PREEMPTIVE OBEDIENCE: FOREIGN BOND INVESTORS AND MARKET DISCIPLINE

Charlotte Rommerskirchen, University of Edinburgh

Abstract

This article scrutinizes the impact of foreign bond ownership on market discipline, that is the mutual responsiveness of financial markets and sovereign borrowers. The empirical investigation covers 13 advanced economies over the period 1971-2009. This article finds no evidence that foreign bond investors affect the sensitivity of bond yields to sovereign debt. Reversely, results show that government responsiveness to market pressure is contingent on the make-up of its investor base.

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'Money has no homeland and financiers are not patriotic or decent; their only objective is profit' (Napoleon Bonapart, quoted in Woll 2014: p. 44 f1).

Introduction

Sovereign borrowing, central to the functioning of the modern state, is a fickle thing. Amidst the, at the time of writing, becalmed European Sovereign Debt Crisis, the challenge of how to appease bond markets continues to preoccupy academics and policy-makers alike. The set of post-Great Recession consolidation policies, which are now labeled 'austerity', are frequently presented as a necessary evil to restore market confidence. Paul Krugman (2010) compared this strategy as 'the policy elite […] acting like the priests of some ancient cult, demanding that we engage in human sacrifices to appease the anger of invisible gods' (cf. Cox 2016). Who then are these bond gods on whose altar governments gather? Discussion of financial markets, like the treatment of other markets, tends to lump together actors with distinct, at times even opposing, characteristics. And yet within the academic literature there is a growing body of research that suggests important differences between bond investors. Like all polytheist religions, the sovereign bond market is said to be populated by deities of greater or lesser status, with varying preferences and predilections. This means, at least in theory, that the ability of governments to secure stable and favorable borrowing is contingent as much on domestic and international risk factors (push and pull) as it is on the make-up of the investor base.

Of all bond gods, foreign investors are met with particular reference. Consider the testimony of Erskine Bowles (quoted in Krugman 2014: 470) co-chairman of President Obama's debt commission, when US bond yields continued to plunge to historic lows: 'But if our bankers over there in Asia begin to believe that we're not going to be solid on our debt, that we're not going to be able to meet our obligations, just stop and think for a minute what happens if they just stop buying our debt.' This statement suggests that, even for a country at the centre of the financial universe, so-called 'bond market vigilantes' can hold sway over public officials. Financial innovation and

globalization during the Great Accumulation period (1975-2005)[1], heralded substantial changes in the sovereign debt composition of advanced economies and notably an increase in foreign bond investor. *What effect does the share of foreign bond investors have on sovereign bond pricing?* Answers to this question are particularly relevant in the wake of the recent global financial crisis, as advanced economies – thought to be immune to sovereign debt runs – are seeking to sooth global capital markets. If bond pricing is thought to differ according to who holds government bonds, government responsiveness to price signals should be influenced by the make-up of sovereign bond investors. Indeed governments, and particularly their national debt agencies, possess an acute awareness of the investor base and its implications for the financing of public debt at low costs and low risk (Riksgalden 2010; DMO 2014; Warnock 2015). This begs a second question: *does the share of foreign bond ownership matter for government responsiveness to market pressure?*

This article annotates the pantheon of bond gods and scrutinizes the impact of the foreign bond investors on market discipline, that is the mutual responsiveness of financial markets and sovereign borrowers. In so doing I present a model of market discipline and investor types that considers market pressure on the one hand, and government responsiveness on the other hand. The empirical investigation covers 13 advanced economies over the period 1971-2009. This article contributes to, and advances a number of literatures. First, it adds new insight to the empirical work on the determinants of government bond yields and the make-up of bond holders (e.g. Andritzky 2010; Loijsch et al. 2011; Arslanalp and Tsuda 2012). The interaction between sovereign risk and foreign bond investors has been subject to little scrutiny. So doing, this study contributes to the multi-disciplinary literature prying open the black box of financial market behaviour (e.g. Hardie and Deeg 2016, Wellhausen 2016) and offers an investigation into the evaluation practices in financial markets (e.g. MacKenzie 2011). Second, I analyze the neglected flip-side of market discipline: government responsiveness. Building on the fiscal consolidation literature (Wagschal and Wenzelburger 2008; Nickel et al. 2010; Molnar 2012), I demonstrate that market pressure does not present a uniform motivation for 'austerity politics', but is instead contingent on the size of the foreign investor base. Third, I contribute to the literature on the relationship between markets and states (e.g. Strange 1996; Weiss 1999) by presenting a nuanced investigation of market discipline and the impact of capital market structures on government choices. In so doing I follow Sylvia

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[1] The period from the early-1970s till the mid-2000s during which public debt of advanced economies rose substantially despite comparatively sunny economic weather (Abbas et al. 2014).

Maxfield (1998: 70) who argues that different classes of investors constrain governments' policy choices differently (see also Cohen 1996: 284; Wibbles and Arce 2003).

Literature and hypotheses

Market responsiveness

The ability to exit thesis states that the capacity to sell an investment position is key for the behaviour of financial market participants. Building on Alfred Hirschman's seminal account (1970), Benjamin Cohen's view of monetary power (2003: 126) centres on the premise that capital expresses itself through exit, voice, and loyalty: 'the greater the ability of market actors to evade the preferences of public officials (Exit), the less the government will be able to count on or command submissive loyalty'. A key premise of this analysis is that different groups of government bondholders have different motives for holding sovereign debt and face different constraints in doing so (see Krishnamurthy and Vissing-Jorgensen 2007). This is in line with wider assumptions about the ownership of capital in the literature regarding for example financial enterprises (Epstein 2014, Goyer et al. 2014, Fries and Taci 2005, Lesink et al. 2008) or non-financial firms (Callaghan 2014, Douma et al. 2006, Huisinger & Nielsen 1997; Bellak 2004). Bond investors in advanced economies, in contrast to for instance Angel and Venture Capital investors (Harrison 2016; Klingler-Vidra 2016) usually have (more or less appealing) exit options. Key barriers to exit are linked to regulatory constrains, moral suasion and risk synchronisation, as well as related investment practices/cultures, in addition to market liquidity discussed later in the paper.

