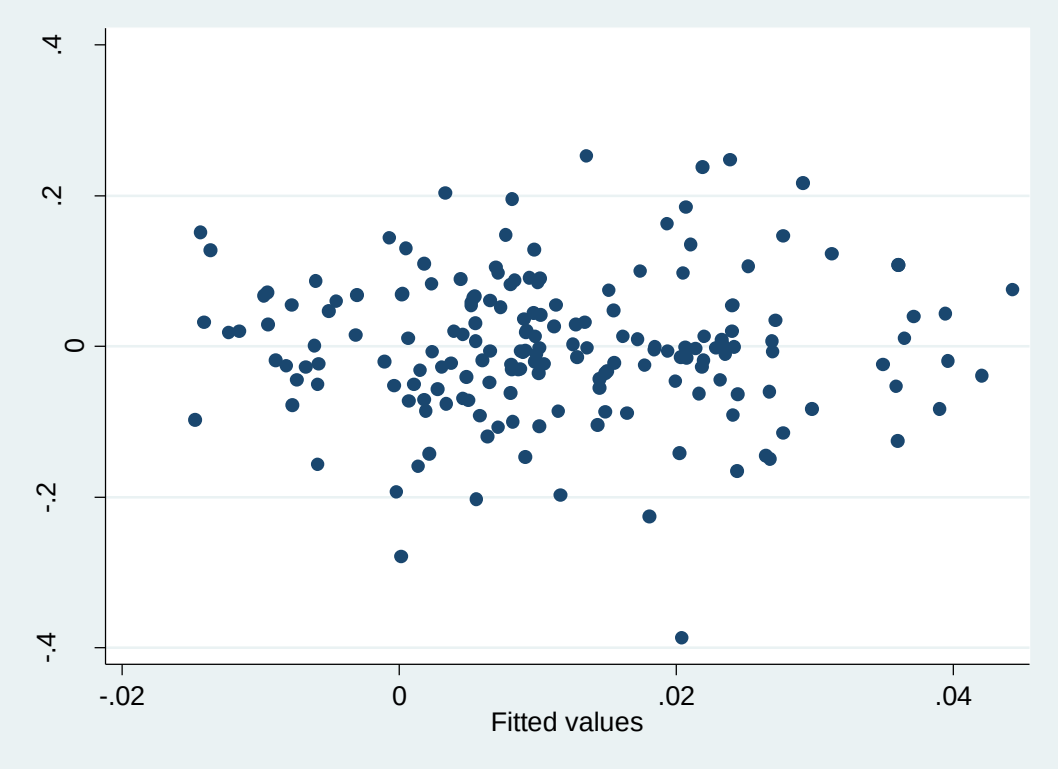


Figure 8.8 Squared Residuals versus Fitted Values (EU and IMF Surveillance)

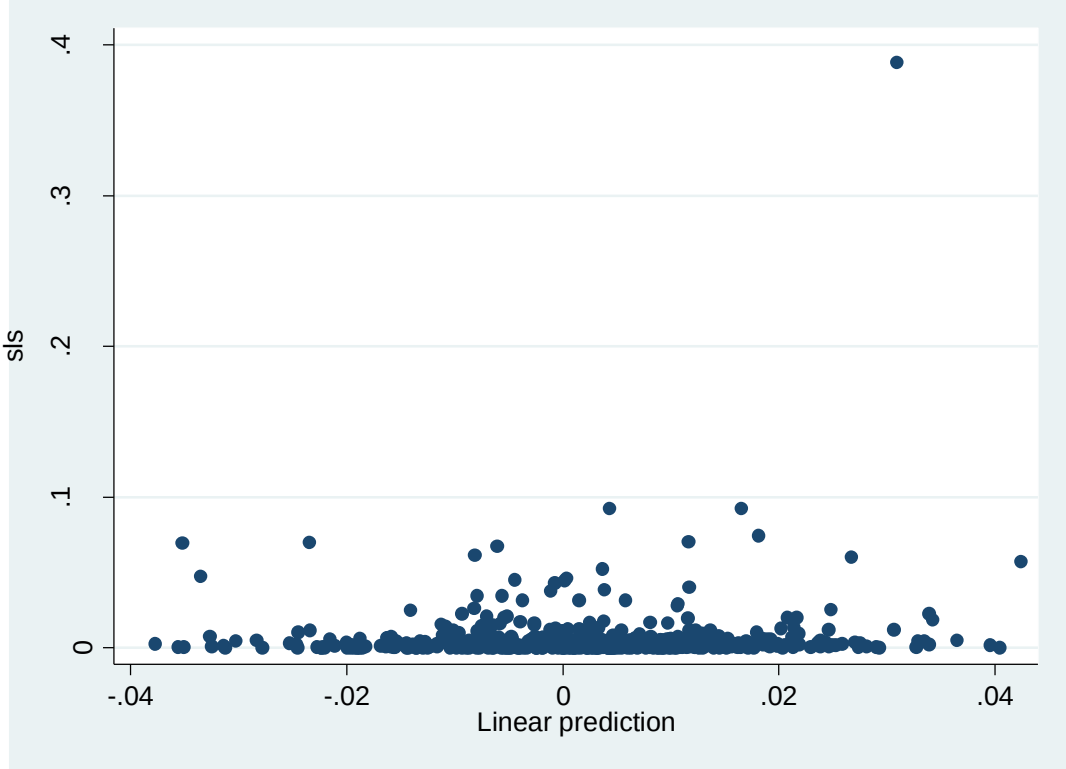


Table 8.1 Results of Breusch-Pagan Test (Yearly Changes in IMF and EU Surveillance)

VARIABLES	(1) Squared Res. CAR	(2) Squared Res. Absolute CAR
Δ Negative Sent.	0.000295	-0.000318
	(0.00137)	(0.00287)
Δ Positive Sent.	0.121	-0.396
	(0.140)	(0.304)
Δ Uncertain Sent.	-0.334*	-0.602
	(0.179)	(0.385)
GDP Growth	-0.000591	-0.00105
	(0.000359)	(0.000753)
Inflation	-0.0000118	0.000115
	(0.000103)	(0.000217)
Debt / GDP	0.0000124	0.0000222
	(.00000244)	(0.0000539)
CA / GDP	-0.000177	-0.000877**
	(0.000183)	(0.000399)
Constant	0.00746***	0.00802**
	(0.00161)	(0.00351)
Observations	493	472
R-squared	0.021	0.027

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8.2 Results of Breusch-Pagan Test (IMF and EU Surveillance)

	(1)	(2)
VARIABLES	Squared Res. CAR	Squared Res. Absolute CAR
Negative	-0.0239	-0.0590
	(0.0455)	(0.101)
Positive	0.0208	-0.318
	(0.146)	(0.323)
Uncertain	-0.287	-0.491
	(0.191)	(0.420)
GDP Growth	-0.000699**	-0.000986
	(0.000354)	(0.000767)
Inflation	0.00000152	0.000156
	(0.0000971)	(0.000210)
Debt / GDP	0.0000495	0.0000174
	(0.0000241)	(0.0000549)
CA / GDP	-0.000202	-0.000967**
	(0.000181)	(0.000407)
Constant	0.0121**	0.0241**
	(0.00479)	(0.0105)
Observations	493	472
R-squared	0.018	0.025

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8.3 Regression Output: Changes in Sentiment of IMF and EU Surveillance

VARIABLES	(1) Full Sample CAR	(2) <2008 CAR	(3) ≥2008 CAR
Δ Negative Sent.	0.000964	0.108	0.00169
	(0.00129)	(0.254)	(0.00219)
Δ Positive Sent.	0.498	0.224	0.890
	(0.601)	(0.533)	(1.160)
Δ Uncertain Sent.	-0.379	-0.558	-0.272
	(0.683)	(0.647)	(1.233)
GDP Growth	-0.00321**	0.000401	-0.00676***
	(0.00157)	(0.00160)	(0.00238)
Inflation	0.000125	0.0000702	0.000648*
	(0.000207)	(0.000269)	(0.000345)
Debt / GDP	0.0000332	0.0000427	0.0000283
	(0.0000823)	(0.000101)	(0.000136)
CA / GDP	-0.000764	0.000857	-0.00278**
	(0.000670)	(0.000710)	(0.00115)
Constant	0.00850	0.00120	0.00409
	(0.00626)	(0.00802)	(0.00859)
Observations	493	296	197
R-squared	0.018	0.007	0.070

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8.4 Regression Output: Changes in Sentiment of IMF and EU PIIGS Economies

VARIABLES	(1) PIIGS CAR	(2) PIIGS<2008 CAR	(3) PIIGS≥2008 CAR
Δ Negative Sent.	-0.706	-0.395	-1.128
	(0.669)	(0.549)	(1.559)
Δ Positive Sent.	0.909	0.168	2.221
	(1.357)	(0.861)	(3.159)
Δ Uncertain Sent.	-1.186	0.387	-2.371
	(1.831)	(0.880)	(7.831)
GDP Growth	-0.00303	0.00148	-0.00009165
	(0.00307)	(0.00184)	(0.00985)
Inflation	-0.00912	0.00489	-0.00657
	(0.0188)	(0.00880)	(0.0371)
Debt / GDP	0.000195	0.0000515	0.000362
	(0.000237)	(0.000189)	(0.000630)
CA / GDP	-0.00190	0.000371	-0.00254
	(0.00181)	(0.00157)	(0.00519)
Constant	0.0387	-0.0189	0.0493
	(0.0583)	(0.0305)	(0.0813)
Observations	113	73	40
R-squared	0.087	0.028	0.106

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8.5 Regression Output: Changes in Sentiment of IMF and EU AAA Rated Economies

VARIABLES	(1) AAA Rated CAR	(2) AAA<2008 CAR	(3) AAA≥2008 CAR
Δ Negative Sent.	0.317	0.192	0.536
	(0.264)	(0.312)	(0.449)
Δ Positive Sent.	1.032	0.823	0.905
	(0.634)	(0.703)	(1.194)
Δ Uncertain Sent.	-0.401	-0.363	-0.844
	(0.651)	(0.816)	(1.033)
GDP Growth	0.000699	0.00206	-0.00293
	(0.00146)	(0.00231)	(0.00240)
Inflation	-0.00154	0.00168	-0.00276
	(0.00408)	(0.00546)	(0.00637)
Debt / GDP	-0.000117	-0.00000843	-0.000201
	(0.0000922)	(0.000135)	(0.000125)
CA / GDP	-0.000562	0.000459	-0.00104
	(0.000905)	(0.00113)	(0.00161)
Constant	0.00533	-0.00314	0.00155
	(0.00939)	(0.0142)	(0.0148)
Observations	306	192	114
R-squared	0.016	0.010	0.059

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8.6 Regression Output: Changes in Sentiment of IMF Surveillance

VARIABLES	(1) Full Sample CAR	(2) <2008 CAR	(3) ≥2008 CAR
Δ Negative Sent.	-0.000496	-0.0867	-0.00106
	(0.00132)	(0.341)	(0.00180)
Δ Positive Sent.	-0.0223	-0.268	-0.0427
	(0.607)	(0.668)	(1.050)
Δ Uncertain Sent.	0.554	0.0691	1.707
	(0.887)	(0.987)	(1.390)
GDP Growth	-0.00280	-0.00178	-0.00580**
	(0.00186)	(0.00231)	(0.00285)
Inflation	0.000236	0.000303	0.000881**
	(0.000224)	(0.000349)	(0.000394)
Debt / GDP	-0.0000281	-0.0000449	-0.0000174
	(0.000104)	(0.000128)	(0.000171)
CA / GDP	-0.000415	0.000677	-0.00276**
	(0.000758)	(0.000870)	(0.00130)
Constant	0.000824	0.00488	-0.0113
	(0.00781)	(0.0108)	(0.0113)
Observations	306	194	112
R-squared	0.010	0.009	0.064

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8.7 Regression Output: Changes in Sentiment of EU Surveillance

VARIABLES	(1) Full Sample CAR	(2) <2008 CAR	(3) ≥2008 CAR
Δ Negative Sent.	0.465	0.379	0.375
	(0.491)	(0.294)	(1.075)
Δ Positive Sent.	1.798	1.661**	1.477
	(1.189)	(0.795)	(2.221)
Δ Uncertain Sent.	-2.469**	-1.903***	-4.474
	(1.059)	(0.674)	(2.790)
GDP Growth	0.000332	0.00595***	-0.00310
	(0.00215)	(0.00211)	(0.00354)
Inflation	-0.0261**	-0.0107*	-0.0349*
	(0.0111)	(0.00638)	(0.0177)
Debt / GDP	0.000133	0.000260*	0.0000684
	(0.000130)	(0.000135)	(0.000199)
CA / GDP	-0.00344**	0.000408	-0.00544**
	(0.00139)	(0.00121)	(0.00210)
Constant	0.0694***	0.0130	0.0887**
	(0.0260)	(0.0168)	(0.0383)
Observations	187	102	85
R-squared	0.158	0.151	0.229

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8.8 Regression Output: IMF and EU Surveillance

VARIABLES	(1) Full Sample CAR	(2) <2008 CAR	(3) ≥2008 CAR
Negative	-0.440*	-0.384*	-0.628
	(0.233)	(0.204)	(0.451)
Positive	0.0364	0.230	-0.147
	(0.540)	(0.587)	(1.054)
Uncertain	0.0785	-0.587	1.773
	(0.649)	(0.837)	(1.115)
GDP Growth	-0.00369**	-6.74000005	-0.00693***
	(0.00160)	(0.00159)	(0.00228)
Inflation	0.000150	0.0000286	0.000682*
	(0.000225)	(0.000290)	(0.000362)
Debt / GDP	0.0000266	0.0000357	0.0000518
	(0.0000813)	(0.000102)	(0.000131)
CA / GDP	-0.00106*	0.000694	-0.00345***
	(0.000642)	(0.000701)	(0.00108)
Constant	0.0406*	0.0310	0.0359
	(0.0210)	(0.0235)	(0.0341)
Observations	493	296	197
R-squared	0.028	0.019	0.085

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8.9 Regression Output: IMF and EU PIIGS Economies

VARIABLES	(1) PIIGS CAR	(2) <2008 CAR	(3) ≥2008 CAR
Negative	-0.867	-0.508	-1.323
	(0.650)	(0.351)	(1.442)
Positive	-1.367	1.179	-4.328
	(1.155)	(0.813)	(3.520)
Uncertain	0.769	2.785***	-0.702
	(1.514)	(1.044)	(4.974)
GDP Growth	-0.00226	0.00197	0.00367
	(0.00290)	(0.00187)	(0.0117)
Inflation	-0.0151	0.00245	-0.0252
	(0.0193)	(0.00744)	(0.0372)
Debt / GDP	0.000347	0.000169	0.000819
	(0.000243)	(0.000211)	(0.000689)
CA / GDP	-0.00248	0.0000188	-0.00465
	(0.00164)	(0.00149)	(0.00432)
Constant	0.124	-0.0428	0.236
	(0.0944)	(0.0376)	(0.191)
Observations	113	73	40
R-squared	0.110	0.120	0.134

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8.9.1 Regression Output: IMF and EU Surveillance of AAA Rated Economies

	(1)	(2)	(3)
	AAA	<2008	≥2008
VARIABLES	CAR	CAR	CAR
Negative	-0.368*	-0.522*	-0.186
	(0.204)	(0.288)	(0.307)
Positive	0.335	0.684	-1.056
	(0.662)	(0.757)	(1.336)
Uncertain	0.394	-1.074	2.104*
	(0.693)	(1.059)	(1.065)
GDP Growth	-0.000264	0.000986	-0.00276
	(0.00149)	(0.00234)	(0.00249)
Inflation	-0.00139	0.00311	-0.00327
	(0.00406)	(0.00529)	(0.00600)
Debt / GDP	-0.000135	-0.0000389	-0.000162
	(0.0000940)	(0.000133)	(0.000128)
CA / GDP	-0.000726	0.000358	-0.00132
	(0.000895)	(0.00110)	(0.00151)
Constant	0.0223	0.0303	0.0149
	(0.0212)	(0.0326)	(0.0296)
Observations	306	192	114
R-squared	0.015	0.035	0.071

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8.9.2 Regression Output: IMF Surveillance

VARIABLES	(1) Full Sample CAR	(2) <2008 CAR	(3) ≥2008 CAR
Negative	0.0530	-0.112	0.755
	(0.365)	(0.355)	(0.720)
Positive	0.335	0.151	2.104
	(0.685)	(0.768)	(1.432)
Uncertain	-1.683*	-1.707	0.952
	(0.971)	(1.272)	(1.891)
GDP Growth	-0.00307	-0.00167	-0.00523
	(0.00195)	(0.00224)	(0.00318)
Inflation	0.000257	0.000239	0.00101**
	(0.000230)	(0.000355)	(0.000389)
Debt / GDP	-0.0000663	-0.0000544	-0.0000182
	(0.000104)	(0.000136)	(0.000176)
CA / GDP	-0.000461	0.000485	-0.00256**
	(0.000715)	(0.000859)	(0.00120)
Constant	0.00771	0.0261	-0.145
	(0.0390)	(0.0385)	(0.0943)
Observations	306	194	112
R-squared	0.018	0.020	0.075

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8.9.3 Regression Output: EU Surveillance

VARIABLES	(1) Full Sample CAR	(2) <2008 CAR	(3) ≥2008 CAR
Negative	-0.182	0.206	-1.183
	(0.603)	(0.379)	(1.710)
Positive	0.973	1.557	-0.504
	(0.968)	(1.017)	(1.619)
Uncertain	1.017	-0.321	2.538
	(0.893)	(1.162)	(1.609)
GDP Growth	-0.00153	0.00510**	-0.00435
	(0.00248)	(0.00220)	(0.00383)
Inflation	-0.0236*	-0.0111*	-0.0288
	(0.0121)	(0.00633)	(0.0187)
Debt / GDP	0.000118	0.000175	0.000173
	(0.000137)	(0.000142)	(0.000247)
CA / GDP	-0.00355**	-0.00000496	-0.00568**
	(0.00148)	(0.00129)	(0.00250)
Constant	0.0498	-0.0184	0.135
	(0.0573)	(0.0404)	(0.135)
Observations	187	102	85
R-squared	0.126	0.102	0.210

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8.9.4 Regression Output: OECD Surveillance

VARIABLES	(1) Full Sample CAR	(2) <2008 CAR	(3) ≥2008 CAR
GDP Growth	0.00631*	0.00695	0.00420
	(0.00381)	(0.00678)	(0.00530)
Inflation	-0.0116*	-0.00825	-0.0182
	(0.00671)	(0.00881)	(0.0114)
Debt / GDP	-0.000136	-0.000269	-0.0000400
	(0.000180)	(0.000232)	(0.000301)
CA / GDP	-0.000912	-0.00403	0.00321
	(0.00212)	(0.00250)	(0.00362)
Output Gap / Potential GDP	-0.00354	-0.00492	-0.00207
	(0.00354)	(0.00493)	(0.00683)
Constant	0.0222	0.0240	0.0317
	(0.0191)	(0.0305)	(0.0285)
Observations	161	114	47
R-squared	0.036	0.061	0.115

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

9. Economic Surveillance and Volatility

This chapter is designed primarily to test H2, that reactions to surveillance of emerging markets are greater than advanced economies. However, it also serves as an appropriate alternative test of all the other hypotheses I have generated. In order to do this, I employ an alternative dependent variable. This is a modified version of the abnormal return variable used in the previous sections of this research. Instead of calculating the aggregate unexpected movement of the yield on each country's sovereign debt in the days after surveillance, I calculate the absolute movement, where directional effects are stripped from the movement on the yield. The intuition behind this calculation is in trying to capture the total impact on the price of the asset over two days. This is calculated for both the IMF reports, and also for the EU, I exclude the OECD because as noted, the corresponding surveillance reports are not coded. The aggregate CAR scores serve as excellent indicators of the net movement on the yield of a country's debt. Yet they do not provide a full account of how markets reacted to the release of a surveillance report. For example, markets might be unsure as to how a report should be interpreted, leading to broader trading ranges following a surveillance release, the absolute CAR score is one way in which these movements can be captured. The absolute CARs are particularly useful therefore in examining how markets reacted to surveillance of economies where information availability is a key concern, primarily emerging markets, and when economic uncertainty is prevalent. I first present the summary statistics of the absolute CAR scores, before moving on to discuss the findings of the regression analysis using this alternative dependent variable.

9.1 Summary Statistics of Absolute CARs

Figure 9.1 displays a scatter plot of all absolute CAR scores for each surveillance release by the IMF and EU. The trend in these data broadly follows the pattern over time as exhibited by the aggregate CAR and sentiment scores described in the previous chapters. Specifically, the absolute unexpected reaction to surveillance appears to vary according to the broader economic climate at the time of release. The obvious trend in the data is the contraction in

unexpected reactions to surveillance releases from 2002 – 2006, a period in which growth was strong across the global economy. The summary statistics from each year illustrate these movements. The mean figure for absolute abnormal returns from 1997 – 2007 was 0.0855338, indicating an unexpected average total movement of over 8.5 basis points in the two days following a surveillance release. From 2008 onwards however, this figure jumps sharply to 0.1094233, an almost 11 basis points movement. These figures indicate that markets reacted with more force on average from 2008 onwards. A simple interpretation of this is in line with the efficient markets hypothesis, that markets were unexpectedly surprised by surveillance from 2008 onwards as it contained genuinely new information about a global economy that was mired in uncertainty. An alternative interpretation may point to behavioural biases, such as overreaction. Interestingly, however, the greatest overall movement in response to a surveillance release came prior to 2008, when yields on the Irish debt demonstrated a total movement of over 145 basis points after the 1999 EU survey was released.

These movements are considerably large when viewed independently, even more so when compared to the average scores generated by the aggregate CARs, as described earlier. The average unexpected abnormal reaction to economic surveillance from 1997 – 2007 was 0.0071221. This means that on average, markets moved to unexpectedly raise yields on sovereign debt by .7 basis points. This figure is far lower than the average absolute movement of over 8.5 basis points in the same period. The average aggregate CAR score from 2008 onwards was even smaller, demonstrating a marginal drop in yields by just over 0.1 basis points. The corresponding movement for the absolute abnormal return from 2008 onwards was almost 11 basis points in unexpected yield changes. This translates into the absolute CAR being 100 times larger in magnitude than the average aggregate CAR, where directional effects are included. This huge variance should be of particular interest to academics and policymakers alike. The aggregate CARs showed that on average, markets reacted with relative indifference to surveillance releases by the IMF, and with marginally more interest when the EU or OECD surveyed a member. On occasion, their movements were large however. The absolute CARs demonstrate a new finding; that markets actually

reacted to surveillance in a more dynamic way than the aggregate CAR movements suggest. Including directional effects appears to have, on average, absorbed much of the variation in market reactions to surveillance. In reality, most surveillance releases were met with strong price movements on the yield of the 10-year sovereign bond of member states. Furthermore, some of the observations that exhibit the largest CAR scores do not demonstrate the strongest absolute movements on the yield of their debt. For example, the strongest absolute movement by far came in response to the EU's survey of the Irish economy in 1999. The unexpected movement on the yield of this asset was over 145 basis points, aggregated over two days. However, the aggregate CAR score for the same event was a relatively low 1.5 basis points reduction over two days. This tells us that the directional effects of the CAR scores often mask the total impact of a surveillance release on the country being surveyed. The use of this variable brings this research somewhat closer to an additional facet of financial market activity; volatility. Volatility in itself is a heavily debated concept, both in terms of conceptualisation and measurement. I am not concerned with this debate, and retain the absolute CAR variable as a measure of the impact that surveillance has, rather than a unit of financial market behaviour to be analysed in itself. If I employ the absolute CAR as a measurement of impact to be compared with the aggregate CAR, it then demonstrates that markets often react strongly, but indecisively to surveillance releases. In order to explore this variation in more detail, I split the sample by level of market development, creditworthiness, and according to group categorisations.

9.1.1 Absolute Returns by Market Development and Creditworthiness

Reliable information about emerging market assets is scarce. Therefore, economic surveillance should have a greater impact on the yield of these debt instruments. The summary statistics of the absolute CARs give support to this hypothesis. A simple comparison of means across levels of market development and creditworthiness confirms that markets reacted more strongly to surveillance of countries with lower credit ratings, and lower levels of market development. The average absolute reaction to surveillance

releases of advanced economy assets was 9.2 basis points in unexpected movements. The corresponding figure for emerging market economies was a full basis point more, at over 10. Similarly, those with debt rated AAA by Fitch experienced average movements on their debt of just over 8.9 basis points, while countries with credit ratings lower than AAA experienced unexpected movements on their yields of over 10 basis points. Interestingly, the financial crisis led to market reactions becoming more homogenous across levels of market development. The average absolute CAR for advanced economies before 2008 was just over 8.3 basis points in abnormal returns over two days. From 2008 onwards, the corresponding figure was almost 11 basis points. For emerging market assets, the average surveillance release before the onset of the global financial crisis led to yields unexpectedly moving by over 9.7 basis points. The average movement after 2008 rose to 11 basis points.

The same pattern is broadly observable when the sample is organised according to the credit ratings of members, although it less pronounced for those with the highest credit ratings. AAA rated sovereign debt moved unexpectedly by 8.8 basis points in total before 2008 on average in response to surveillance releases. After 2008, average movements only rose around a tenth of a basis point, a much smaller upward shift if compared with the more general market development indicator. However, those with lower credit ratings were subjected to greater movements on their debt when the financial crisis struck. The average surveillance release prior to 2008 saw yields of these members move by around 8 basis points over the two days after a report was released. However, from 2008 onwards, the average absolute abnormal return rises dramatically to almost 13 basis points for these members. Furthermore, both the maximum figure, and the standard deviation both increase sharply after 2008 on average.

Average absolute abnormal returns for the PIIGS economies also demonstrate a huge swing when the crisis begins. Prior to 2008, the average surveillance release for these members resulted in movements of just over 9 basis points, a result that puts the PIIGS below the average for the entire sample. After 2008 the number almost doubles to become just over 18.5 basis points. Interestingly, the average PIIGS report resulted in an unexpected

absolute reaction that was far higher than the average of the sample, at over 12 basis points. Not only are the extent of these abnormal returns considerably large relative to daily movements in general, the change in their magnitude is also a significant finding for scholars of financial market activity. This finding too gives support for the hypothesis that market reactions to surveillance should be greater during times of economic uncertainty. Of the 20 surveillance releases that saw the greatest market reactions, 16 come in the crisis period, while 18 of these reactions are to surveillance of either emerging markets or PIIGS economies.

9.1.2 Market Reaction Across Institutions

The descriptive statistics generated from the previous CAR scores demonstrated that market reactions to economic surveillance produced by the EU were far greater than the IMF equivalent. The absolute CAR scores offer similar findings. The average absolute reaction to IMF surveillance was nearly 8.6 basis points over two days. In contrast, yields on sovereign debt moved around 11 basis points in response to EU surveillance over the same period. This lends further support to the idea that markets made clear distinctions between IMF and EU surveillance in terms of what the content meant for the asset in question. If absolute returns on IMF CARs were greater than those of the EU, this would indicate rather that markets were unsure as to how IMF surveillance should be interpreted. The data shows that markets reacted strongly to EU surveillance in most cases, and with more force than when the IMF released surveys.

This pattern is also consistent over time. Prior to 2008, the average IMF surveillance report unexpectedly moved yields on sovereign debt by around 8 basis points, after 2008 this figure was over 9.7 basis points. Conversely EU surveillance releases before the crisis resulted in stronger reactions from markets, at almost 13 basis points on average. During and after the crisis, these reactions dropped to around 9.5 basis points in unexpected movements. This indicates that not only does EU surveillance retain its capacity to move markets more strongly that IMF surveillance after the crisis, but that this gap actually

widens. These findings indicate that the crisis led to greater reactions to surveillance overall, and that those surveyed by the EU experienced the brunt of these price movements. In the following section, I present an outline of the model I have used to test the predictive capacity of economic surveillance sentiment on absolute market reactions.

9.2 Model Specification

The model employed in this chapter is once more a standard OLS regression with robust standard errors. The gauss-markov assumptions remain upheld with the inclusion of the new variables. At a conceptual level, the absolute CAR does not differ from the CARs used in the previous chapters. The only empirical distinction is that the absolute CAR is always non-negative. The score still represents movements in asset prices and their impact on the yields of sovereign debt, meaning that an alternative model to analyse this variable in a regression analysis is not necessary from a conceptual or practical viewpoint. A further difference in this regression is the use of the yearly change in the dimensions of sentiment, rather than the use of the yearly figure itself. These additional independent variables too, are simple variants of the original sentiment scores. Similarly to the additional DV, the conceptualisation of this IV remains the same as in the previous chapters. This presents no obvious reason as to why an OLS regression is impractical. This equation can be expressed as:

$$ABSOLUTECAR_i = \beta\Delta SENT_{i1} + \beta X_{i2} + \varepsilon$$

where the absolute abnormal return following each surveillance release is a function of the change in yearly sentiment measures of each report. I include the same vector of macroeconomic control variables lagged by a year to account for biases in the reactions of investors, however these do not vary over the event window so are most probably already incorporated into the CARs. These variables are economic growth, inflation, the current account balance as a proportion of GDP, and net debt as a proportion of GDP. Lastly, ε represents a random error term. I also run a separate set of regressions where the

sentiment scores are held at their yearly values and the absolute CAR serves as the outcome variable.

To be robust with this specification, I verify each gauss-markov assumption with these new data. I once again assume a linear relationship between changes in the levels of sentiment in a surveillance report (along all dimensions), and absolute levels of market reactions. Theoretically and empirically, large swings in sentiment between surveillance reports should be associated with large abnormal movements in yields in a clearly linear fashion. The sample selection remains the same; there are no new observations in the data, although obviously the first report for each country is dropped because there is no previous report to calculate changes against. To test the zero conditional mean of errors, I again plot the fitted values against the residuals for each regression specification. Figures 9.8 to 9.9.2 display these results for all specifications. In general, these visualisations test the assumption that positive and negative biases on the DV cancel each other out. No clear pattern is visible in these data, bar several outliers. This indicates that there is no additional bias with higher predictions of the DV, and the assumption is upheld. The fourth assumption is that the independent variables in a standard OLS model do not demonstrate perfect collinearity. This assumption is easily upheld as I retain the same macroeconomic control variables as used in the previous chapter, whose relationships I assume to fall below levels of perfect collinearity. The same applies to the new independent variable measure, where there is no conceptual reason to suggest that the change in sentiment of a surveillance report should be perfectly collinear over time. Nor should they be perfectly collinear with the control variables employed. The final assumption concerns the presence of homoscedasticity within the data. This assumption is particularly important for statistically significant variables, as homoscedasticity essentially brings up the standard errors. However, for robustness, I test for homoscedasticity by employing the same techniques as used in the previous chapter. Firstly, I plot the predicted absolute CAR against the predicted squared residuals, the results of which are located in plot Figure 9.7. The distribution of the data is almost perfect, save for a few outlier observations. In order to maximise the reliability of the study however, I conduct the Breusch-Pagan test, where the independent

variables are regressed against the squared residuals of the predicted dependent variable. The lagged current account balance as a proportion of GDP returns statistical significance in this test. Overall however, the regression is only significant at the 10 per cent level, presumably driven by the outliers noted earlier. While this finding does indicate that heteroscedasticity may be present, the low significance of the regression, coupled with the visual aid of the scatterplot indicates that heteroscedasticity is not a serious concern. To account for the possibility of it biasing the results however, I once again employ robust standard errors in the regression equations, effectively using White's heteroskedastic-consistent standard errors. This is a standard corrective measure, and is used in the previous section of this research. The fifth and final gauss-markov assumption is therefore upheld.

9.5 The Impact of Sentiment on Absolute CARs

The descriptive statistics of the absolute CARs do not deviate greatly from those generated by the aggregate CARs. Rather, they provide support for some of the hypotheses that test reactions to surveillance by creditworthiness and level of market development. Specifically, market reactions to surveillance releases are greater on average for emerging market economies and those with lower credit ratings in general. The financial crisis also appears to have changed the way in which markets react to surveillance, with stronger movements following surveillance releases from 2008 onwards. Lastly, EU surveys led to much stronger reactions from financial markets both before and after the crisis. These findings provide a more comprehensive assessment of how markets reacted to surveillance releases. Yet I am also interested in the predictive capacity of economic surveillance content on abnormal returns, rather than just the reaction itself. I therefore employ an additional regression using the absolute CAR as the dependent variable.

Table 9.8 displays the results of the regressions used to test the predictive capacity of surveillance sentiment on the absolute CARs, rather than the net CARs. In this specification, I use a pooled sample with reports produced by both the EU and IMF. I run

three separate regressions that test the sentiment scores over the entire sample period, along with a separate test for the pre and post-crisis period. The results are broadly in line with the findings of the previous empirical chapter. Specifically, negative sentiment is not a statistically significant predictor of the absolute CAR scores in any of the three specifications. Positive sentiment is also insignificant across each regression. Uncertain sentiment in surveillance reports is significant at the 5 per cent level, both in the overall sample, and from 2008 onwards. The coefficient on this variable is negative, indicating that increased uncertainty leads to lower market reactions to surveillance. The directional effect and significance increase from 2008 onwards. If the traditional interpretation of how markets interact with information is taken, then increased uncertainty should lead to stronger market reactions and downward pressure on bond prices. This finding, however, is counterintuitive, and requires further analysis in future research. One possible explanation is the lack of variance held by the uncertainty scores themselves. Otherwise, it is difficult to see how increased uncertainty reduces market reaction, while negative or positive sentiment remains insignificant. From the battery of macroeconomic control variables, several are significant predictors of market reactions during certain periods. A country's current account balance is important, with healthier balances associated with lower market reactions, particularly after 2008. Similarly, stronger economic growth is associated with lower market reactions. Inflation has the same effect on the absolute CAR scores. The significance of these variables indicates that market reactions to surveillance are dependent on the general economic climate in the particular country being surveyed. This is highlighted by the fact that the coefficient on all variables changes in direction or significance when the sample is split before and after 2008.

IMF Absolute CARs

I run the same regressions with a split sample of IMF events alone, yielding similar results. Both negative and positive sentiment remain insignificant predictors of market reactions to surveillance. The only variable that is significant at the 1 per cent level is uncertain

sentiment. Once again, the coefficient indicates that an increase in uncertain language in a surveillance report leads to lower unexpected abnormal returns on the yield of a country's debt, but only from 2008 onwards. Most of the macroeconomic control variables are insignificant predictors, with the exception of a healthier current account balance and higher levels of inflation, both of which are associated with lower absolute CARs, although neither are significant at the 1 per cent level.