These barriers to exit, so the general consensus in the existing literature, pose less of a hurdle for foreign investors. There is some evidence in the literature that an increase in foreign investors reduces sovereign bond yields in advanced economies (e.g. Andritzky 2012; Arslanalp and Poghosyan 2014, although see Dell'Erba et al. 2013). Stronger evidence is found in the single-country literature on the United States, which finds a negative effect of the rise in global investors in US Treasury securities and long-term sovereign bond yields (Warnock and Warnock 2009; Beltran et al. 2012). Yet similar to short-term debt, foreign investors, although reducing interest rates, amplify debt vulnerabilities as they are said to be less loyal in times of domestic or international troubles (Dell'Erba et al. 2013). Foreign investors, so the argument, face lower costs

of exits in foreign markets given that they are less likely to be part of a captive audience due to political pressure and have a broader pool of alternative assets they can invest in than their domestic counterparts (Arslanalp and Tsuda 2012).[2] Domestic investors are then commonly assumed to 'be easier for the government to influence, […] not cut and run in crisis, [to] be more likely to further national prosperity and autonomy through their lending and reinvestment policies, and [to] even serve as national champions promoting the nation's image and interests on the international scene' (Johnson and Barnes 2015: 5). The home bias of investment decisions is well-documented (e.g., Dornbusch 1991; Feldstein and Bacchetta 1991; Feldstein and Horioka 1980; Zevin 1997). For example, during the economic depression of the early 1990s, nearly 40 percent of all domestic investment was allocated to Finnish government bonds to rescue the state from insolvency (McCarthy et al. 2016: 763). The non-event of run on Japanese or Italian government bonds, despite reaching wrongly high levels, is frequently explained by a high share of domestic investors (Kamikawa 2013: 228). More specifically, there is evidence that domestic banks are loyal investors in times of market distress. They are said to engage in risk synchronisation, keen to take on the sovereign bonds of their home country given that the banks' survival is likely to be contingent on the liquidity of governments (Diamond and Rajan 2011).[3] Acharya ad Steffen (2013) show that the home bias, measured by banks' holding of domestic sovereign debt relative to total assets, lowered spreads in the European periphery during the European debt crisis. Moreover, domestic banks are often assumed to be endowed with sufficient *Sitzfleisch*; a substantial fraction of sovereign exposures is held to maturity in the banking book — and was prior to 2011 not subject to mark-to-market valuation.[4] A further assumption about patient attitudes can be made with respect to domestic central banks. There is some evidence that an increase in central bank holdings of sovereign debt leads to a reduction of sovereign bond yields and their volatility (Jaramillo and Zhang 2013) – particularly when central banks offer governments the capital that other investors refuse (Krishnamurthy and Vissing-Jorgensen 2007).

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[2] For the related debate on financial repression see McKinnon 1973, Kirkegaard and Reinhart 2012; Monnet et al. 2014.

[3] The co-dependence of sovereign states and banks has been further problematized by *inter alia* Adler (2012).

[4] Mark to market reporting records the price or value of an assets as its current market value and not its book value. This means that trading positions are revalued as market prices fluctuate. However, there is reason to question the allegedly limited ability to exit of banks. Pepper Culpepper and Raphael Reinke (2013) argue that the mobility of UK domiciled banks effectively enabled them to avoid the types of bail out conditions that were forced onto healthy US banks during the financial crisis of 2008.

Following the literature I expect that the composition of investor types matter for the evaluation of sovereign risk. Aggregate bond yields, so the underlying test, are thus contingent on the share of foreign sovereign debt investors. My theoretical argument is built on the interplay between market behaviour (a rise or fall in bond yields) and market participants (that is the share of foreign bond holders). I propose two sequential assumptions: first, foreign investors are more footloose than their domestic counterparts; this means that, second, the composition of foreign vs. domestic investors affects the bond yields of sovereigns and the sensitivity of bond yields to government debt burdens.

Hypothesis 1. All else being equal, the share of foreign government bond holders affects the pricing of sovereign bonds.

Government responsiveness

The end of Bretton Woods heralded the widespread adoption of neoliberal policies, notably a move to greater capital account openness and thus greater international capital mobility. This posed both opportunity and challenge for domestic government and sparked debates about the structural power of finance. Different variants of structural dependency thesis considers varying degrees of influence of capital over politics (Block, 1987; Przeworski and Wallerstein, 1988; see Swank 1992 for a discussion). Key to the structural power of finance thesis is the assumption that the mobility of capital constrains governments from pursuing the policies they prefer, notably in the realm of taxation and regulation (Culpepper 2015: 403). It is the threat of exit that enables (global) finance to demand 'submissive loyalty' (Cohen 1998) from sovereign states (see Helleiner 1994). In the words of the former chairman of Citibank Walter Wriston (1992: 61): 'capital will go where it is wanted and stay where it is well treated'. According the Jennifer Holt-Dwyer (2001: 35) an increase in capital mobility bundled with a decrease in exit costs relative to the cost of voice (political participation), mean that the leverage of financial-market participants lies 'less in how effectively they pressure the government through domestic political mobilization, and more in self-motivated government attention to how these powerful market actors' preferences are expressed through their economic behaviour'. Under the structural dependence theory, market discipline, be it in the form of (threat of) exit or voice, prompts *government action* (cf. Lane 19993).