The Impact of Sentiment on Absolute Returns by Credit Rating

Table 9.9.3 displays the results of the regression analysis run on IMF surveys of AAA rated economies, while Table 9.9.4 examines members with credit ratings lower than AAA. The results are broadly similar for both sets of members. Across most specifications, negative and positive sentiment in economic surveillance reports are insignificant predictors of absolute abnormal returns on sovereign debt yields. Negative sentiment is significant for countries with a credit rating lower than AAA, before the onset of the financial crisis in 2008. The coefficient here indicates that increases in negative sentiment are associated with lower absolute CARs. However, when I include the Vix index as an additional control variable for robustness, negative sentiment loses significance. Once again, uncertainty remains significant at the 5 per cent level, but only from 2008 onwards. The macroeconomic control variables are largely insignificant with the exception of some at the 5 per cent level. The most interesting finding from these tests is the relative insignificance of the variables included in the model. These results indicate that the sentiment in IMF surveillance reports does not predict the extent to which markets move after surveys are released. When complemented with the descriptive statistics, there are indications that an alternative factor may drive market reactions to surveillance, this should be one focus of future researchers. There are slight differences in the extent to which the macroeconomic control variables relate to the absolute CARs across levels of creditworthiness. Several controls are

significant at the 5 per cent level for AAA rated economies, while only lagged inflation is significant at the same level for members with lower ratings. This finding is broadly in line with Mosley's (2003b) argument that advanced economies (and presumably those with more stable economies) are assessed by the performance of a few key macroeconomic variables, while the political environment in emerging markets is more important. The significance of uncertainty across both sets of economies, and exclusively from 2008 onwards in the case of AAA rated economies, is a particularly interesting finding. As noted, the counterintuitive coefficient makes interpreting this result somewhat difficult, especially when considering the other measures of sentiment are consistently insignificant. This may point to a behavioural interpretation, given the extent of the deterioration in economic growth and performance in the global economy from 2008 onwards.

The Impact of Sentiment on Absolute Returns for the PIIGS Economies

I analyse the predictive capacity of sentiment scores on absolute market returns for the PIIGS economies separately, with the same time delineations. In order to maximise the number of observations, I once more pool the IMF and EU observations. The results of these findings (located in Table 9.9.2), show that measures of sentiment in surveillance texts are mostly insignificant. Uncertain language again proves a predictor of unexpected market reactions to surveillance releases. The coefficient again shows that lower market reactions are associated with higher levels of uncertain language. For these members, the extent of its predictive power, and the strength of the relationship between the variables is stronger than demonstrated in the other specifications. For the PIIGS economies, positive sentiment is a significant predictor of market reaction to surveillance, but only at the 10 per cent level. The strength of this relationship is far stronger from 2008 onwards, but the probability of this occurring by chance is greater. The coefficient for this variable shows that higher levels of positive sentiment are associated with stronger market reactions to surveillance. Some of the macroeconomic controls are significant, notably the current account balance of a country, which is a highly significant predictor of stronger market reactions to surveillance.

This becomes insignificant from 2008 onwards however. When compared to the results of the original regressions for the PIIGS economies, where the net CAR scores served as the dependent variable, there are some notable differences. Firstly, the only variable to demonstrate significance in the previous specification was uncertain language in surveillance reports, which was a highly significant predictor of unexpectedly negative reactions in sovereign debt markets. This was only significant prior to 2008 however. None of the other variables demonstrated significance at even the 10 per cent level. A broader range of variables are associated with absolute reactions to surveillance, at varying levels of significance. These include positive sentiment, and some of the macroeconomic variables, such as the current account balance.

9.6 Changes in Sentiment and Market Reactions

I employ an additional test of the predictive capacity held by economic surveillance content. Each regression thus far has tested the sentiment along three dimensions; negative, positive, and uncertain language. In this section, I test the capacity of the change in each of these dimensions since the last report was released to predict abnormal reactions in sovereign debt markets. The key independent variables in this section are therefore the yearly changes in the frequency of negative, positive, and uncertain language in IMF and EU surveillance reports. The logic here behind this inclusion is straightforward. The efficient markets hypothesis states that investors price expected information into asset prices. Therefore, the possibility that markets predict the content of surveillance reports should be addressed. While there are strong reasons to suggest that surveillance should always contain new information of some kind, this section attempts to capture the possibility that markets do not operate according to such a paradigm. I use the change in sentiment as an attempt to account for this bias.

In the pooled sample of IMF and EU reports, changes in certain dimensions of sentiment are significant predictors of the absolute CARs. Similarly to the previous tests, uncertain language in a surveillance report is again associated with lower total abnormal returns on debt yields. This relationship is strong from 2008 onwards, but still falls below

significance at the 1 per cent level, before 2008 the variable is insignificant. The finding indicates that an increase in uncertain language from one report to another can lead to lower absolute unexpected reactions in debt markets. This too is somewhat unclear from a causal viewpoint. Larger absolute reactions in the wake of a surveillance release that contained greater levels of uncertainty than the previous year would be an expected reaction. Smaller reactions with increased uncertainty could too be expected if the alternative sentiment measures demonstrated significance. For example, market participants might consider greater uncertainty a relative positive if the year had been particularly challenging economically. This interpretation lies in the realms of efficient market territory, with polarised language may be priced in. A further exploration of this possibility should also be the focus of future research on the topic. Lagged inflation is also a highly significant predictor, with higher levels of inflation associated with lower abnormal market reactions. A higher current account balance is also associated with lower absolute market returns, although it is insignificant at the 1 per cent level. Higher levels of economic growth are strongly associated with lower abnormal returns overall, although the substantive significance of this relationship is low.

Changes in Sentiment and Market Reactions by Institution

Table 9.3 contains the results of the same regression specification, but for IMF surveillance only. The results are highly similar to those of the entire sample. The minor differences of interest in the data show that yearly changes in uncertain language are less predictive of absolute market returns for IMF members alone, although the coefficient runs close, and in the same direction. The significance of the macroeconomic variables remains broadly the same, with some decrease in their predictive capacities overall. Uncertain language is once more a statistically significant predictor of absolute market reactions from 2008 onwards, but only at the 5 per cent level. Yearly changes in the levels of negative or positive language do not predict absolute market reactions for the IMF sample.

When the same regression is run with the EU sample alone, the results (located in Table 9.4) are quite different. Firstly, the primary independent variables of interest for this research are all insignificant predictors of absolute market reactions to EU surveillance releases. In contrast to the other results thus far, uncertain language in an EU survey does not appear to relate to unexpected market reactions, although its significance level is stronger than changes in negative or positive language. Another difference for EU members is that the general economic climate at the time of the surveillance release does not appear to interact with absolute market reactions. Stronger GDP growth is associated with lower absolute returns overall, but it is insignificant at the 1 per cent level. When compared to the regression results of the original EU CARs, there is far less variation explained by these variables on the absolute CARs. The r-squared values and the predictive capacity of this model are far lower overall than for the aggregate CARs examined in the previous chapter. The extent of the variation explained by this model is also similar for both IMF and EU samples.

These findings are particularly interesting because of their lack of significance. Almost all measures of sentiment in surveillance reports are insignificant across both institutions and over the timeline in this analysis. Furthermore, this finding is robust to two measures of market reaction, the aggregate CAR, where directional effects of market movements are taken into account, and the absolute CAR, where the DV is the total weight of the reaction on yields. The only independent variable of interest to demonstrate any kind of consistency in its significance is the frequency of uncertain language in a surveillance report. In this case, there is a relationship between increased uncertainty and lower market reactions to surveillance. There is no support for the hypotheses that increased levels of negative or positive sentiment in surveillance reports produced by either the EU or IMF results in greater levels of unexpected reactions in sovereign debt markets. Most of the macroeconomic control variables are also insignificant at the 1 per cent level, although more are significant at the 5 per cent level.

9.7 Conclusion

This chapter has tested an alternative measure of the impact that economic surveillance has on sovereign debt markets. To do this, I have employed a variation of the primary dependent variable in this study, the cumulative abnormal return on the yield of a country's 10-year bond. Rather than capture the directional effect of surveillance on a country's yield, the absolute CAR represents the total impact that surveillance has on the asset over two days. This measure is particularly useful for testing generalised impacts, where directional effects might be inconclusive. Specifically, I use this measure for an additional test of the hypothesis that market reactions to surveillance should be greater for emerging market economies.

The summary statistics of the absolute CAR scores indicate that there is support for this hypothesis, as market reactions are on average, greater for emerging markets. There is also stronger support for group pricing, as market reactions to economies with lower credit ratings was far more pronounced than AAA rated members, or even those labelled simply as emerging. There is further evidence that financial market reactions to surveillance are also influenced by the general economic climate at the time of release. In this sense, the onset of the global financial crisis in 2008 led to greater reactions overall in sovereign debt markets when economic surveys were published. This pattern was particularly strong for emerging market economies. Of particular interest is that prior to the crisis, economic surveillance of AAA rated economies generated stronger absolute abnormal returns than surveillance of countries rated less creditworthy. From 2008 onwards however, emerging market assets came under greater pressure from markets, with absolute returns increasing over 50 per cent, to around 12 basis points on average. This is in stark contrast with AAA rated members, who were only subjected to marginal increases in the absolute reactions from financial markets from 2008 onwards. These findings complement those in the previous chapters of this study and point to considerable disparities in both the content and impact of surveillance between emerging and advanced economies. The alternative

measure of market reaction leaves considerable scope for future researchers to explore the relationship between volatility and surveillance. Specifically, there is support for H2, H3, H5, and H5a.

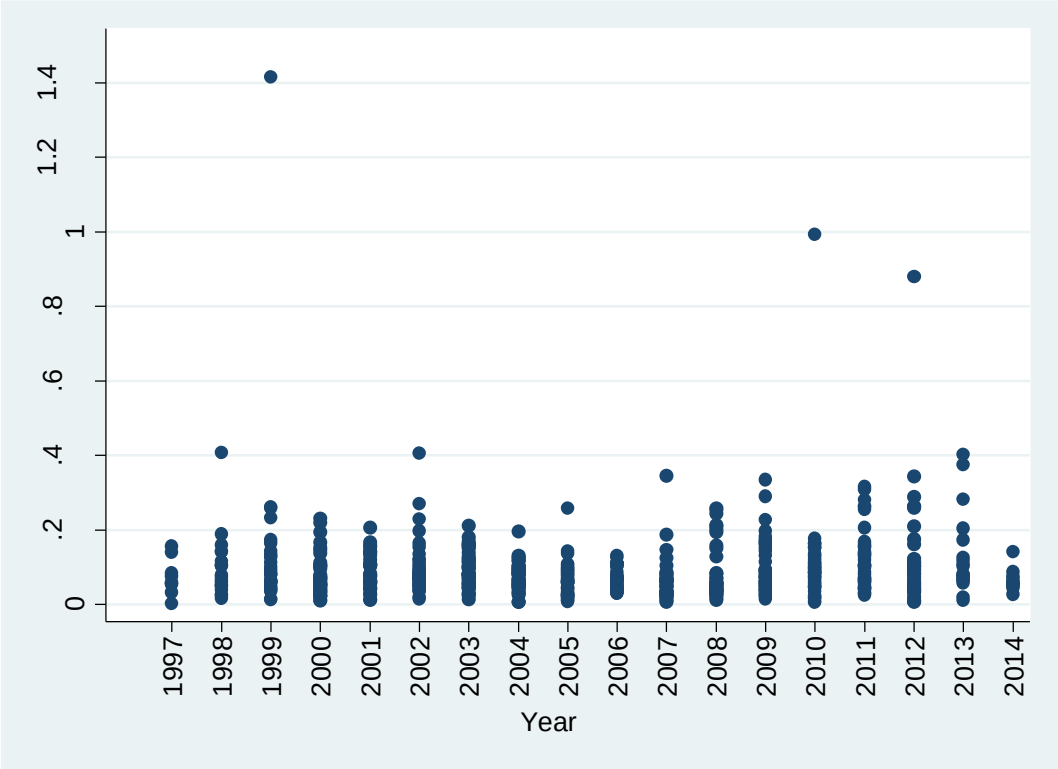
The absolute impact of surveillance varies considerably according to the producer. The summary statistics once more demonstrate that financial market reactions are far greater for EU surveys compared to those released by the IMF. This finding is consistent for both measures of market reaction, and the pre and post-crisis periods. Additionally, the average absolute reaction shifts dramatically from 2008 onwards for EU surveys. This finding demonstrates that market participants react conclusively to surveillance in terms distinguishing between information providers. Interestingly, the greater levels of negative sentiment in IMF surveillance remain somewhat insignificant for market participants. The absolute CAR is highly appropriate for examining an alternative way in which such sentiment levels could have impacted on markets. Rather than reacting to IMF surveillance with broader absolute movements and lower directional effects as might have been expected with greater levels of sentiment, markets respond with greater force overall and in a directional sense, to EU surveys. This pattern, while appearing to be stronger after 2008, remains constant throughout this study. Overall, this underscores the fact that surveillance appears to be interpreted very differently by markets depending on the institution that produces it, a key finding for policy makers.

A further aim of this chapter has been to test the ability of economic surveillance content to explain variation in financial market reactions. I have done this through the use of OLS regressions with a number of different specifications. In one model, I test the predictive capacity of negative, positive, and uncertain sentiment on the absolute market reaction to surveillance, rather than the directional CARs used previously. Additionally, I test for the possibility that market reactions to surveillance are a function of yearly changes in the content of a report. These two tests are run on a pooled sample of both EU and IMF surveys, and also separately for each institution's surveys, and with split samples by category. The primary finding from such tests is that the sentiment of an economic

surveillance report matters little to financial market participants. While markets do respond to economic surveillance releases, the determinants of such responses remain unclear. This finding is consistent across a range of specifications. Mostly, sentiment fails to demonstrate statistical significance at the 1 per cent regardless of the time period in which the report was released, or the organisation that has produced it. The only measure of sentiment that demonstrates any level of significance in these tests is the level of uncertain language contained in a report. Interestingly, the coefficient on this variable universally indicates that higher levels of uncertain language in a surveillance report are associated with lower absolute market reactions. This finding goes against conventional interpretations of financial market activity, where uncertainty is seen as having a negative, or distorting influence on asset prices (Avery and Zemsky, 1998). Given the repeated significance of this variable, future research might seek to explore it further. One way in which this could be more closely scrutinised is with the use of daily trading volume data. This would help to illuminate the relationship between economic surveillance, uncertainty, and market movements. Other variables in the regression analysis that demonstrated significance were just a few of the macroeconomic controls, most of which were insignificant across the same specifications.

In terms of the hypotheses generated in this research, the inclusion of variations of the independent and dependent variables has generally echoed the findings of the previous empirical chapters. There is strong evidence that the impact of surveillance varies according to market development and creditworthiness. There is very little evidence to suggest that the sentiment scores used in this study explain variation in market reactions to surveillance. These results should be of considerable interest to a range of stakeholders. The following, and concluding chapter, places these findings in the context of this research project overall, where I also offer some implications for policy makers and for future research.

Figure 9.1 Scatter Plot of Absolute CARs (IMF and EU Surveillance)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Year

Figure 9.2 Scatter Plot of Absolute CARs (IMF Surveillance)

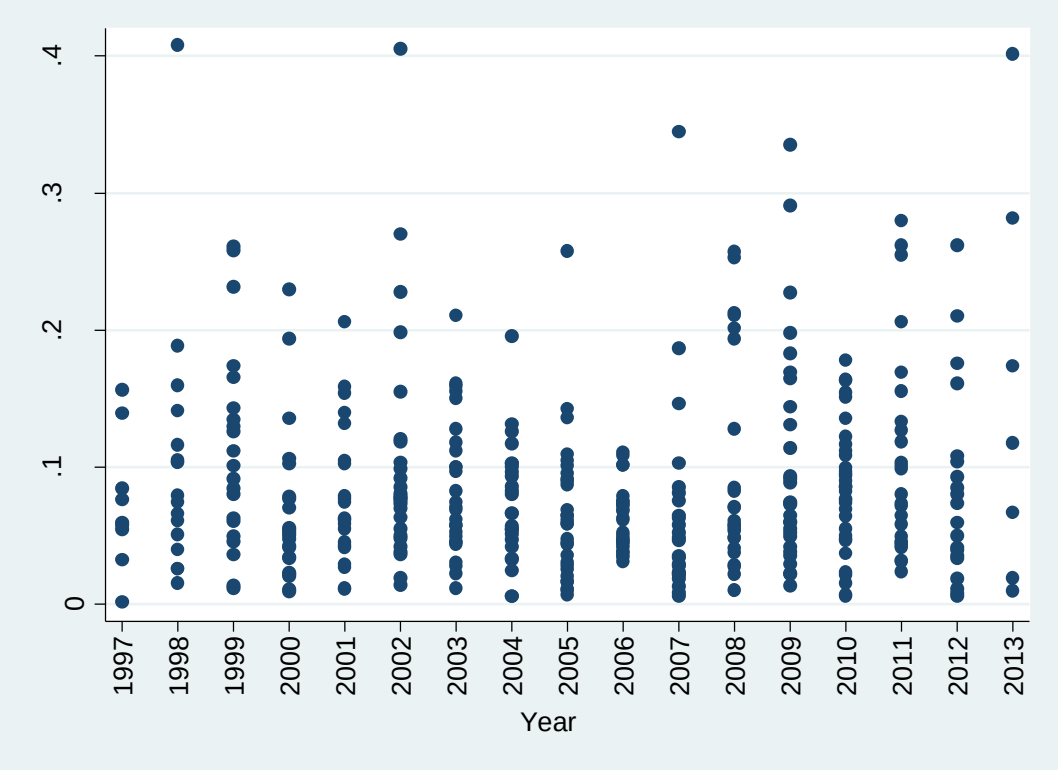

Figure 9.3 Scatter Plot of Absolute CARs (EU Surveillance)

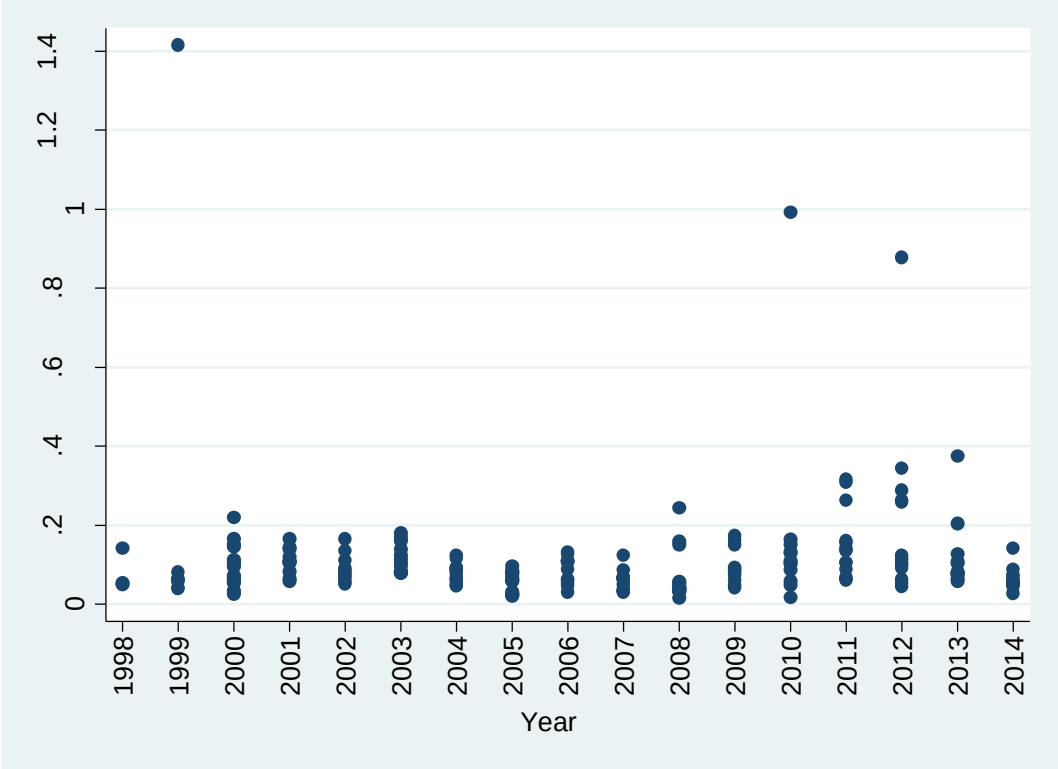

Figure 9.4 Absolute CARs (IMF and EU Surveillance)

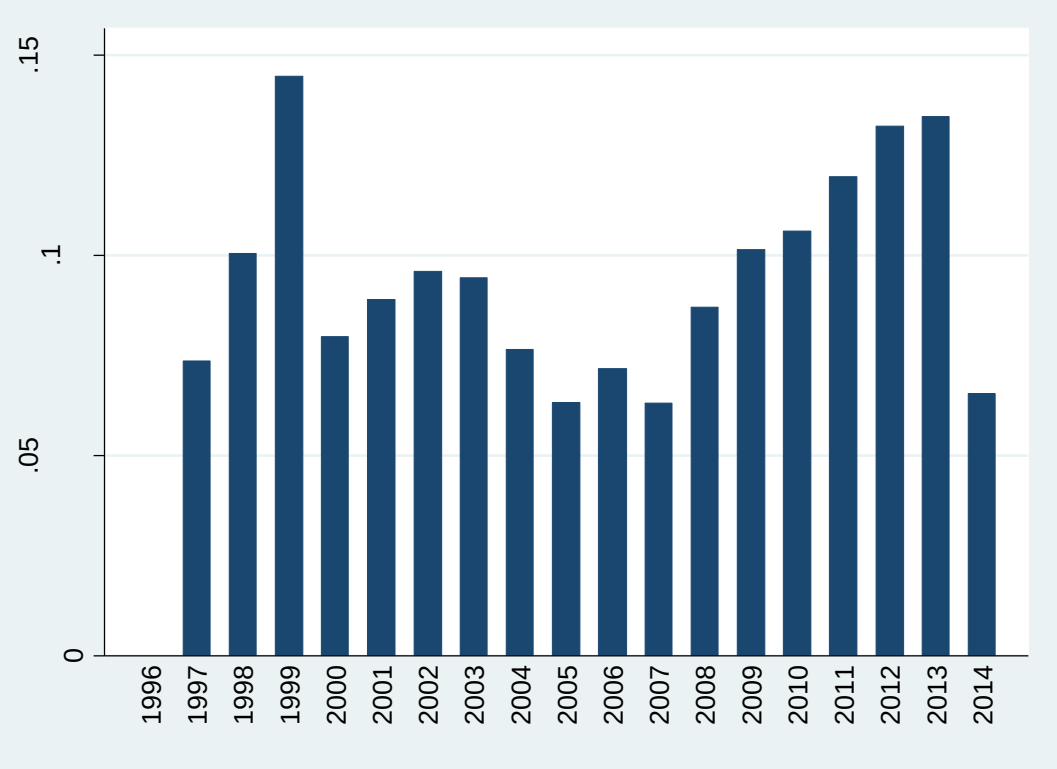

Figure 9.5 Absolute CARs (IMF Surveillance)

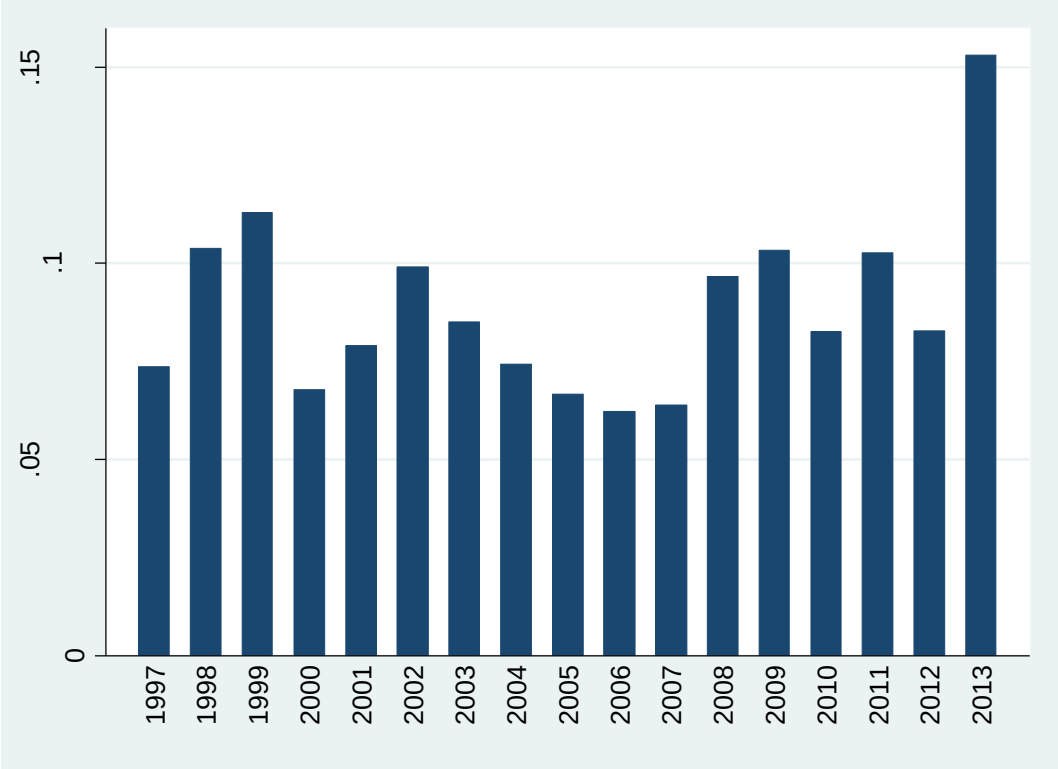

Figure 9.6 Absolute CARs (EU Surveillance)

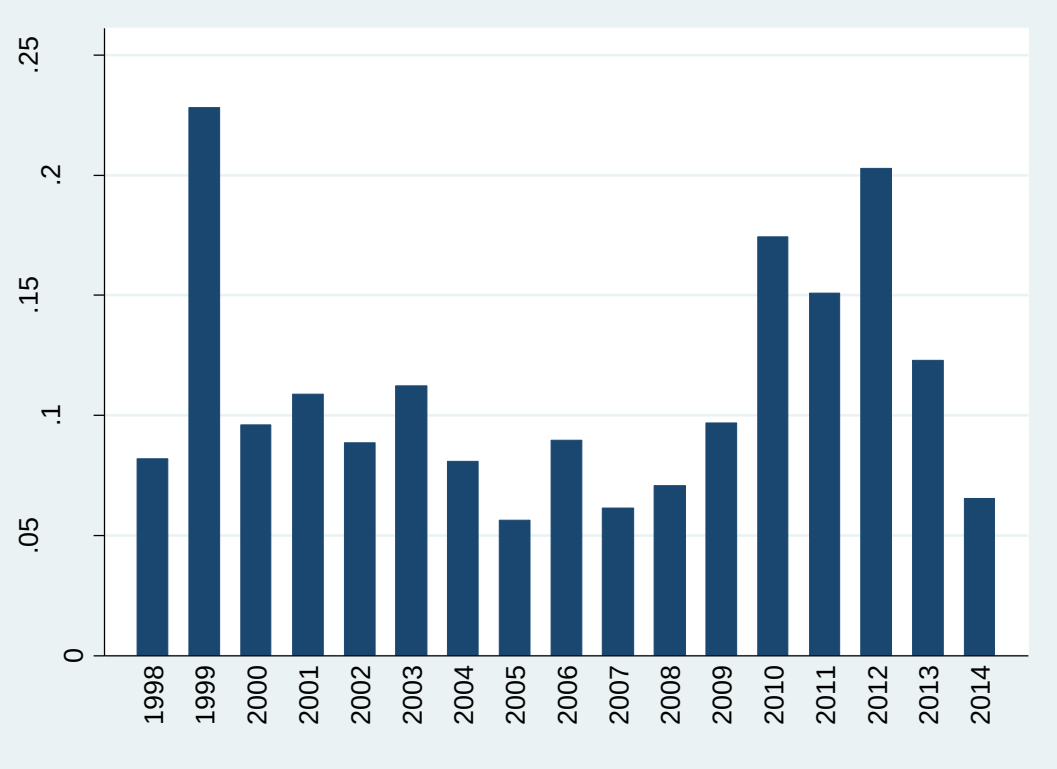

Figure 9.7 Squared Residuals versus Predicted CARs (IMF and EU Surveillance)

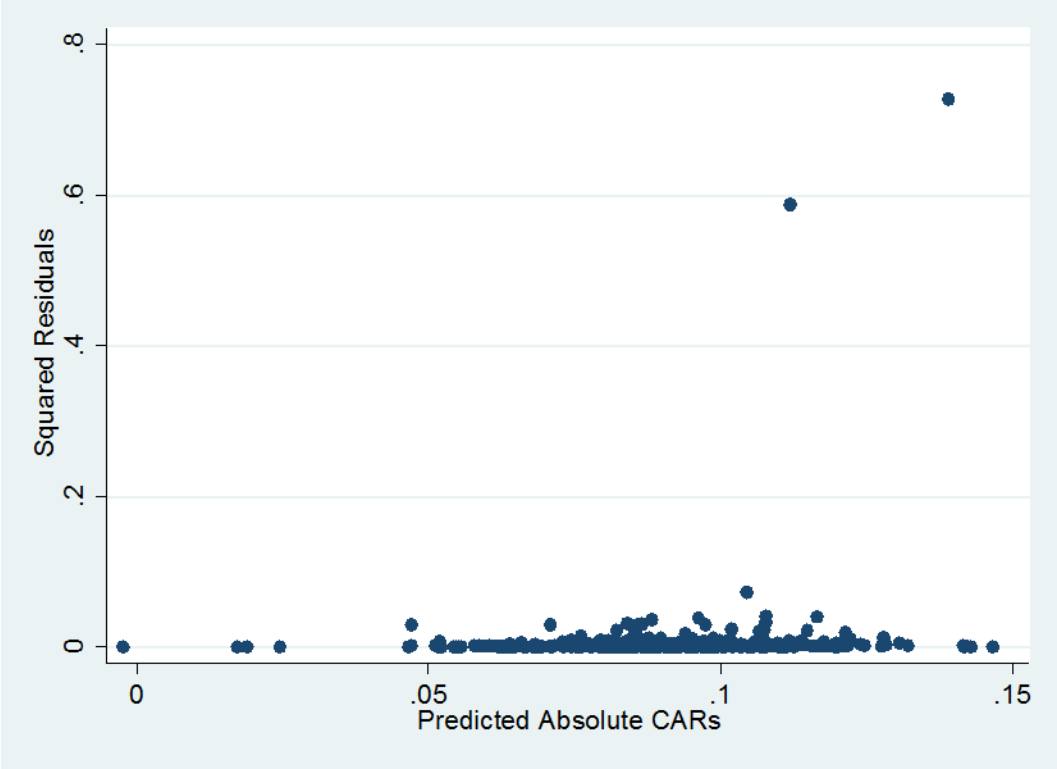

Figure 9.8 Residuals Versus Fitted Values (IMF and EU Surveillance)

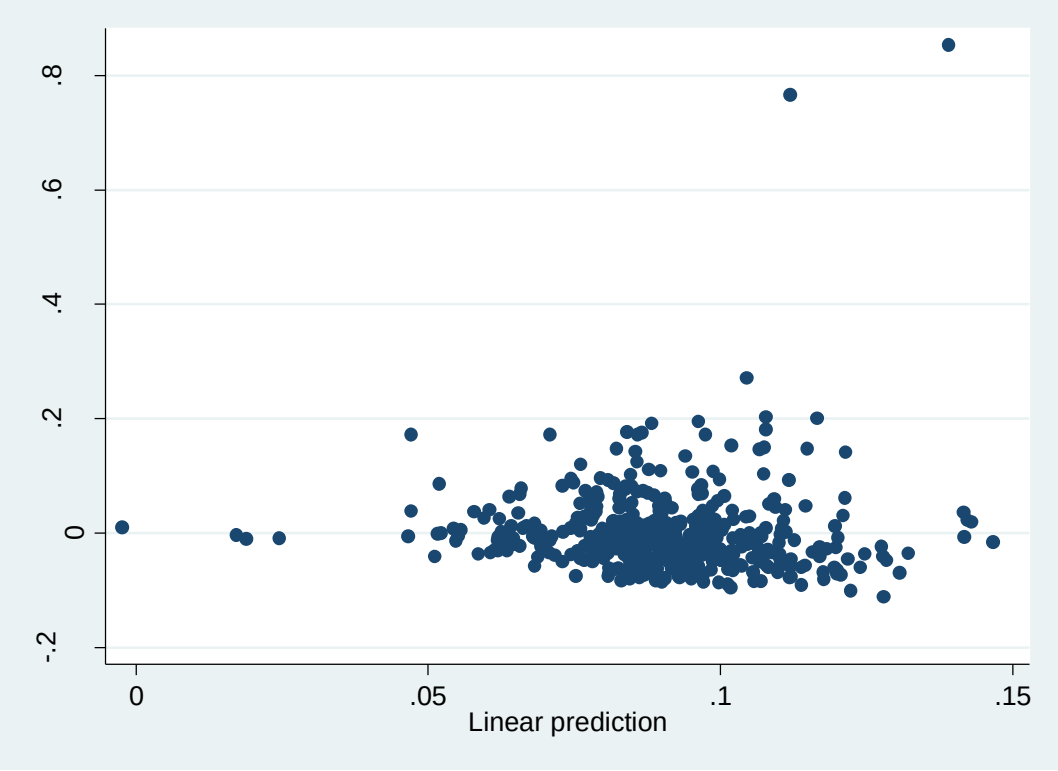

Figure 9.9 Residuals versus Fitted Values (IMF Surveillance)