A comparatively small body of literature examining fiscal consolidation has presented evidence that market pressure matters for the speed and composition of fiscal adjustment (e.g. Molnar et al. 2012; Rommerskirchen 2015). Although the magnitude of the market pressure effect to cajole fiscal consolidations may be modest (see D'Ellba et al. 2013), the notion that policy makers react to developments in the financial markets by offering their pound of flesh is widely accepted.[5] Both the former UK Prime Minister David Cameron (2013) and the former French President Nicolas Sarkozy (2012) have presented their budgetary consolidation plans in light of financial market pressure. Twenty years earlier Bob Rubin, then Director of the National Economic Council, successfully lobbied US President Clinton to balance the books with a view of 'best not offend the Bond Gods' (Parenteau 2005: 140). 'In a world of globalized finance', so the underlying assumption, 'bond markets can discipline politicians just as effectively as an opposition party can, or even more so' (Johnson and Barnes 2015: 21). Little is however known about the impact of different types of bond investors on government choices. Jean Tirole (2012) argues that foreign investors, given their fickle reputation, present a source for stronger market pressure. Yet this hypothesis is not empirically tested, a gap in the literature which this contribution seeks to fill.

Layna Mosley (2003) demonstrates that not all governments are equally vulnerable to financial market pressure. She notably distinguishes between developed and developing countries, in addition to considering a variety of national features in her account of government responsiveness to market discipline. I build on her analysis and focus not on variation in the receiver of market pressure (governments), but on variation in the originator of market pressure (foreign vs. domestic bond investors). I hypothesise that governments are more sensitive to market signals, notably rising bond yields, if the bond investor base is made up of a high share of foreign investors with a high(er) ability to exit. Specifically I assume that governments are more/less responsive to an increase in sovereign bond yields if their investor base has a larger/smaller share of foreign investors. The broader tensions in the debate about market discipline concern the role of markets in guiding (or coercing) state action and in posing a corrective to 'excessive' fiscal positions or structural challenges prompting change in the 'right' direction. Examining the two sides of market discipline, I do not wish to present a normative account as to the appropriateness of either financial market or government (re)actions.

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[5] Whether bond gods appreciate this offering is another matter (see McMenamin et al. 2014).

Hypothesis 2. All things being equal, governments' responsiveness to market pressure increases with the share of foreign bond holders.

Data and analysis

I use a fixed-effects model to test two hypotheses on an unbalanced panel of 13 OECD countries from 1971-2009 using annual data.[6] Timeframe and country selection is driven by data availability. I will return to the question of possible outliers below. I rely on Fisher panel-unit and augmented Dickey-Fuller unit-root tests to establish stationarity of the variables used. To correct for serial correlation while avoiding the well-documented bias caused by including lagged dependent variables (Aachen 2000), I rely on fixed effects for year and country, with robust standard errors as suggested by a Hausman test. Table 1 presents the descriptive statistics and data sources for all variables. This investigation into foreign bond investors and their impact on market and government responsiveness captures both sides of market discipline. The linear specification used is as follows:

$$\Delta Yield_{i,t} = \alpha + \beta_1\, Debt_{i,t-1} + \beta_2\, Investor_{i,t} + \beta_3\, Debt\_Investor_{,t} + \varphi Y_{i,t} + \varepsilon_{i,t}$$
$$Consolidation_{i,t} = \alpha + \beta_1\, Yield_{i,t} + \beta_2\, Investor_{i,t} + \beta_3\, Yield\_Investor_{i,t} + \psi Z_{i,t} + \varepsilon_{i,t}$$

The first dependent variable, $\Delta Yield$, measures the interest rate on 10-year sovereigns traded in the secondary-market. A bond's yield refers to the actual annual return an investor can expect if the bond is held to maturity. It is based on the purchase price of the bond at the secondary-market as

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[6] Australia, Belgium, Canada, France, Germany, Ireland, Italy, Japan, the Netherlands, Spain, Sweden, UK and US.

well as the coupon of the bond.[7] Studies on sovereign creditworthiness usually rely on sovereign bond yields in the secondary market. One reason for this lies in the fact that prices in primary markets are noisy, influenced by the optimism or pessimism of primary dealers. Furthermore, as Iain Hardie (2012: 28) writes: 'A key component of any calculation of debt sustainability is the cost of further borrowing, which is in turn largely determined by the interest rates prevailing in the secondary market for outstanding bonds.' In line with other studies (e.g. Mosley 2003; Baldacci and Kumar 2010) I use this market-based measure of their costs of borrowing. Borrowing costs will be driven by the size of the debt burden, with higher debt levels usually attracting higher servicing costs. *Debt*, that is general government primary debt as percentage of GDP, is thus entered as explanatory variable of bond yields. Ceteris paribus, I expect countries with larger debt burdens to be subject to higher market pressure. Market pressure (Δ*Yield*) is determined by sovereign risk, the foreign investor share and the interaction of both terms (*Debt_Foreign*).

The second dependent variable measures government responsiveness (*Consolidation*). Government responsiveness to market pressure is not merely a by-product or reflex, but concerns purposeful policy. To isolate purposeful changes in government spending and taxation, *Consolidation* records the budgetary impact of fiscal consolidation measures in percentage of GDP. Covering the years 1978-2009, the variable comes from Devries et al. (2011) data set of discretionary changes in taxes and government spending which is based on a systematic review of contemporaneous policy documents, including Budgets, Budget Speeches, central bank reports, Convergence and Stability Programs submitted by the authorities to the European Commission, and IMF and OECD reports. The authors cross-examined initial announcement of fiscal consolidation plans, with subsequent