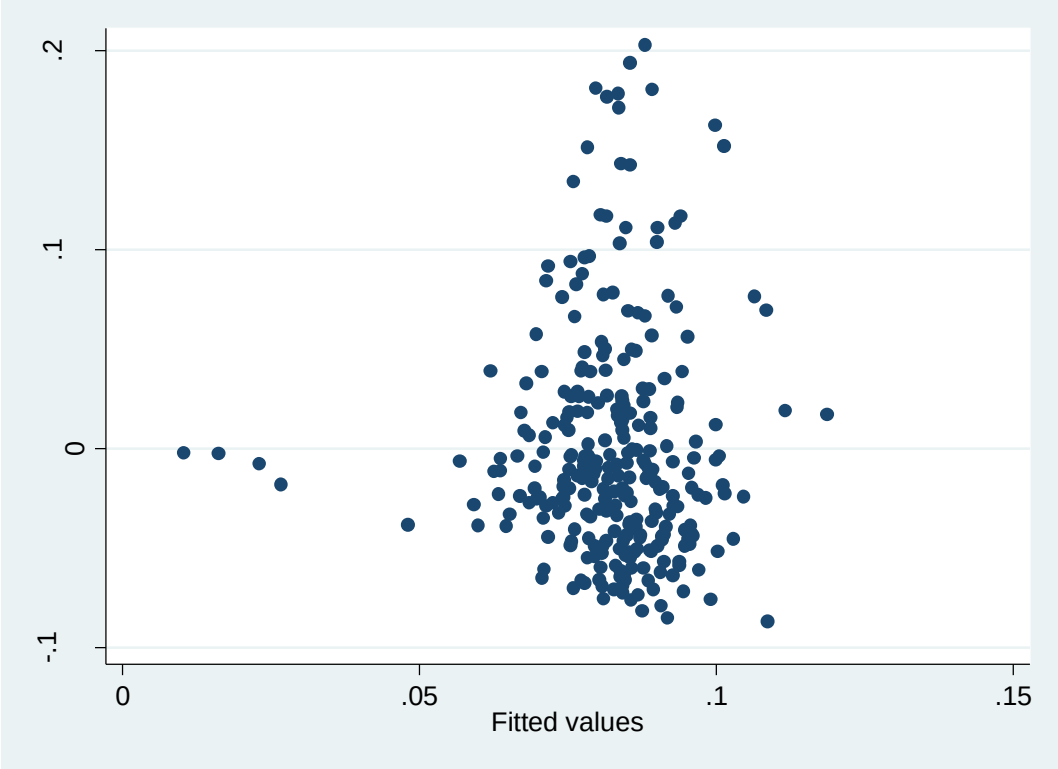

Figure 9.9.1 Residuals versus Fitted Values (EU Surveillance)

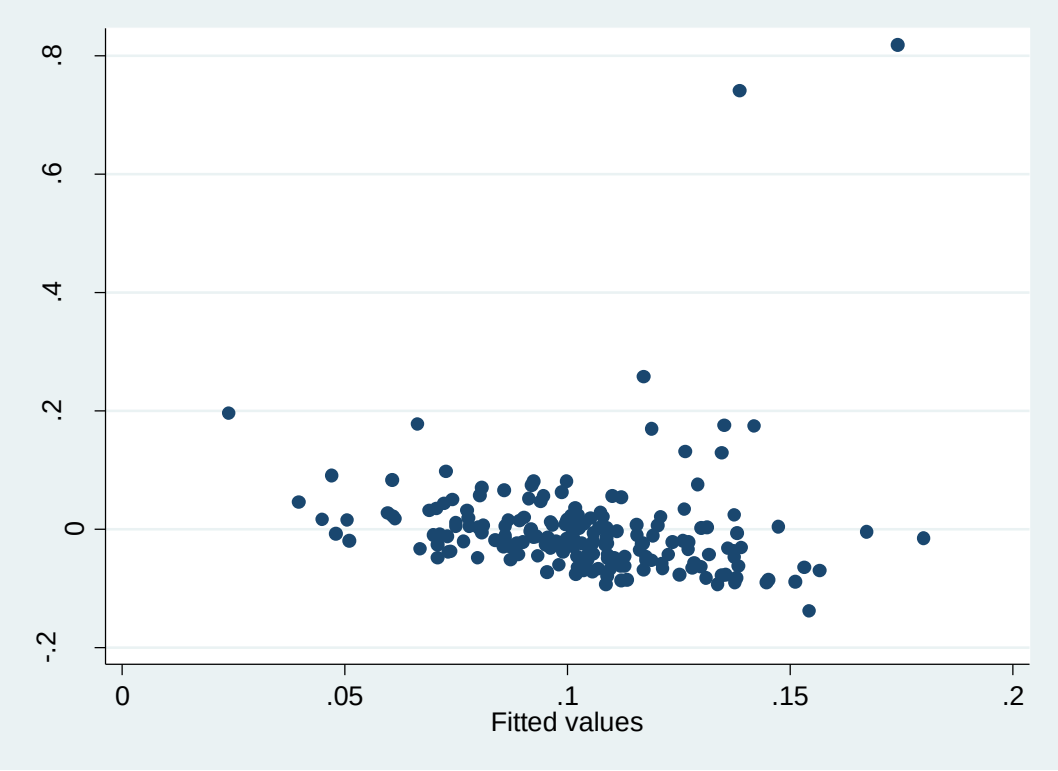

Figure 9.9.2 Residuals versus Fitted Values (AAA Rated)

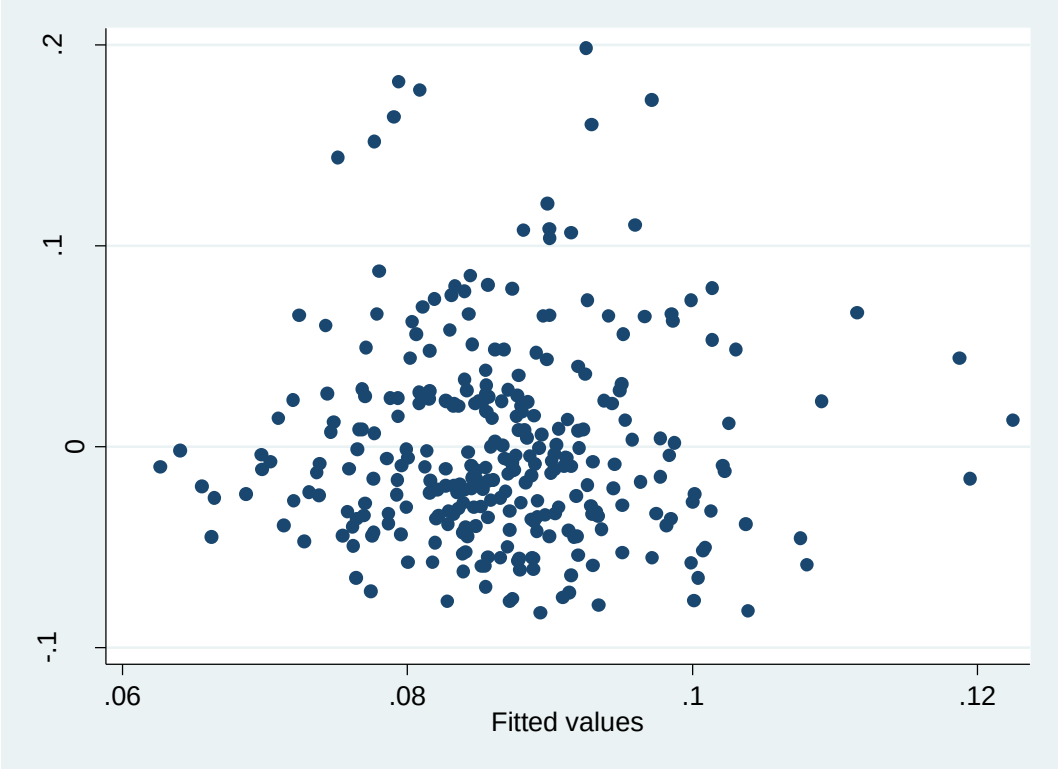

Figure 9.9.3 Residuals versus Fitted Values (<AAA Rated)

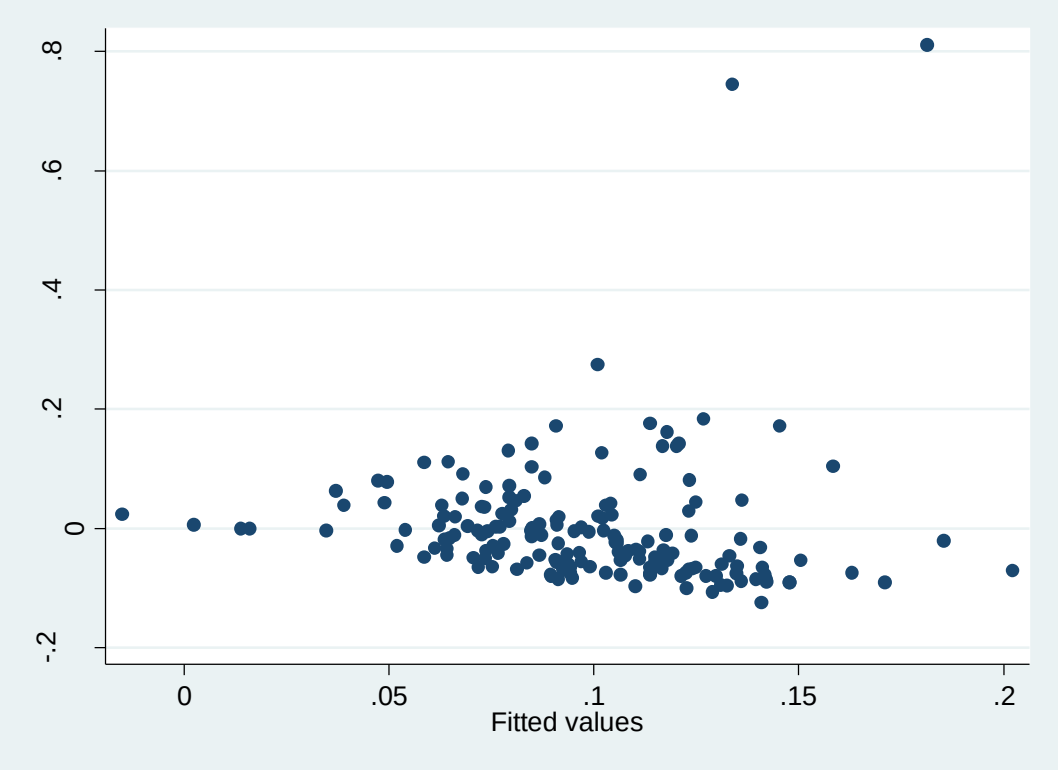

Figure 9.9.4 Residuals versus Fitted Values (PIIGS)

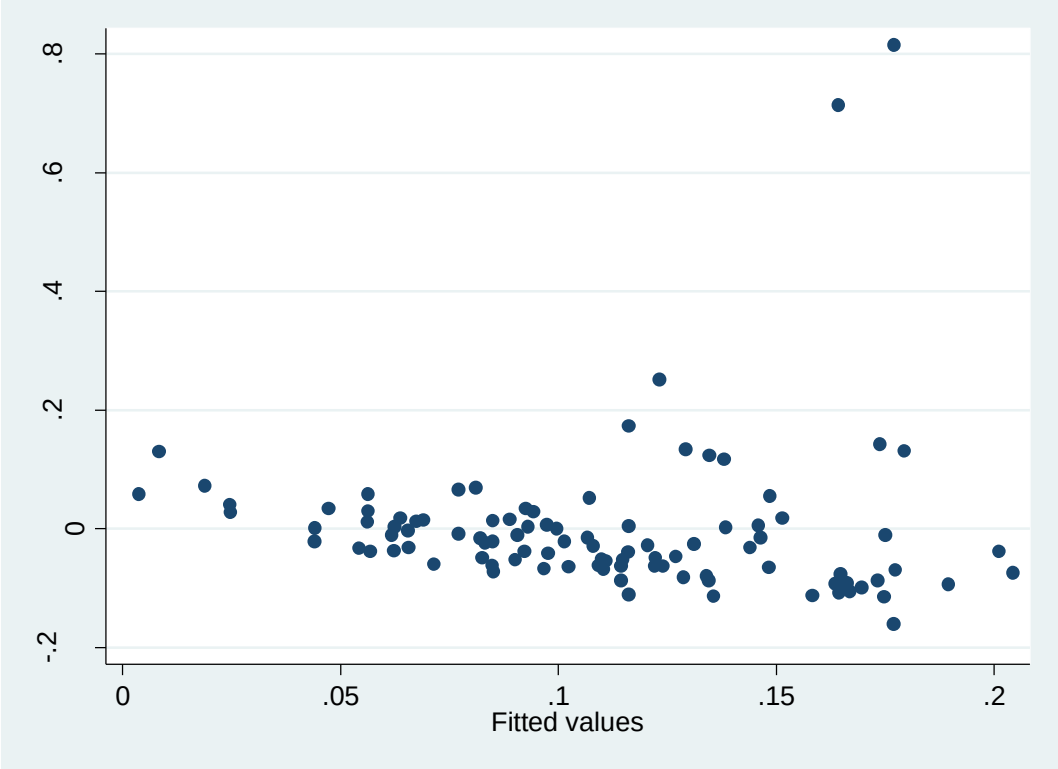

Table 9.1 Results of Breusch-Pagan Test (IMF and EU Surveillance)

VARIABLES	(1) Squared Residuals Absolute CAR
Δ Negative	-0.000317
	(0.00287)
Δ Positive	-0.397
	(0.304)
Δ Uncertain	-0.602
	(0.385)
Lagged Growth	-0.00106
	(0.000759)
Lagged Inflation	0.000115
	(0.000217)
Lagged Debt/GDP	0.0000222
	(0.0000540)
Lagged CA/GDP	-0.000877**
	(0.000400)
Constant	0.00802**
	(0.00351)
Observations	470
R-squared	0.027

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9.2 Determinants of Absolute CARs (IMF and EU Surveillance)

VARIABLES	(1) Full Sample Abs. CAR	(2) <2008 Abs. CAR	(3) ≥2008 Abs. CAR
Δ Negative	-0.000556	-0.0596	0.000153
	(0.00104)	(0.203)	(0.00187)
Δ Positive	-0.472	-0.568	0.106
	(0.587)	(0.449)	(1.059)
Δ Uncertain	-1.358*	0.610	-3.041**
	(0.711)	(0.529)	(1.205)
CA / GDP	-0.00202**	-0.000200	-0.00345*
	(0.000994)	(0.000581)	(0.00187)
Debt / GDP	-0.0000115	-0.0000939	0.000194
	(0.0000765)	(0.0000685)	(0.000159)
Inflation	-0.000223	-0.000629***	-0.0000795
	(0.000218)	(0.000214)	(0.000404)
GDP Growth	-0.00397***	-0.00101	-0.00282
	(0.00134)	(0.00149)	(0.00172)
Constant	0.102***	0.0877***	0.103***
	(0.00608)	(0.00669)	(0.00691)
Observations	472	288	184
R-squared	0.050	0.021	0.090

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9.3 Determinants of Absolute CARs (IMF Surveillance)

	(1)	(2)	(3)
	Full Sample	<2008	≥2008
VARIABLES	Abs. CAR	Abs. CAR	Abs. CAR
Δ Negative	-0.000950	-0.152	0.000117
	(0.000943)	(0.271)	(0.00146)
Δ Positive	-0.359	-0.555	0.260
	(0.481)	(0.562)	(0.799)
Δ Uncertain	-0.702	0.979	-2.355**
	(0.655)	(0.747)	(0.945)
CA / GDP	-0.00145**	-0.000631	-0.00164
	(0.000597)	(0.000724)	(0.00100)
Debt / GDP	-0.000113	-0.0000972	-0.000101
	(0.0000790)	(0.0000858)	(0.000169)
Inflation	-0.000284	-0.000568***	-0.000403
	(0.000180)	(0.000214)	(0.000296)
GDP Growth	-0.00222*	-0.00167	-0.000531
	(0.00126)	(0.00189)	(0.00197)
Constant	0.0944***	0.0861***	0.103***
	(0.00566)	(0.00899)	(0.00877)
Observations	285	186	99
R-squared	0.044	0.027	0.111

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9.4 Determinants of Absolute CARs (EU Surveillance)

VARIABLES	(1) Full Sample Abs. CAR	(2) <2008 Abs. CAR	(3) ≥2008 Abs. CAR
Δ Negative	0.212	0.0111	0.287
	(0.451)	(0.273)	(1.032)
Δ Positive	-0.361	-0.0525	-0.769
	(1.902)	(0.728)	(4.315)
Δ Uncertain	-2.342	-0.00579	-5.485
	(1.658)	(0.719)	(3.872)
CA / GDP	-0.00316	0.00165	-0.00624
	(0.00294)	(0.00107)	(0.00463)
Debt / GDP	0.0000908	-0.000108	0.000305
	(0.000156)	(0.000108)	(0.000260)
Inflation	-0.00398	0.00717	-0.0102
	(0.00955)	(0.00509)	(0.0188)
GDP Growth	-0.00466**	-0.000475	-0.00461
	(0.00205)	(0.00184)	(0.00396)
Constant	0.118***	0.0768***	0.127***
	(0.0264)	(0.0114)	(0.0457)
Observations	187	102	85
R-squared	0.062	0.058	0.117

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9.5 Determinants of Absolute CARs (PIIGS)