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[7] A few words on the structure of the bond market: government bonds trade over the counter; both electronically and via voice brokers. Whereas equities only have a single issue, government bond issuers have many outstanding issues of varying maturity; currency (e.g. Dollar denominated) and type (such as inflation linked-bond). The market is characterized by a Primary Dealer system. Primary Dealers are financial institutions that are appointed by sovereign issuers to buy, promote and distribute sovereign bonds. These primary dealers can be domestic or international financial institutions. Primary dealers are obliged to actively participate in the secondary market to facilitate liquidity. Secondary-market trading among creditors does not transfer value to or from sovereign debtors. This is because the interest rate is fixed with the issuance of the bond; what varies is the price paid for the bond in the secondary marketAn exception to this is when the debtor or one of its agencies participates in the market for its own debt. This was the case in the European Central Bank's controversial securities markets program targeting distressed sovereign debt instruments, which aimed at bringing down borrowing costs.

editions of the historical documents that report on recently implemented policy actions.[8] Government responsiveness is though to be influenced both by market pressure (Δ*Yield*), the variable measuring the share of foreign bond investors (*Foreign*), and again an interaction term of both variables (Δ*Yield_Foreign*).

Data on the share of foreign bond investors comes from Abbas et al. (2014): *Foreign*, records the share of non-resident bond investors. The available data has limitations. First, the measurement is not as granular as one would hope, but bundles together foreign investors with potentially different investment behavior, such as (central) banks, hedge funds, institutional and individual investors. Second, I rely on an aggregate measurement of bond yields. This means that I am not able analyse the price movements of bonds held by a specific investor class. I other words a dissection of individual investor types pricing of government bonds is not feasible. I hypothesis that yields are more responsive to debt levels when a greater share of debt is owned by foreigners. We do not know whether this would be because foreign owners act differently or because market participants, perceiving the high share of foreign ownership, adjust their own strategy. It is well documented that financial market evaluation practices are not taking place in isolation (Sinclair 2005: 52). As Iain Hardie (2010: 249) puts it market participants 'are engaged in what can be termed *pre-emptive imitation*'. The most-cited analogy thereof is that of the sexist beauty contest where

> 'each competitor has to pick, not those faces which he himself finds prettiest, but those which he thinks likeliest to catch the fancy of the other competitors, all of whom are looking at the problem from the same point of view. It is not a case of choosing those which, to the best of one's judgment, are really the prettiest, nor even those which average opinion genuinely thinks the prettiest. We have reached the third degree where we devote our intelligences to anticipating what average opinion anticipates average opinion to be' (Keynes 1936: 156).

Graph 1 summarizes the distribution of sovereign bond investors by country (1971-2009) with a box plot. For each country, the box contains the inter-quartile range (a measure of statistical dispersion) of the share of foreign bond investors, the medians are marked with dark lines, the whiskers indicate the range of the more extreme values and the dots mark any outliers. Overall, the presence of foreign investors in one of the 13 sovereign bond markets varies considerably from country to country (for a historic overview of this variation see Abbas et al. 2014).

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[8] For example, in the case of Japan in the late 1990s fiscal consolidation was announced but not fully implemented which led to a corresponding downward correction of the recorded consolidation variable.

Graph 1. Distribution of foreign sovern bond investors (1970-2009)
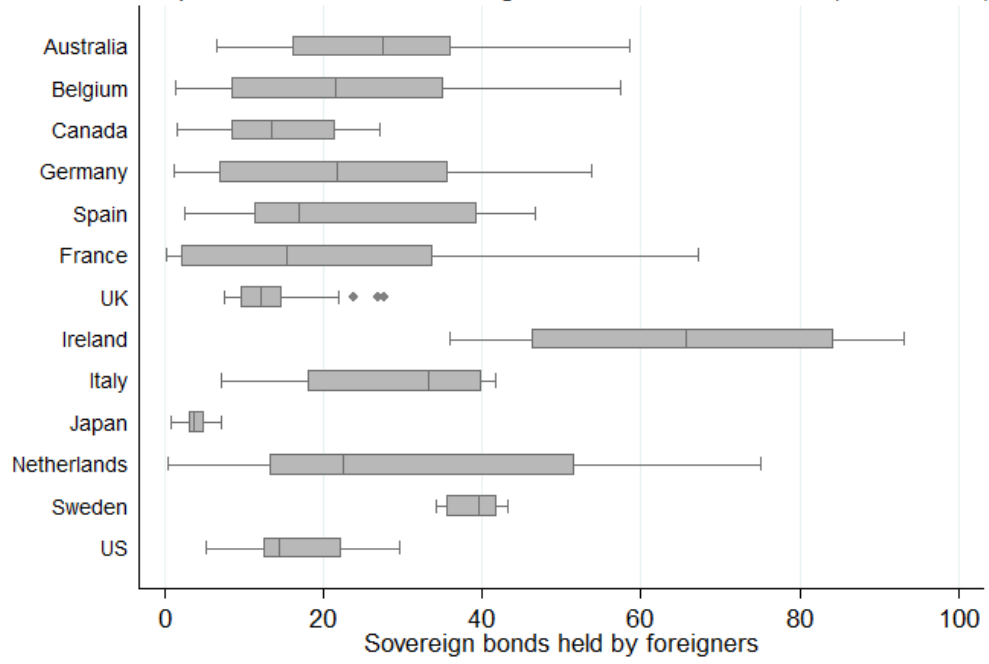
Control variables

I further include a host of control variables, Y and Z respectively. The empirical literature on the potential drivers of market pressure and fiscal consolidation is vast. In the interest of parsimonious hypothesis testing, I concentrate here on the commonly identified key determinants. Still, 'statistical models are always simplifications' (Keele 2008: 1).

For the bond yield model these controls are: *Risk*, *Liquidity*, *Short(t-1)*, *Inflation*, and *ΔGDP (t-1)*. Turning to external risk factors, I control for financial market risk aversion. Risk aversion is frequently based on indexes that aggregate information from various financial markets (Illing and Aaron 2012). The most common is the Chicago Board Options Exchange Market Volatility Index (VIX), which is however not available for the whole coverage of this study. I therefore use the average change in Moody's Seasoned Baa Corporate Bond Yield Relative to Yield on 10-Year US Treasury Constant Maturity as the external *Risk* variable. It serves as a measure for the implied bond market risk premium and is a conventional proxy of market risk aversion (Schuknecht et al. 2010; Bernoth and Erdogan 2012).

I furthermore control for market liquidity. Market liquidity can be broadly defined as the ability to swiftly execute financial transactions, notably exit, at low cost with limited price impact. Reversely, markets with poor liquidity, according to Richard Prager (2012), a strategist at the bond investor BlackRock, are like 'a lobster pot: Easy to get into, but tough to crawl out of'[9]. In periods of low liquidity, even sound sovereign borrowers may face substantial borrowing costs (Kindleberger 1978:15). In the bond market the bulk of trading takes place over-the-counter and not on exchanges. This means that no direct measurement of liquidity is available. Studies on liquidity risk thus usually approximate liquidity by using bid-ask spreads, transaction volumes and the level of or the share of a country's debt in global/local sovereign debt markets (e.g. Favero et al., 2010, Arghyrou and Kontonikas, 2012; Zoli and Sgherri 2009). Within the literature there is disagreement as to the size and significance of liquidity effects on sovereign bond yields. Some studies find evidence for only a limited and declining effect (Codogno et al. 2003, Bernoth et al. 2004, Pagano and Von Thadden 2004, Jankowitsch et al. 2006; Schuknecht et al. 2008), while others argue that liquidity is an important driver of sovereign bond yields (Gomez-Puig 2006, Beber et al. 2009, and Manganelli and Wolswijk 2009). I will approximate the liquidity risk with the domestic gross debt in US dollar

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[9] This analogy may be biologically incorrect however; there is evidence that all but about a tenth of lobsters caught in a lobster trap are able to escape (Chesler 2017).

- market size has a positive impact on liquidity (for similar approaches see Schuhnkecht et al. 2006; Gravelle 1999; Bernoth et al. 2006; and Zoli and Sgherri 2009). The natural log transformation is used to ensure stationarity. An increase in the supply of sovereign bonds impacts on not only the market liquidity but also the default risk of the issuer country. Including total debt/GDP in the estimation equation assures that the coefficient on the liquidity variable will not be biased towards zero.

Furthermore, I account for the maturity of outstanding debt. The variable *Short(t-1),* records the percentage of short-term debt in the overall government debt portfolio (debt with less than one-year maturity). Short-term borrowing leaves large amounts of debt to roll over and thereby exposes sovereigns to higher risks in the event of market fluctuations. Long-term bonds and the associated insulation from market turbulences often come at the cost of higher interest rates (e.g. Lustig et al. 2006; von Hagen et al. 2011). [10] Controlling for the time horizon of capital, I take into account what Margarita Esteves-Abe (2001) calls 'one of the most significant determinants of variation between different types of capitalism'. And yet I argue that the patience or loyalty of the investor base is not well proxied by the maturity of sovereign bonds.[11] The long maturity of borrowing is neither necessarily a sign for patient investors, nor for the strong presence of domestic investors; Japan's average maturity remains on the lower spectrum of developed economies, below Greece, Spain and Italy (IMF Fiscal Monitor 2010).[12]

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[10] The time-inconsistency problem inherent in the tension between a short-term reduction in interest rate payments and an increase in sovereign risk is discussed by Lucas and Stokey (1983).

[11] For a different argument with regard to non-financial corporation finance see Deeg and Hardie (2016).

[12] The maturity profile of government debt may also disguise the potential short-termism of investors following a riding-the-yield-curve investment strategy. This strategy takes advantage of the higher returns on longer term bonds and involves purchasing bonds with maturities longer than the investment horizon and the sale of these bonds before they mature. In this scenario the investment horizon of investors is short-term, but the maturity profile of government debt indicates long-term. The maturity of an investment does furthermore not map well-onto investor types given that investors often invest in both to manage interest rate risk. What is more, bond investors with a hold to maturity perspective, like pension funds and insurers (Nelson 2011), do not contribute to market liquidity and thus may raise the cost of borrowing by depressing liquidity. This is perhaps most evident with respect to the liquidity premium in the yield of inflation-indexed bonds favoured by long-term hold-to-maturity investors (Campbell and Viceira 2001, Wachter 2003). Bond investors selling before maturity do not necessarily spell trouble for sovereigns. If bond yields have declined and consequently a bond has appreciated in value, an investor may want to realise a capital gain by selling before maturity. Realising this gain does usually not lead to higher borrowing costs for newly issued sovereign debt in such a low yield market environment.

I add the variable *Inflation* in the model of market responsiveness. Inflation, at least in the short term, lowers the domestic debt burden relative to GDP. This translates into a reduction in debt servicing costs. However, in the medium to long term, inflation can result in a loss of competitiveness and increases the cost of capital. This then increases sovereign risks and accordingly interest payments for newly issued debt will go up. The lagged annual change in GDP growth (Δ*GDP)* controls for the heightened sovereign risk in times of economic slowdown given that economic growth is a key driver of budgetary outcomes (Alesina et al. 1992).[13]