VARIABLES	(1) Full Sample Abs. CAR	(2) <2008 Abs. CAR	(3) ≥2008 Abs. CAR
Δ Negative	0.147	0.333	-0.128
	(0.636)	(0.312)	(1.896)
Δ Positive	-0.338	-0.602	-0.255
	(1.910)	(0.854)	(4.299)
Δ Uncertain	-5.869**	-0.986	-16.11
	(2.854)	(0.755)	(10.56)
CA / GDP	-0.000773	0.00245**	0.00187
	(0.00451)	(0.00116)	(0.00989)
Debt / GDP	0.0000895	-0.0000576	0.000621
	(0.000267)	(0.000143)	(0.000868)
Inflation	-0.00330	0.0103*	-0.00940
	(0.0133)	(0.00524)	(0.0384)
GDP Growth	-0.00812**	-0.00127	-0.00317
	(0.00312)	(0.00137)	(0.0115)
Constant	0.129***	0.0583***	0.143**
	(0.0383)	(0.0213)	(0.0673)
Observations	99	64	35
R-squared	0.106	0.150	0.105

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9.6 Determinants of Absolute CARs (AAA Rated)

VARIABLES	(1) Full Sample Abs. CAR	(2) <2008 Abs. CAR	(3) ≥2008 Abs. CAR
Δ Negative	0.0740	0.0628	-0.00917
	(0.194)	(0.236)	(0.307)
Δ Positive	-0.213	-0.940*	0.992
	(0.446)	(0.510)	(0.796)
Δ Uncertain	-0.148	0.697	-1.085
	(0.501)	(0.690)	(0.666)
CA / GDP	-0.000781	-0.000864	-0.000765
	(0.000690)	(0.000841)	(0.00124)
Debt / GDP	-0.0000298	-0.0000620	-0.000000212
	(0.0000694)	(0.0000911)	(0.000105)
Inflation	0.00256	0.00230	0.00426
	(0.00310)	(0.00411)	(0.00515)
GDP Growth	-0.00294***	-0.00280	-0.00306*
	(0.00105)	(0.00201)	(0.00171)
Constant	0.0903***	0.0908***	0.0867***
	(0.00748)	(0.0107)	(0.0133)
Observations	301	193	108
R-squared	0.030	0.036	0.076

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9.7 Determinants of Absolute CARs (<AAA Rated)

	(1)	(2)	(3)
	Full Sample	<2008	≥2008
VARIABLES	Abs. CAR	Abs. CAR	Abs. CAR
Δ Negative	0.00000106	-0.654*	0.00132
	(0.00196)	(0.366)	(0.00339)
Δ Positive	-0.890	0.0964	-1.168
	(1.361)	(0.841)	(2.152)
Δ Uncertain	-4.238*	0.674	-8.624*
	(2.170)	(0.836)	(4.377)
CA / GDP	-0.00329	0.000951	-0.00341
	(0.00224)	(0.000770)	(0.00407)
Debt / GDP	-0.00000625	-0.0000614	0.000286
	(0.000170)	(0.000120)	(0.000389)
Inflation	0.0000163	-0.000847***	-0.000298
	(0.000504)	(0.000264)	(0.00101)
GDP Growth	-0.00512*	0.00225	-0.00252
	(0.00288)	(0.00215)	(0.00369)
Constant	0.107***	0.0724***	0.112***
	(0.0145)	(0.0110)	(0.0270)
Observations	169	94	75
R-squared	0.082	0.077	0.125

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9.8 Determinants of Absolute CARs (IMF and EU Surveillance)

VARIABLES	(1) Full Sample Abs. CAR	(2) <2008 Abs. CAR	(3) ≥2008 Abs. CAR
Negative	-0.114	-0.222	-0.165
	(0.212)	(0.163)	(0.416)
Positive	-0.817	-0.527	0.0114
	(0.541)	(0.442)	(1.158)
Uncertain	-2.035***	-0.0323	-3.731**
	(0.761)	(0.668)	(1.457)
CA / GDP	-0.00223**	-0.000215	-0.00388*
	(0.000988)	(0.000572)	(0.00206)
Debt / GDP	-0.0000224	-0.0000747	0.000111
	(0.0000710)	(0.0000693)	(0.000148)
Inflation	-0.000132	-0.000497*	-0.0000108
	(0.000236)	(0.000260)	(0.000437)
GDP Growth	-0.00369***	-0.000703	-0.00273
	(0.00133)	(0.00142)	(0.00173)
Constant	0.150***	0.114***	0.160***
	(0.0238)	(0.0160)	(0.0406)
Observations	470	287	183
R-squared	0.060	0.025	0.103

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9.9 Determinants of Absolute CARs (IMF Surveillance)

VARIABLES	(1) Full Sample Abs. CAR	(2) <2008 Abs. CAR	(3) ≥2008 Abs. CAR
Negative	0.389	-0.0622	0.483
	(0.276)	(0.302)	(0.494)
Positive	-0.411	-0.686	0.283
	(0.552)	(0.643)	(1.099)
Uncertain	-1.044	0.920	-4.548***
	(0.752)	(1.040)	(1.320)
CA / GDP	-0.00131**	-0.000571	-0.000749
	(0.000565)	(0.000704)	(0.000901)
Debt / GDP	-0.000103	-0.0000721	-0.000137
	(0.0000793)	(0.0000936)	(0.000173)
Inflation	-0.000221	-0.000405	-0.000453*
	(0.000180)	(0.000272)	(0.000266)
GDP Growth	-0.00156	-0.00132	-0.000721
	(0.00127)	(0.00182)	(0.00192)
Constant	0.0803***	0.0972***	0.109
	(0.0304)	(0.0334)	(0.0685)
Observations	283	185	98
R-squared	0.056	0.026	0.170

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9.9.1 Determinants of Absolute CARs (EU Surveillance)

VARIABLES	(1) Full Sample Abs. CAR	(2) <2008 Abs. CAR	(3) ≥2008 Abs. CAR
Negative	-0.0477	-0.184	-0.850
	(0.866)	(0.278)	(2.555)
Positive	0.843	0.807	0.616
	(1.108)	(0.903)	(2.187)
Uncertain	-2.931**	-1.449*	-3.558
	(1.255)	(0.867)	(2.288)
CA / GDP	-0.00371	0.00142	-0.00781
	(0.00274)	(0.00103)	(0.00472)
Debt / GDP	-0.0000350	-0.000193	0.000175
	(0.000162)	(0.000120)	(0.000317)
Inflation	-0.00296	0.00814	-0.00543
	(0.00745)	(0.00496)	(0.0118)
GDP Growth	-0.00479**	-0.00181	-0.00456
	(0.00239)	(0.00203)	(0.00532)
Constant	0.141**	0.0953***	0.203
	(0.0562)	(0.0268)	(0.164)
Observations	187	102	85
R-squared	0.076	0.124	0.117

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9.9.2 Determinants of Absolute CARs (PIIGS)

VARIABLES	(1) Full Sample Abs. CAR	(2) <2008 Abs. CAR	(3) ≥2008 Abs. CAR
Negative	-0.996	-0.424	-2.774
	(0.887)	(0.266)	(1.908)
Positive	-3.580	-1.285*	-1.443
	(2.171)	(0.726)	(5.983)
Uncertain	-6.989**	-0.817	-17.63*
	(2.992)	(1.021)	(9.420)
CA / GDP	-0.00246	0.00296***	-0.0133
	(0.00441)	(0.00104)	(0.00957)
Debt / GDP	0.000111	0.0000612	0.0000476
	(0.000271)	(0.000148)	(0.000778)
Inflation	-0.00571	0.00939*	-0.0128
	(0.0112)	(0.00497)	(0.0285)
GDP Growth	-0.00633**	-0.00110	-0.00517
	(0.00279)	(0.00134)	(0.00948)
Constant	0.342***	0.122***	0.511**
	(0.112)	(0.0334)	(0.246)
Observations	99	64	35
R-squared	0.155	0.238	0.183

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9.9.3 Determinants of Absolute CARs (AAA Rated)

VARIABLES	(1) Full Sample Abs. CAR	(2) <2008 Abs. CAR	(3) ≥2008 Abs. CAR
Negative	0.362	0.286	-0.265
	(0.334)	(0.454)	(0.668)
Positive	-0.430	-1.043	1.397
	(0.696)	(0.779)	(2.005)
Uncertain	-1.439	-0.256	-4.938**
	(0.926)	(1.485)	(1.980)
CA / GDP	-0.00140	-0.00171*	-0.000670
	(0.000940)	(0.000940)	(0.00206)
Debt / GDP	-0.0000347	-0.000592	-0.000321
	(0.000111)	(0.000133)	(0.000296)
Inflation	0.00133	-0.000930	0.00601
	(0.00452)	(0.00559)	(0.00936)
GDP Growth	-0.00366**	-0.00286	-0.00608**
	(0.00162)	(0.00266)	(0.00295)
Constant	0.0914**	0.101**	0.159
	(0.0378)	(0.0465)	(0.121)
Observations	160	115	45
R-squared	0.062	0.044	0.234

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9.9.4 Determinants of Absolute CARs (<AAA Rated)

VARIABLES	(1) Full Sample Abs. CAR	(2) <2008 Abs. CAR	(3) ≥2008 Abs. CAR
Negative	-0.533	-0.641***	-0.984
	(0.487)	(0.219)	(0.857)
Positive	-2.215*	0.327	-2.916
	(1.316)	(0.903)	(2.716)
Uncertain	-4.640**	1.854	-9.237**
	(2.115)	(1.197)	(4.189)
CA / GDP	-0.00370*	0.00149*	-0.00545
	(0.00212)	(0.000750)	(0.00400)
Debt / GDP	0.00000229	-0.0000891	0.000148
	(0.000156)	(0.000111)	(0.000335)
Inflation	0.000198	-0.00105***	0.000208
	(0.000545)	(0.000307)	(0.00102)
GDP Growth	-0.00478*	0.00215	-0.000912
	(0.00261)	(0.00187)	(0.00336)
Constant	0.242***	0.100***	0.353**
	(0.0703)	(0.0266)	(0.134)
Observations	169	94	75
R-squared	0.108	0.120	0.186

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9.9.5 Absolute CARs (IMF and EU Surveillance)

Category	Mean	Standard Deviation	Minimum	Maximum	N
Eurozone	.0998603	.1200771	.0014257	1.415185	287
Emerging	.104181	.0906753	.005627	.4079346	115
Advanced	.0923497	.0992383	.0014257	1.415185	481
PIIGS	.1235288	.1809769	.0059272	1.415185	113
Fitch:1	.0890669	.0881005	.0014257	1.415185	335
Fitch:2	.0842373	.0958974	.0059272	.9921325	131
Fitch:3	.11265	.1252083	.0086161	.8786165	66
Fitch:4	.121362	.1011678	.005627	.4079346	40
≥2008	.1094233	.1089584	.005627	.9921325	227
<2008	.0855338	.0889888	.0014257	1.415185	369
CARs	.0946326	.0976829	.0014257	1.415185	596

Table 9.9.6 Absolute CARs (IMF Surveillance)

Category	Mean	Standard Deviation	Minimum	Maximum	N
Eurozone	.0787469	.0513831	.0014257	.2611002	127
Emerging	.104181	.0906753	.005627	.4079346	115
Advanced	.0794887	.0542349	.0014257	.2910092	274
PIIGS	.0757741	.0524834	.0059272	.2551252	45
Fitch:1	.0833548	.0556577	.0014257	.2910092	184
Fitch:2	.0737665	.0546027	.0059272	.3353494	90
Fitch:3	.0839747	.0619793	.0086161	.257998	55
Fitch:4	.1154011	.0991784	.005627	.4079346	37
≥2008	.0978329	.0757057	.005627	.4014935	139
<2008	.0806478	.0624917	.0014257	.4079346	250
CARs	.0867885	.0679164	.0014257	.4079346	389

Table 9.9.7 Absolute CARs (EU Surveillance)

Category	Mean	Standard Deviation	Minimum	Maximum	N
Eurozone	.1166191	.1523294	.0156336	1.415185	160
EU	.0847077	.0448106	.0305191	.2430741	47
PIIGS	.1551312	.2244915	.016276	1.415185	68
W/Out PIIGS	.0869885	.040847	.0156336	.2430741	139
≥2008	.0957983	.1276678	.0203291	1.415185	119
<2008	.1277308	.1455849	.0156336	.9921325	88
CARs	.1093735	.1361545	.0156336	1.415185	207

10. Conclusions

One of the central research questions in this thesis has been to evaluate the influence of economic surveillance by the EU, IMF, and OECD. I focus on one measure of influence in this study; how financial markets react when economic surveys are released. Specifically, I examine how sovereign debt markets across advanced and emerging economies behave in the two days after a surveillance report is released. This question has received little attention from scholars with the exception of a few studies. To my knowledge, my study represents the first of its size and scope to explore this research question. Secondly, this study examines the extent to which the content of economic surveillance reports is associated with abnormal market reactions to their release. Similarly, there are few studies that use content analysis to code large samples of EU and IMF surveillance reports. As a result of these factors, this study offers several findings that represent important progress in our collective understanding of the role played by IOs in the global economy.

Many studies of surveillance by IOs have come in response to the 2008 global financial crisis. These studies have been concerned with the overall efficacy of the function. Previously, scholars saw surveillance from the perspective of consensus building and policy convergence. I build on these studies by offering a new theory and evidence of how surveillance is interpreted by public stakeholders. This theory is outlined in Chapter 4 of this dissertation. I argue that economic surveillance by IOs represents a political judgement of reform in a member's economy. In turn, economic surveillance should be of particular interest to market participants on the basis that this is genuinely new information. This is made possible by the unique ability of IOs to both collect, and disseminate this information credibly (Koremenos; Lipson; Snidal; 2001). An overview of the surveillance function, which I provide in chapter 2, underscores the fact that the production of surveillance by IOs is an exercise which is highly specialised. The level of access afforded by member governments to the staff of IOs, coupled with their own expertise, means surveillance is one of the most important ways in which economic growth and financial stability can be fostered (IMF, 2017b). Furthermore, the input of representatives of the most powerful economic actors in

the international arena provides surveillance with a unique political component. Chapter 3 reviewed the relevant literature on the economic surveillance function of IOs. This demonstrated primarily that there is a considerable theoretical and empirical gap in the ways in which economic surveillance has been explored by scholars. The topic is relatively understudied in comparison to other functions of IOs, such as the lending and conditionality arrangements of the IMF.

Chapter 5 details the methodological approach to testing my research questions and corresponding hypotheses outlined in chapter 4. I use a traditional event study method that subtracts the predicted yield on 10-year sovereign debt from the actual daily yield for each bond, I use this to calculate the directional and absolute effects of surveillance on the price a government pays to borrow. Secondly, to code surveillance reports, I use a quantitative content analysis process that counts the number of keywords in a text and produces a corresponding score. Both of these processes are more robust than the ways in which scholars have attempted to explore the impact of surveillance on markets prior to this.

Chapters 6 to 9 contain the results of the empirical tests employed in this research. In Chapter 6, I outline the comprehensive set of descriptive statistics generated of the abnormal returns for each surveillance report released by the EU, IMF, and OECD. These results demonstrate that economic surveillance has a profound influence on the investment decisions of market participants operating in sovereign debt markets. One of the most significant findings in this regard is that there is huge variance in market reactions across countries, asset classes, and according to the organisation that has produced the surveillance reports. Chapter 7 examined the content of surveillance reports, and detailed the results of a quantitative content analysis procedure to code each surveillance report by the EU and IMF. These results complemented the findings of the previous chapter on market reactions. Specifically, there is significant variation in the levels of negative, positive, and uncertain sentiment contained in economic surveillance reports by each institution. Furthermore, there is even greater variation across organisations in the extent to which criticism is levelled at members. Interestingly however, the descriptive statistics generated

from the content analysis do not co-vary with the CAR scores in chapter 6. I return to this in subsequent sections of this conclusion. In chapter 8, I tested the relationship between the sentiment scores and abnormal market reactions to economic surveillance. These results indicate that while markets often react very strongly to economic surveillance releases, the sentiment of a report matters little in general. Chapter 9 detailed the results of the absolute CAR scores for surveillance reports. Similarly to the results of the aggregate CARs, the absolute abnormal market reactions to surveillance were particularly pronounced for emerging markets, PIIGS members, and during the global financial crisis.

In this conclusion, I provide a summary of the key findings from each of the empirical chapters. I also group the aggregate and absolute CAR chapters together to avoid repetition. Within each of these sections, I offer some suggestions for both policy makers and future scholars seeking to explore the relationship between economic surveillance and financial markets.

10.1 How Costly is Surveillance for Governments?

Event studies are designed to assess the impact of a particular event on asset prices. This study demonstrates that economic surveillance can greatly influence the price a government pays to borrow on international capital markets. The CAR scores also tested some of the hypotheses generated in my theoretical framework. In relation to the first hypotheses I have generated, there is limited evidence that economic surveillance reduces uncertainty in financial markets. However, there are some caveats to this. The findings in this study demonstrate that economic surveillance is highly important to financial market participants. In this sense, it contains information that moves asset prices, or drives liquidity. It appears therefore that to write surveillance off as a force for uncertainty reduction would be naïve. The evidence here gives support to the idea that rather than individual reports reducing the costs of borrowing, surveillance operations might rather reduce costs universally. IMF surveillance does on average result in unexpected drops in yields on sovereign debt, but only minimally. EU and OECD surveys result in unexpected

rises. These findings indicate that the aggregate result of surveillance is unexpected increases in yields, but that individual cases vary greatly. Turning to ways in which future research might explore the extent to which surveillance reduces uncertainty, a number of options are available. In the same vein as Edwards (2012) and Glennerster and Shin (2008) the declassification of surveillance does lend itself as an ideal opportunity to measure its impact in an environment that represents a natural experiment. Examining interest rates over a time line of sufficient length would help to answer this question. Scholars might also want to account for bias in the estimation of normal returns when considering uncertainty, where alternative benchmarks in the calculation of abnormal returns might account for 'flight to safety' effects or regional economic drivers. The use of spreads would be a potential way to capture this effect.

The CAR scores do lend support to another hypothesis, that market reactions should be greater for emerging markets. This finding is consistent for countries that have lower credit rating scores also. When considering the efficient markets hypothesis, this finding is intuitively strong, as emerging markets are typically more opaque than advanced industrial economies. Economic surveillance therefore can be conceptualised as genuinely new information to market participants. Both absolute and aggregate CARs were greater for emerging markets and debtors with lower credit ratings issued by Fitch. Future researchers might seek to explore this in a number of ways. Increasingly available data on emerging market sovereign debt will naturally benefit researchers that wish to use larger sample sizes, boosting the generalisability of any findings. Additionally, scholars might want to explore alternative forms of surveillance, obvious examples would be by other IOs such as the BIS, or other pieces of surveillance from the IOs in this study.

The CAR scores also show that market reactions to surveillance were greater from 2008 onwards, particularly so for PIIGS economies. This finding is interesting given the more pronounced role played by the EU and IMF during the global economic crisis. In the case of the IMF, it was largely underemployed in the period before the financial crisis (Rodrik, 2009). Some scholars have even labelled the institution as "weak and irrelevant" in this

period (Mackintosh, 2016: 58). While the institutions of the EU were prominent prior to the crisis, there were important shifts from 2008 onwards in the both the institutional makeup of the EU, and the activities of its institutions in the period. Notably, Hungary, Ireland, Portugal, Cyprus, Spain and Greece were all recapitalised by the EU. Furthermore, the crisis led to the introduction of the macroeconomic imbalance procedure in 2011. In this sense, it is difficult to accurately extract the key drivers of market reactions to economic surveillance by these organisations in this period. Future research should seek to unpack these competing and complementary dynamics. Smaller sample sizes with more sophisticated models and a greater selection of variables might help in this regard. This would account for the determinants of market reactions shifting over time. One example is the exchange rate of EU members prior to Eurozone accession. A more contemporary example might be indications of an ECB interest rate movement, which would also have varying effects on bond market reactions to surveillance. The finding is also consistent for surveillance produced by the OECD. One interpretation of this is simply that the increased uncertainty in the global economy led to greater scrutiny of economic surveillance and the policy environment in general, or that surveillance processes were able to reveal greater levels of new information regarding their members. An obvious way to expand upon this finding would be to explore potential spillover effects of economic surveillance in a regional or categorical context. Vector-auto regression models are commonly used in financial studies to explore phenomena such as this, and would be highly suitable in this regard (Corbet, 2014; Rigoban, 2016).

Both specifications of the CAR scores also show that market reactions to surveillance vary greatly according to the producer. IMF surveillance led to the lowest average, and overall reactions from market participants, with reactions to both EU and OECD surveys being far greater. This is consistent across all categories, groups, and time periods. This finding has strong implications for both policy makers and researchers alike. Scholars with an interest in this area should focus on exploring this variation in greater detail. Researchers might want to further evaluate this finding with respect to different areas of interest, where natural alternatives to the bond market might be stocks or currencies. Of primary interest

however, are the determinants of such variation. As noted, the greatest institutional difference between these IOs is that the EU integrates members more deeply in terms of binding legislation in different areas of policy making. The IMF can influence policy more directly when a member draws on its credit, although some now argue that surveillance has overtaken lending in this capacity (Kruger; Lavigne; McKay; 2016). While on the other hand, the OECD exerts only peer pressure on its members regarding reforms. From one perspective, such variation in constraint alone might explain market reactions to surveillance in the case of the EU and IMF. The political economy environment of the EU is also more interdependent, and there are strong feedback loops between political events, discourses, the integrity of the union, and financial markets (e.g., McMenamin, Breen, Munoz-Portillo, 2015). These factors too correlate with the stronger reactions to EU surveillance.

Market reactions to surveillance by the OECD however are interesting given that the organisation has no formal powers to sanction members that pursue policies running contrary to its advice. It might be the case that the OECDs mandate as more of a policy generator and promoter (Marcussen, 2004) rather than enforcer provides its surveillance operation with greater levels of credibility. Market reactions to OECD surveillance were on average, the strongest of the three organisations. However, from 2008 onwards, this ceased to be the case, with reactions becoming muted after 2008 in response to OECD surveys. Once more, the increasing exposure of the EU and IMF around this period may explain drops in reactions to OECD reports, which are also released less frequently than their counterparts.

Researchers exploring this topic in the future should attempt to explore the determinants of such market reactions to surveillance. One simple way in which this could be accomplished is by conducting semi-structured interviews with market participants. These interviews should be split according to asset classes and credit rating, as these criteria play key roles in determining who can invest in the debt in question. Furthermore, the determinants of market reactions to surveillance will be different depending on the type of

investor. Pension and mutual fund holders primarily seek stability from their assets (Goldman Sachs, 2017), while emerging market investors seek yield (Blackrock, 2017). Interviews such as these would ideally reveal the nuances that market participants look for in economic surveillance produced by each IO.

Policy makers should also be particularly interested in this finding. As described in this thesis, economic surveillance has undergone considerable change over the decades since the EU, IMF, and OECD were incepted. IMF surveillance in particular has been heavily criticised for its failings primarily since the Asian financial crisis. One of the main reasons for such criticism over the years since has been the lack of clarity contained in surveillance reports. With this in mind, it might seem logical that abnormal reactions to IMF surveillance are lower, while the EU and OECD surveys moved markets to a greater extent. Building on Moschella's (2011) study that indicates surveillance reforms operate with a time lag, there is an indication that surveillance by the IMF may be suffering from this effect. The large caveat here is that it is unclear whether greater market reactions mean more efficiency in surveillance, rather than markets are simply moved more by the surveys of the EU and OECD. However, if clarity in surveillance is something that is lacking in IMF surveys, it is relatively prevalent in the surveillance report of the other two IOs. Both the EU and OECD include assessments either directly in their surveillance reports as in the case of the OECD, or as part of the broader reporting on the MIP in the EU. The IMF however does not employ such a strategy. One way to reform the system, given this factor, coupled with the issue of clarity, may be to introduce a more quantitative assessment of IMF members. One possible blueprint for this could be the risk-based systems used by several domestic central banks to safeguard stability in their own economies. The Bank of England for example uses a set of standards and policies it expects firms based in the UK to meet (Bank of England, 2017), while the Federal Reserve Board in the US employs similar guidelines regarding liquidity and capital buffers for its financial institutions (Federal Reserve Board, 2017). Some Central Banks were also criticised for their failure to effectively regulate prior to the crisis too however (Clarke and Hardiman, 2012; Buiter, 2008). Yet in the case of the IMF, a risk-based framework that also takes account of the structural imbalances in the global economy more

generally might be considered by policymakers. For example, increased efforts to survey and detect threats in advanced economies could prove useful for more general safeguarding of the financial system, as economic crises usually emanate from financial centres (Reinhart and Rogoff, 2009). However, it must be noted that such an implication runs under the assumption that the resources available for IOs to monitor their members are finite. Furthermore, there are inevitable political economy problems that would arise in drafting such legislation at an IO.

10.2 What Do IOs Say About Their Members?

I use a quantitative content analysis procedure to code EU and IMF surveillance reports. The results of using this technique are interesting independently, and when viewed in light of the market reactions outlined in chapter 6. I code each report in the sample produced by the EU and IMF, using negative sentiment as the main measure of the sentiment in a report. Once more, these results demonstrate considerable variation in terms of the levels of negativity in economic surveillance reports produced by these IOs. In the case of the IMF, economic surveillance reports are more negative on average for emerging markets, PIIGS economies, and members with lower credit ratings in general. One finding of note in this regard is that while surveillance of emerging markets contains more negative language, the actual levels of negativity are only around 5 per cent greater on average. This has important implications for understanding the determinants of surveillance, an issue that has been relatively underexplored by researchers. Firstly, while the scores are relatively homogenous, this indicates rather than the IMF refrains from employing a 'one size fits all' approach to surveillance, as it has been criticised for using in its other operations (e.g. Stiglitz, 2002). Scholars might benefit from employing qualitative research in this regard by interviewing IMF officials that participate in the production of surveillance reports. Such a method of inquiry has greatly expanded our understanding of surveillance, particularly as work by Momani (2006; 2007) represents some of the earlier political science work on the topic. Building on these findings by employing a similar research design would help to illuminate

the ways in which the organisation analyses economies at varying levels of market development. Additionally, IMF PINs show the greatest movements from 2008 onwards, where they become around 15 per cent more negative on average, highlighting a potential area of interest for future scholars in this regard.

Economic surveillance by the EU holds less variance in terms of negative sentiment than the IMF equivalent. The average surveillance release by the EU is also far less negative than one produced by the IMF. IMF PINs were around 60 per cent more negative in general than the EUs surveys. PIIGS economies received more negative language in their surveillance releases than the average EU member, although the increases are even lower than in the IMF sample. The most pronounced difference in sentiment is for surveys released before and after 2008. The frequency of negative language in an average EU report rises by around 10 per cent. These results are somewhat counterintuitive given the findings regarding market reactions to surveillance, outlined in chapter 6. While IMF surveillance contains more negativity, market reactions to EU surveillance are far greater, and more negative in general. This indicates that compared to the EU, the IMF does not shield its members from criticism. The exploration of surveillance reports independently is one potential avenue for future researchers seeking to examine the political economy of IOs. One way in which such a research question could be attempted is by employing alternative measures of coding surveillance reports. I have offered a more comprehensive analysis of alternative methods for coding texts in the methodological chapter of this research. Yet the findings indicate that such techniques should be utilised in future studies. Additionally, researchers should seek to examine the extent to which differences in sentiment between IOs extend to other kinds of economic surveillance. OECD surveys were excluded from this analysis because of their incomparability with PINs and Council Recommendations. However, they would be ideal for comparison with IMF Article IV reports. Both documents are comprehensive in size and scope, an analysis of which would represent a significant undertaking.

The primary finding of this chapter is that as seen in the overview of market reactions, the content of surveillance varies far more across institutions that it does within

them. As the IMF PINs and EU Council Recommendations use a very similar language style, and follow a very similar structure, this points to fundamental differences in the ways in which these IOs survey their members. The surveillance chapter in this thesis complements this notion, where the EU requests policy intentions before commencing surveys, while the IMF requests less formal information. In this sense, market reactions to EU surveillance might be greater not only because of the ability of the union to sanction members, but also because of the fact that the structure of surveillance in the EU relates more closely to policy. These factors should also be explored in greater detail by researchers. This finding also underscores a possible need to reform the surveillance function of the IMF towards becoming a more metric-based exercise of assessment.

Additionally, the finding that the global financial crisis resulted in the production of increasingly negative surveillance reports should be further explored. This finding presents further question marks over the way in which surveillance reports are produced. There are logical reasons as to why surveillance by IOs became more negative following the crisis, yet more transparency regarding this is required. For example, it is unclear to what extent the IMF relies on the judgement of its members' central banks. Data collection and discussion of policy are crucial aspects of monitoring members and maintaining stability, but the scope for subjective judgement surrounding stability is unknown. One possible interpretation is that the failures of domestic central banks in regulating their economies revealed by the crisis led to more pessimistic assessments of members. In this sense, the IMF may have engaged in more critical surveillance as a way to boost its legitimacy following criticism. Alternatively, it may have been more sceptical of the reform processes being undertaken in members following the crisis. A good example of this is the recent negotiations between the EU, IMF, and Greek authorities surrounding a new credit extension to the government (Dendrinou; Chrysolaras; Buergin, 2017). Similarly, the financial crisis in the Eurozone demonstrated that the spillover effects in the region required closer monitoring from the institutions of the EU as a whole (European Commission, 2016). As a result of this, the surveillance operation in the region was empowered from 2010 onwards, which might indicate a revision in terms of how members were assessed. Yet similarly to IMF

surveillance, the upgraded surveillance operation as part of the European Semester still retains a high degree of subjective judgement in its framework (European Commission, 2016). A challenge for researchers therefore is to attempt to build a deeper understanding of how IOs survey their members during varying economic conditions more generally.

10.3 Do Markets Care About Sentiment?

To test the relationship between economic surveillance sentiment and abnormal market reactions, I employed a standard OLS regression using the sentiment scores and a range of macroeconomic control variables. I use this technique with a number of different specifications to robustly test the predictive capacity of sentiment scores on unexpected market reactions. Additionally, I use two measures of economic surveillance sentiment; one with the yearly figures of negative, positive, and uncertain language; the second with yearly changes in these scores for each report. Across almost all specifications, institutions, and using both measures of sentiment scores, the content of economic surveillance releases does not predict either the aggregate or absolute CARs generated in this study. In certain circumstances, uncertain language in a surveillance report is associated with lower abnormal reactions in sovereign debt markets. This finding is counterintuitive, and the significance of the variable itself fails to reach conventional levels. More generally, the results of the regression analysis indicate that the sentiment scores I have used do not predict market reactions to surveillance. As this research represents one of the first large, quantitative studies that attempts to understand the relationship between economic surveillance and financial market reactions across different IOs, there are numerous opportunities available to researchers going forward. An ideal way to subject the predictive capacity of surveillance to further scrutiny would be by employing alternative methods of coding surveillance releases. Researchers specifically interested in examining my theory that conceptualises surveillance as an indication of and judgement on policy reform could benefit from hand coding in this regard. Scholars that wish to utilise larger samples could opt for machine learning techniques, or simply extend this project using different financial

dictionaries. More fundamentally however, the extent and magnitude of the scores generated by the CARs demonstrate that markets value economic surveillance, only that the sentiment scores do not capture this value.

Several of the macroeconomic control variables incorporated in my model demonstrate varying levels of statistical significance in terms of their relationship with abnormal reactions. Some of the coefficients on these variables are logical, such as economic growth and more positive reactions to surveillance. Others are less intuitive, like higher inflation and more positive reactions to surveillance. The inclusion of these variables is largely intended to control for biases on the part of investors. Crucially, they are probably largely incorporated into the CAR scores anyway, given their relatively low levels of significance. For example, the literature on bond yields indicates they play a far stronger role in general (Poghosyan, 2014). Future research would benefit from decomposing surveillance reports to produce new measures of the content within. This could be accomplished in a similar vein to Fratzscher and Reynaud (2011), where they seek to explore political economy variables. Scholars focussing on the content of surveillance could code and incorporate variables that measure the extent to which the surveillance report supports or disagrees with the member governments being surveyed. Additionally, researchers could focus on the political judgement in the EU and IMF assessments. For example, simple coding of the extent to which the executive directors at the IMF agree on the assessment and policy path of a member could explain market reactions to surveillance. The IMF itself has even provided a guide for understanding the relationship between consensus and the language it uses in summing up its reports (IMF, 2013). Future studies could easily benefit from analysing market reactions with this addition. Of particular interest would be the relationship between the level of consensus within the executive board on particular economic issues or within certain areas. Researchers should consider these interactions too. Lastly, as a central feature of economic surveillance is policy reform, future studies should seek to quantitatively explore the impact of surveillance on government policies.

10.4 Strengthening Economic Surveillance

The effort of the OECD to include information that benchmarks the reform performance of its members is a significant addition to its surveillance operation. These metrics boost the transparency of the operation and depoliticise the assessments. IMF surveillance is particularly lacking in this regard. While the longer, Article IV staff reports cover many of the areas that OECD surveys do, there are fewer recommendations, benchmarks or comparisons between countries, save for general regional averages of certain indicators. There are also no metrics provided to quantify the policy environment in the country. While EU Council Recommendations do include information on the MIP targets, they too lack information on structural policy or the structural environment in the country. In this sense, OECD surveys from 2011 onwards focus on both the macroeconomic and structural environment, along with the performance of a member on *each* of these fronts. The GFG programme represents a strong template for surveillance benchmarking. The targets are not enforceable, but provide clear markers for members to strive for. Furthermore, consistent violation of the MIP by many European member states has somewhat eroded credibility in the enforcement mechanism.

One of the problems for both the IMF and EU in terms of their surveillance operation is the volume of output in addition to the quality. Both organisations produce a vast quantity of information about their members. The EU for example, publishes its surveillance releases in the Official Journal of the European Union, which also details other developments, and is then stored digitally in the EUR-LEX database. This online resource contains vast swathes of content relating to several areas of EU policy making. Users can access content without paying, but the internal search engine of the site is far more complex and less user-friendly than the IMF version for example. One simple way to reform this and increase the exposure of EU surveillance is to create a specific database containing surveillance or country economic correspondence separately to other content. The IMF does this well, by including a quick sort option at the top of each country's page. Each member of the IMF has an individual web page, where all information on the country is

stored. The page lists all publications of relevance to the country, or even where the country is briefly mentioned, along with information regarding its loan agreements or any other information of note. This is an excellent resource, but potentially includes too much information in one space. The sorting of articles appears to follow a word-matching process, where regional studies that mention several countries are placed in each member's homepages. This is useful, but means there are many articles stored on one country's page, some of which are of limited relevance. However, as the centrepiece of promoting reform and maintaining stability, surveillance reports are highlighted by a separate link on the left of each homepage. This too is useful, but not perfect. The surveillance operation of the IMF concludes with the publication of several documents, rather than just one staff report. These other documents, PINs especially, are located in separate sections of each country's page. All information is stored chronologically in a list, and clicking the shortcut brings the user to the desired content. In short, this means that a person browsing the website will probably only read a PIN if they had intended to do so in the first place. Additionally, much of the content relating to the surveillance operation is released at different times. For example, often the PIN, Article IV staff report, and concluding notice of one survey are all released on the same day. On other occasions, they are staggered over a month. This process reduces the potential impact of economic surveillance in general, compounded by the fact that only certain documents are released via press notifications.