The controls for the models estimating fiscal policy outcomes, *Z*, are: *Debt (t-1)*, Δ*GDP (t-1)*, *Short(t-1)*, *Concentration*, *Ideology*, and *Election*. Public debt to GDP is a proxy measure for a country's fiscal space, or its fiscal room for manoeuvre. This means that debt levels restrict policy-makers fiscal policy choices and should motive fiscal consolidation. Including economic growth accounts for the fact that, a reduction in deficits becomes both more urgent and more difficult in times of sluggish, or even negative, economic growth, as recent experience has clearly demonstrated. By including the share of short-term debt, I account for debt-roll-over pressures. I am interested in government's ability to respond to market pressure (cf. Wagschal and Wenzelburger 2012). Put simply the variable *Concentration* is thought to capture 'the ability to get things done'. Building on George Tsebelis veto player theory (1995) I assume that government responsiveness will increase with the concentration of power within the political system. The variable *Concentration,* taken from Michael Breen and Iain McMeniman (2013), is based on a weighted index of the effective number of parliamentary parties, concentration versus power-sharing in the cabinet, executive-legislative relations, electoral disproportionality, and interest group pluralism. The measure (*Ideology*) is based on the left-right index from the Comparative Manifesto Project and takes into account the weighted seat share in parliament of each party in the cabinet (Kim and Fording 1998). A large part o the literature on fiscal consolidation suggests that partisanship matters for the implementation of austerity policies. Right-leaning governments are here found to be more likely to implement harsher cuts than their left-leaning counterpart (Korpi and Palme 2003; Allan and Scruggs 2004; Mulas-Granados 2003, for contradicting findings see Hübscher 2014). I further control for the fiscal business cycle by including the variable *Election*, which takes 1 in an election year and 0 otherwise. There is no agreement in the literature on the effect of elections on fiscal consolidation with some studies (e.g. Guichard et al. 2007) arguing for a positive effect and others

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[13] Using the contemporary value, although risking endogeneity, does not alter results.

(e.g. Alesina and Perotti 1995) present no significant impact of the closeness of elections.

Discussion

Determinants of bond yields

Table 2 presents the results for the model of the determinants of bond yields. Few variables are found to have statistically significant explanatory power. Results suggest that an increase in debt to GDP levels has no statistically significant impact on bond yields.[14] This finding has to be read in the context of the country sample, all high-income, developed economies. Likewise GDP growth, market liquidity, and the share of short-term debt have no impact on bond yields. The coefficients of the variable *Inflation* is in line with the existing literature; inflation leads to an increase in bond yields. There is some evidence that an increase in the foreign investor base brings bond yields up. The size of the coefficient is economically meaningful; yields for a country with a foreign investor base of 23% (the sample mean) are, ceteris paribus, more than 2 percentage points lower than for a country where foreign investors hold 41% of government bonds (that is one standard deviation up).

Determinants of fiscal consolidation

Table 3 presents the model on the determinants of fiscal consolidation. Results indicate that the size of the debt burden, the maturity of outstanding debt and bond market pressure in form of interest rates are key determinants of retrenchment. Together these findings suggest that policy-makers are well-aware of market pressures and the risk of having to roll-over a high share of debt in a potentially hostile market environment. Governments are here responsive to the, in the words of the former UK's Chancellor of the Exchequer, 'verdict on the credibility of […] economic policy from bond investors' (Osborne 2012). The idea that markets keep governments on the fiscal straight and narrow is well represented beyond domestic debates. The IMF's World Economic Outlook 1997 hailed the crises in the European Exchange Rate Mechanisms in 1992 and 1993 as examples that 'international financial markets can serve to "discipline" governments (either by raising default premiums or by forcing adjustments in exchange rates), encouraging the adoption of appropriate

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[14] I tested for the inclusion of the quadratic transformations as well as the log transformation of both debt levels and bond yields to take into account for the potentially non-linear relationship between interest penalties and fiscal outcomes. Testing the misspecification of the functional form, the regression equation specification tests (see Ramsey 1969) reject the use of quadratic and log forms of both variables.

policies' (Gill 1998: 15). Wolfgang Schäuble (2011), the German Finance Minister presiding over the Eurozone Debt Crisis, urged fellow member states to consolidate public finances arguing that '[m]arkets want to see action. Enough with words.' What is more, results suggest that the timing of elections matters, with fiscal retrenchment being less likely in election years. This makes intuitively sense as 'austerity' politics hardly represent a set of voter-pleasing initiatives.

Interaction model results

Although these two models offer interesting insights into the dynamics of sovereign bond pricing and the determinants of public finances, they give only a limited account of market/government responsiveness. Loyal capital does not merely concern the availability of 'cheap' credit for sovereigns (translating into low bond yields), or the absence of fiscal action on the side of governments. Instead I am interested in the responses of financial market participants/governments and in the question of whether the response to government debt/market pressure is contingent on the share of foreign bond investors. To answer these questions I now turn to interaction models.

For the estimation of bond yields this interaction term takes on *Debt*Foreign*, for the estimation of fiscal consolidation this interaction term takes on *Yield*Foreign*. So doing I am able to answer whether the effect of domestic risk on bond yields hinges on the share of foreign investors, and whether a rise in bond yields will prompt fiscal consolidation depending on the make-up of bond holders. The last columns of Table 2 and 3 present the estimation results. Yet these are not readily interpretable as regular additive models and the significance levels of variables can be misleading. To be able to make better inference I calculate the full range of conditional coefficients and standard errors. These are graphically illustrated in Graph 2.The solid sloping lines indicate the value of estimated causal effect on *Yield/Consolidation* across the range. These conditional coefficients are not statistically significant if the lower bound of the 95% confidence interval is below the zero line and the upper bound is above it. Graph 2 illustrates market responsiveness to an increase in government debt depending the share of foreign bond investors. Contrary to the popular view of footloose foreign bond holders, I find no evidence that the responsiveness of bond yields to public debt levels is conditional on the share of foreign bond investors (as the upper bound is above and

the lower bound is below the zero line).