A possible remedy to the problem of multiple releases over multiple days would be to introduce a timeline similar to that of the European Semester, where surveillance releases followed strict timetables. Alternatively, the separation of surveillance into staff and director assessments could be scrapped altogether, where a consensus-based formula like that of the OECD could be introduced. However, the directors' assessment can still represent a valuable piece of new information regarding policy harmonisation. The eventual PIN report of the surveillance operation is still an ideal format for dissemination purposes however. The content on the other hand needs reform. One way in which this could be accomplished is to remove the background information on the economy in question, which is effectively common knowledge for anyone working in the financial services sector.

Contextual information is important in respect of the efforts made to reform by the member, but it contributes little in such a short document. An alternative way in which the document could be modified would be for the sections to remain the same, but that the focus is placed on communicating clear guidance on certain issues. A simple table or bullet points would suffice in this regard. This would then highlight and give equal weight to the views and recommendations of both the staff and the executive directors. One valuable introduction could be a table regarding reform in the same vein as the OECD survey table. This could be simplified to strip out the scoring and best performer if deemed necessary, although both are valuable.

EU surveillance could also benefit from some reform in terms of the content in a Council recommendation. The macroeconomic targets that are so central to the MIP mean that EU members have quantifiable goals to strive for in terms of the debt and deficit levels. However, the added public pressure that comes from inclusion and acknowledgement of these targets in the Council recommendations should be minimal. While debt and deficit levels are crucial indicators of the health of an economy, they are, like IMF background information, pieces of common knowledge. As noted, these limits are often breached without consequence. The impact of the surveillance release could be boosted by providing an insight into the policy environment in the member state. EU surveys do emphasise policy, but not across all sectors of the economy in the way that OECD surveillance does, nor do they provide the same level of detail. For example, the report might note that reforms are needed, but they do not provide clear guidance on what the government should do. Other times, a report notes that reform is needed, and details the plan in place by the member, but does not provide an alternative or best practice. One assumes that much of this discussion takes place between the relevant authorities before the report is released, yet the public pressure aspect of surveillance would benefit greatly from further detail in this regard. However, future researchers that are seeking to explore a research question such as the one in this study should consider utilising the country reports issued at the onset of the European semester timeline. These reports are far closer to the Article IV

staff reports of the IMF and OECD Country Surveys, containing a broad scope of information on economic and policy developments in the country.

Much of the focus on reforming economic surveillance in the wake of the global financial crisis has been on the production of surveillance itself. Policy makers at IOs have therefore been concerned with the practical aspects of surveillance, primarily with a view to strengthening the scope and invasiveness of surveying their members. There has been little emphasis on the final product of surveillance reports and the ideal format that this should take. As a result, stakeholders in the private sector of financial services, and the public in general, are relatively uninformed as to how surveillance is actually produced. This section has outlined some of the strengths and weaknesses in the dissemination processes of IOs. I do not enter the debate on surveillance production itself between stakeholders, because of time constraints and the focus of my research. Indeed, reform of this aspect of surveillance would take considerable time and would be the product of much negotiation between members. Yet as I am concerned with financial market reactions to surveillance, I outline several relatively easy changes that IOs could make to the product of surveillance itself. To summarise, the surveillance operation of each IO appears to hold certain characteristics that have strong grounds for shared usage. For example, OECD surveys are the clearest in terms of policy advice, assessment of reform in members, and continuity across the surveillance exercises. Their surveys are relatively easy to access, but the database could be improved upon by simplifying the interface. A shortened document might be beneficial too, given the length of each survey. IMF PINs are structured in an easily digestible manner, where the staff and executive directors' assessments are clearly separate. This format makes for easy dissemination. The storage of reports in an accessible list format is also a strength. The content could be overhauled however. More critical information like policy prescriptions, assessments of government efforts to reform, and details of best practices would be hugely beneficial. This is in line with the 'shadow conditionality' approach discussed in previous years (Kenen, 1987). Additionally, acknowledgement of previous reforms contained in surveillance reports would boost transparency. The release of documents relating to the surveillance exercise should also be more coherent. EU Council

Recommendations follow a concise format, and contain clearer policy advice than the IMF PINs. The production format of self-assessment also adds to more regularised content across reports. The scheduling is also an arguable strength. Council Recommendations should contain more information on policy developments however. If a country is facing macroeconomic distress, information on its debt and deficit is likely to be well known. Of more interest would be if or how the government in question intends to restore these to sustainable levels. Once more, Council Recommendations can learn from the OECD surveys in this sense. Lastly, the EUR-LEX is a valuable resource considering the vast number of documents produced by the various bodies of the EU, but it should consider storing economic surveillance elsewhere.

10.5 Economic Surveillance as Information

As discussed at the beginning of this thesis, the current period is one in which the global economy faces considerable uncertainty. The rapid growth seen across the globe in the decade before the global financial crisis in 2008 appears to have dissipated. Some researchers argue that the 'new norm' will be characterised by negligible growth in advanced economies, while emerging markets suffer from the 'catch up' effect (Cubeddu et al. 2014). This vision of secular stagnation is one that leading economists have forecast (Summers, 2016). Coupled with this possibility have been very real movements away from global and regional integration in 2016. Public disillusion with established political parties has left a vacuum for populist candidates to exploit in advanced economies. These economic and political developments highlight the need for policies that not only stimulate growth through investment and innovation, but also ensure more inclusive gains for all sections of society. Economic surveillance is uniquely placed to help achieve these goals. The operation itself is one that is as much an exercise in international cooperation as it is in economic evaluation. My study demonstrates the impact that surveillance can have in the global economy. This is a finding that few studies have provided thus far. Indeed, policy makers at the IOs studied in this analysis may be unsure as to how economic surveillance is

actually interpreted by the public. In this sense, exercises in international cooperation such as these are highly important events for financial market participants. This is particularly important given questions over the role of IOs and surveillance in recent years (e.g. Clifton and Diaz-Fuentes, 2011; Aiyar, 2010). My findings demonstrate that there is a significant appetite among market participants for political economy information such as economic surveillance reports by IOs. This is important not only for researchers in the broader field of IPE but also for policy makers at IOs. The predominantly macroeconomic focus of IOs like the IMF, for example, might be reconsidered therefore in areas such as recruitment, in line with the intentions of previous managing directors (Momani, 2005a: 158). This finding lends support to calls from previous scholars for greater attention to political economy issues when designing economic programmes and dispensing advice at the IMF (e.g. Momani, 2005a). In this sense, the fact that markets react so strongly to economic surveillance is a validation of the discipline itself, particularly as this study cuts across an area where commentary is often dominated by purely technical analysis. Furthermore, my findings underscore the fact that surveillance represents an effective channel through which signalling between domestic governments, IOs, and market participants can take place.

More generally however, this study contributes to the body of literature that has been concerned with the role of IOs as providers of information in the global economy. Early studies argued that the unique ability of IOs to collect and disseminate information facilitated their role as reducers of uncertainty in finance as well as IR (e.g. Keohane, 1984; Rogoff, 1999). While recent studies have built upon these theories to produce more specific questions (e.g. Fang and Stone, 2012). Over time, researchers have further developed our understanding of this relationship through more defined research questions on sovereign debt. The topic has been furthered by historical analyses such as Tomz (2007), who examines reputational effects in sovereign debt markets over three centuries. While other scholars such as Ferguson and Schularick (2006) explore similar mechanisms of influence on debt pricing. The rapid growth in global capital markets has also led to IPE scholars taking an interest in the contemporary relationship between governments, institutions, information, and financial markets. Mosley (2000; 2003a; 2003b) for example explores this question in

considerable detail. Gray too (2009; 2013) considers the role played by IOs in debt markets. Her findings demonstrate the exogenous effects of IOs in financial markets, echoing previous work by Dreher and Voigt (2011), who also find similar results with respect to FDI (Dreher, Mikosch, Voigt, 2015). The closest studies to this research show how specific pieces of information released by IOs have a similar effect on markets (Edwards, Denbow, Elkarrimy, 2012; Glennerster and Shin, 2008; Fratzscher and Reynaud, 2011). This study has built upon foundational theories such as those by Keohane (1984), while also incorporating a more specific research question in line with Edwards (2012), Glennerster and Shin (2008), and Fratzscher and Reynaud (2011). The findings echo those by such scholars and demonstrate that IOs play a considerable role in shaping financial market movements. Specifically, my study shows that economic surveillance releases by the EU, IMF, and OECD all represent highly valuable pieces of information market participants. Furthermore, markets react very differently to this information depending on which institution has produced it. These findings represent significant advances in our collective understanding of how economic surveillance is interpreted by its stakeholders. Particularly as this study is one of the first to analyse market reactions to surveillance both over time and across organisations. Furthermore, they show that the influence and importance of economic surveillance is not limited to exercises in cooperation and negotiation, but also to the daily cost governments pay to borrow. The importance of economic surveillance therefore cannot be understated. As both financial markets and the global economy continue to evolve, this topic should be a primary concern for both researchers and policymakers in the coming years.

Appendix

IMF Surveillance Coverage (Advanced Economies)

Country	Year	IO
Australia	1998	IMF
Australia	2000	IMF
Australia	2001	IMF
Australia	2002	IMF
Australia	2003	IMF
Australia	2004	IMF
Australia	2005	IMF
Australia	2006	IMF
Australia	2007	IMF
Australia	2008	IMF
Australia	2009	IMF
Australia	2010	IMF
Australia	2011	IMF
Australia	2012	IMF
Austria	1997	IMF
Austria	1998	IMF
Austria	1999	IMF
Austria	2000	IMF
Austria	2001	IMF
Austria	2002	IMF
Austria	2003	IMF
Austria	2004	IMF
Austria	2005	IMF
Austria	2007	IMF
Austria	2008	IMF
Austria	2009	IMF
Austria	2010	IMF
Austria	2011	IMF
Austria	2012	IMF
Belgium	1998	IMF
Belgium	1999	IMF
Belgium	2000	IMF
Belgium	2001	IMF
Belgium	2002	IMF
Belgium	2003	IMF
Belgium	2004	IMF
Belgium	2005	IMF
Belgium	2006	IMF

Belgium	2007	IMF
Belgium	2008	IMF
Belgium	2009	IMF
Belgium	2010	IMF
Belgium	2011	IMF
Belgium	2012	IMF
Belgium	2013	IMF
Canada	1998	IMF
Canada	1999	IMF
Canada	2000	IMF
Canada	2001	IMF
Canada	2002	IMF
Canada	2003	IMF
Canada	2004	IMF
Canada	2005	IMF
Canada	2006	IMF
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Canada	2009	IMF
Canada	2010	IMF
Canada	2011	IMF
Canada	2013	IMF
Denmark	1999	IMF
Denmark	2002	IMF
Denmark	2004	IMF
Denmark	2006	IMF
Denmark	2008	IMF
Denmark	2010	IMF
Denmark	2011	IMF
Denmark	2013	IMF
Finland	1998	IMF
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Finland	2009	IMF
Finland	2010	IMF
Finland	2012	IMF
France	1997	IMF

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France	2009	IMF
France	2010	IMF
France	2011	IMF
France	2012	IMF
Germany	1997	IMF
Germany	1998	IMF
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Germany	2011	IMF
Germany	2012	IMF
Greece	1999	IMF
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Greece	2007	IMF
Greece	2008	IMF
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Greece	2010	IMF
Ireland	1997	IMF
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Italy	1999	IMF
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Italy	2010	IMF
Italy	2011	IMF
Italy	2012	IMF
Japan	1997	IMF
Japan	1998	IMF
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Japan	2003	IMF
Japan	2004	IMF
Japan	2005	IMF
Japan	2006	IMF
Japan	2007	IMF
Japan	2008	IMF
Japan	2009	IMF
Japan	2010	IMF
Japan	2011	IMF
Japan	2012	IMF
Netherlands	1997	IMF
Netherlands	1998	IMF
Netherlands	1999	IMF
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Netherlands	2002	IMF
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Netherlands	2010	IMF
Netherlands	2011	IMF
Netherlands	2013	IMF
New Zealand	1998	IMF
New Zealand	1999	IMF
New Zealand	2000	IMF
New Zealand	2002	IMF
New Zealand	2003	IMF
New Zealand	2004	IMF
New Zealand	2005	IMF
New Zealand	2006	IMF
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New Zealand	2012	IMF
New Zealand	2013	IMF
Norway	1998	IMF
Norway	1999	IMF
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Norway	2005	IMF
Norway	2007	IMF
Norway	2010	IMF
Norway	2012	IMF
Portugal	1997	IMF
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Portugal	2006	IMF
Portugal	2007	IMF

Portugal	2008	IMF
Portugal	2010	IMF
Portugal	2013	IMF
Spain	1998	IMF
Spain	1999	IMF
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Spain	2005	IMF
Spain	2006	IMF
Spain	2007	IMF
Spain	2009	IMF
Spain	2010	IMF
Spain	2011	IMF
Spain	2012	IMF
Sweden	1998	IMF
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Switzerland	1997	IMF
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Switzerland	2012	IMF
United Kingdom	1997	IMF
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United States	1997	IMF
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United States	2008	IMF
United States	2009	IMF
United States	2010	IMF
United States	2011	IMF
United States	2012	IMF

IMF Surveillance Coverage (Emerging Markets)

Country	Year	IO
Brazil	2010	IMF
Brazil	2011	IMF
Brazil	2012	IMF
Colombia	2010	IMF
Colombia	2013	IMF
Czech Republic	2002	IMF
Czech Republic	2005	IMF
Czech Republic	2007	IMF
Czech Republic	2008	IMF

Czech Republic	2009	IMF
Czech Republic	2010	IMF
Czech Republic	2011	IMF
Czech Republic	2012	IMF
Hungary	2000	IMF
Hungary	2001	IMF
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Hungary	2007	IMF
Hungary	2008	IMF
Hungary	2011	IMF
Hungary	2012	IMF
Hungary	2013	IMF
Indonesia	2005	IMF
Indonesia	2006	IMF
Indonesia	2007	IMF
Indonesia	2008	IMF
Indonesia	2009	IMF
Indonesia	2010	IMF
Indonesia	2011	IMF
Indonesia	2012	IMF
Malaysia	2006	IMF
Malaysia	2007	IMF
Malaysia	2009	IMF
Malaysia	2010	IMF
Malaysia	2012	IMF
Malaysia	2013	IMF
Mexico	2002	IMF
Mexico	2003	IMF
Mexico	2006	IMF
Mexico	2009	IMF
Mexico	2010	IMF
Mexico	2011	IMF
Mexico	2012	IMF
Peru	2009	IMF
Peru	2010	IMF
Peru	2013	IMF
Philippines	1999	IMF
Philippines	2001	IMF
Philippines	2002	IMF
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Poland	2001	IMF
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Russia	2010	IMF
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Russia	2012	IMF
Slovakia	2003	IMF
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South Africa	1997	IMF
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South Korea	2003	IMF
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South Korea	2012	IMF
Thailand	2001	IMF

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Thailand	2012	IMF
Turkey	2010	IMF
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Turkey	2012	IMF
Pakistan	2002	IMF
Pakistan	2004	IMF
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Pakistan	2007	IMF
Pakistan	2009	IMF
Pakistan	2012	IMF
Romania	2012	IMF
Sri Lanka	2008	IMF
Sri Lanka	2010	IMF
Sri Lanka	2013	IMF

EU Surveillance Coverage

Country	Year	IO
Austria	1999	**EU**
Austria	2000	EU
Austria	2001	EU
Austria	2002	EU
Austria	2003	EU
Austria	2004	EU
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Austria	2012	EU
Austria	2013	EU
Austria	2014	EU
Belgium	1999	EU

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Belgium	2014	EU
Denmark	1998	EU
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France	1999	EU
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Sweden	2014	EU
United Kingdom	1999	EU
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United Kingdom	2010	EU
United Kingdom	2011	EU
United Kingdom	2012	EU
United Kingdom	2013	EU
United Kingdom	2014	EU

OECD Surveillance Coverage

Country	Year	IO
Australia	1997	OECD
Australia	1998	OECD
Australia	1998	OECD
Australia	2000	OECD
Australia	2001	OECD
Australia	2003	OECD
Australia	2005	OECD
Australia	2006	OECD
Australia	2008	OECD
Australia	2010	OECD
Austria	1997	OECD
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Austria	2003	OECD
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Austria	2007	OECD
Austria	2009	OECD
Austria	2011	OECD
Belgium	1997	OECD

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Belgium	2009	OECD
Belgium	2011	OECD
Canada	1997	OECD
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Denmark	1997	OECD
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Finland	1997	OECD
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France	1997	OECD
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Netherlands	1998	OECD
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New Zealand	1998	OECD
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Norway	1997	OECD
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United States	2005	OECD
United States	2007	OECD
United States	2008	OECD
United States	2010	OECD
United States	2011	OECD

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