Graph 2. Foreign bond ownership interactions
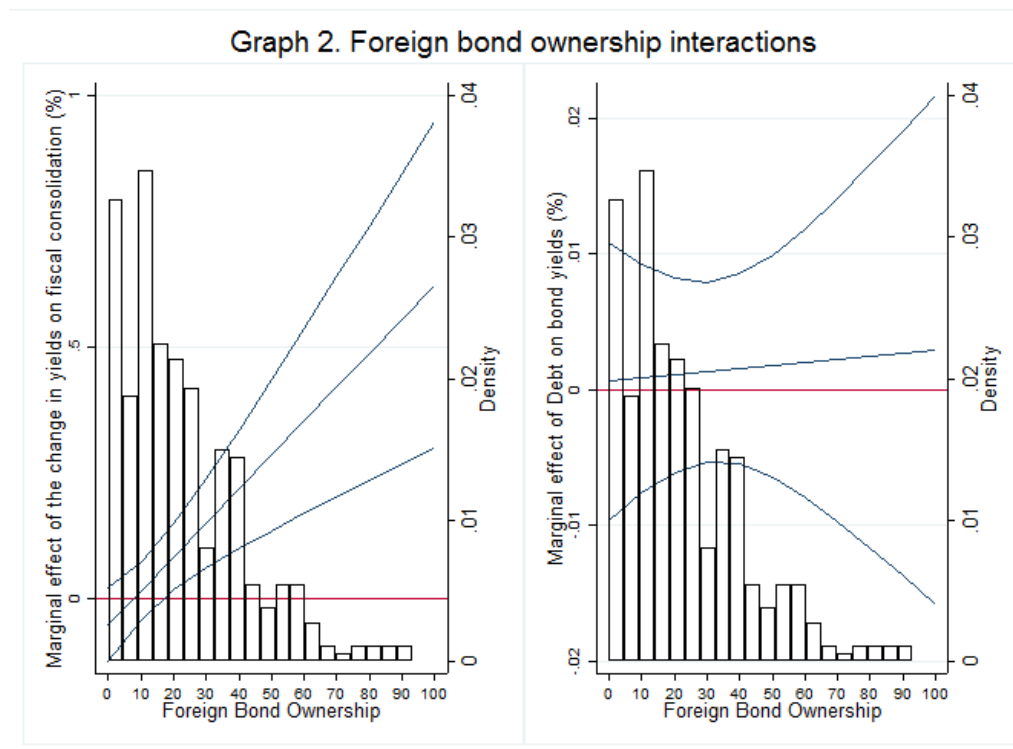
Government responsiveness reveals however a contrasting pattern. Graph 2 presents evidence that government responsiveness to market pressure is contingent on the composition of the foreign vs. domestic investor base. Bond yields have a positive impact on fiscal consolidation only if the foreign investor base reaches 20%. In other words for a country with a comparatively few foreign investors, like Japan or the UK before the turn of the 21st century, bond yields do not represent a motivation for fiscal retrenchment. This finding furthermore bespeak to the increasing structural power of capital with an overall increase in foreign bond investors across advanced economies (from a sample average of 6% in 1970 to 45 % in 2010). Once the 20% threshold is reached, the impact of bond yields on fiscal consolidation increases. We can see that, ceteris paribus, a jump from 20% to 60% of foreign investors almost doubles the impact of market pressure on governments. Although Figure 2 suggests that there is no difference in how foreign vs. domestic investors react to an increase in sovereign debt, governments seem to cater more readily to non-residents' (alleged) demand for fiscal consolidation.

Robustness checks

I performed a battery of further checks, which are not presented here to conserve space, but which are available upon request. The main results discussed above hold. First, results are robust to the exclusion of the financial crises years (2008 and 2009). Second, I exclude the two 'top' safe-haven countries US and/or Germany. Particularly the US has access to cheap credit, due to its status as a global reserve currency. Even in the wake of the for now becalmed Eurozone Debt Crisis when sovereign risk in the developed world resurfaced, US government bonds continue to be, in the words of a portfolio manager at PIMCO (Investment & Pensions Europe 2012), 'the cleanest dirty shirt available'. Contrast this statement with Rubin's strategy of 'appeasing the bond gods', further points to a discrepancy between market behavior and governments' anticipatory view of it. Third, investigating the impact of domestic bond investors, findings hold if I exclude Ireland, a (persistent) outlier for high rates of foreign bond investors. Forth, I controlled for Eurozone membership by including a Eurozone dummy, taking the value 1 if a country if member of the common currency zone and 0 otherwise. So doing I make sure that results are not biased by a 'Euro effect' which may impact on both government's responsiveness to market pressure and the behavior of investor types. Due to the implicit bail out promise of Euro membership, the common currency is said to have given rise to both investor and creditor moral hazard (Roubini and Setser 2004: 74f). This bias may influence the responsiveness of both governments and markets in the estimations. Next, I replicated all interaction models with two additional economic control variables. First, to control for the possible impact of foreign currency I include the share of foreign currency liabilities. This variable accounts for the degree of 'original sin', that is the inability to issue debt instruments in domestic currency usually associated with emerging market and developing economies (Eichengreen and Hausmann 2005). Controversially, the variable measures euro-denominated debt as domestic debt of Eurozone countries. Yet this labelling does not account for the much-debated issue of lender of last resort capacity in the Eurozone (e.g. Howarth and Quaglia 2015; Mabbett and Schelkle 2015). Second, to capture capital account liberalization I include Karcher and Steinberg's updated measure of capital account openness (2013). Capital controls are thought to act as an 'insulation device' (Mosley 2003: 229) shielding governments from market pressure. As such they may mediate both the responsiveness of governments to market discipline in general, and more specifically reduce the interaction effect of bond investors – with effective capital controls

governments' would be less nervous about the behavior of particular investor types if they are all subject to the same capital control constraints. The reputation of capital controls has almost come full circle during the time-frame of this analysis, from a prevalent means to command financial capital flows in the early 70s, to capital account liberalization during the 1980s and finally being endorsed by the International Monetary Fund as 'legitimate part of the policy toolkit' (Grabel 2015). The corresponding variable for capital account openness does not alter result and is not statistically significant in any of the specifications.

Investors are said to be attracted to, repelled by or indifferent to sovereign risk. Foreign investors, light-footed and disloyal, are charged with leaving countries in distress. Consider the case of Greece, where domestic bank ownership of sovereign bonds increased from 10 per cent in late 2008 to 24.4 per cent in late 2015. In the same timeframe Greeks foreign investor base shrank from 75.3 per cent to 42.2 per cent (Merler and Pisani-Ferry 2012, updated 2016). This means that indicators of sovereign risk (such as the general government debt measure) are both depending on the make-up of the investor base as they are in turn impacting this composition in line with preferred-habitat portfolio models (Culbertson 1957 . Sovereign risk matters for the investor base, and the investor base matters for sovereign risk. This poses a challenge to identify clear lines of causality in the relationship between share of foreign investors, fiscal policy outcomes and sovereign risk; the endogeneity problem raises its ubiquitous head. To address this I use an instrumental variables estimation technique. The variable measuring the share of foreign investors is instrumented with its lag. This instruments is individually significant in the first stage. Yet this does not in itself guarantee a successful identification in the second stage estimation. I then confirm that instruments are neither weak instruments (Kleibergen-Paap rk Wald F-statistic) nor correlated with the error term (Hansen J statistics). The Kleibergen-Paap rk LM-statistics allows me to reject the null hypothesis that the equation is under-identified. I then test for endogeneity and conclude that the specified endogenous regressors can be treated as exogenous (with a p-value of .41 and .32 for the corresponding null hypothesis).

Conclusion

This article has set out to scrutinize the pantheon of bond investors and the impact of foreign investors on market discipline. I find no conclusive evidence that the share of foreign bond investors alters the pricing of sovereign bond yields. Turning to the flip-side of market discipline, that is government responsiveness to market pressure, this analysis reveals a different pattern. An increase in bond yields spurs fiscal consolidation. However this impetus is conditional on the make-up of sovereign bond investors. The size of fiscal consolidation increases with the share of foreign bond investors. This is true only once more than 20 percent of outstanding bonds are owned by foreign investors.

The very notion of investor types and the crude distinction between foreign and domestic investors may however be misleading. Future works is needed to enable more nuanced analyses of investor types and market discipline. This data collection and analysis should ideally move beyond the existing dichotomy not only between foreign and domestic investors, but between developed and developing economies.[15] Further research is need to test whether the interplay between government and market responsiveness is a distinct feature of advanced economies or holds across levels of economic and political development. This would allow us to further unpack the conditionality of market discipline on the investor side and on the government side, in line with the argument that developed sovereigns have greater capacity to resist fiscal retrenchment upon changes in market sentiment than developing ones (Mosley 2003). The in this article identified gap between market behavior and government responsiveness leads credence to accounts of governments' rallying around the altar of deities whose preferences they do not know. In so doing, governments are not so much displaying 'submissive loyalty' (Cohen 1998) as 'pre-emptive obedience' towards foreign bond gods.

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[15] Comparable data on investor classes is, albeit for a shorter time-span, available for emerging markets (Arslanalp and Tsuda 2012).

Table 1. Descriptive Statistics

Variable	Mean	Std. Dev.	Min.	Max.	Source
$\Delta Yield$	-0.016	1.05	-3.15	3.9	1
Consolidation	0.36	0.72	-0.4	4.74	6
Debt	60.56	33.08	9.47	217.60	2,3
Inflation	4.62	4.36	-13.84	24.23	2
ΔGDP	2.63	2.34	-5.98	11.50	2
Risk	2.17	0.65	1.08	4.04	7
Concentration	0.27	1.48	-4.03	2.80	4
Ideology	0.08	0.47	-2.06	1.86	5
Election	0.28	0.45	0	1	5
Foreign	22.95	18.09	0.1	93.1	8
Short	22.17	16.86	0	82.3	8
Focu	5.44	9.21	0	47.9	8
CAO	1.8	1.07	-1.8	2.42	9

Note: Unbalanced pane. Source: 1) OECD; 2) World Economic Outlook (2009); 3) International Financial Statistics, IMF; 4) Breen and McMenamin (2013); 5) Beck et al. (2001); 6) Davries et al. (2011); 7) St. Louis FED Economic Data; 8) Abbas et al. (2014); 9) Karcher and Steinberg (2013).

Table 2. Determinants of changes in bond yields, 1971-2009

Debt (t-1)	-0.003	0.001	0.001
	(-0.68)	(0.3)	(0.11)
Inflation	0.086**	0.084*	0.083 **
	(3.65)	(2.64)	(2.66)
ΔGDP (t-1)	0.069*	0.069	0.069
	(1.81)	(1.34)	(1.33)
Risk	- 0.016	-0.0003	0.0006
	(-0.21)	(-.001)	(0.01)
Short (t-1)	-0.003	-0.007	-0.006
	(-0.38)	(-1.13)	(-1.12)
Liquidity	0.082	-0.136	-0.137
	-1.220	(-1.02)	(-1.03)
Foreign	-	0.014 **	0.013*
		(3.56`)	(1.95)
Debt*Foreign			0.0001
			(0.18)
Constant	-0.967*	-0.165	-0.134
	(-2.17)	(-0.21)	(-0.16)
N	326	293	293
R2	0.13	0.15	0.15

Note: Standard errors are within parentheses. ∗∗∗ , ∗∗ , and ∗ denote significance at 1%, 5%, and 10%, respectively. See Table 1 for variable sources.

Table 3. Determinants of fiscal retrenchment, 1978-2009

Yield (t-1)	0.084*	0.076*	-0.052
	(2.11)	(1.99)	(-1.40)
Debt (t-1)	0.006**	0.007**	0.007**
	(2.56)	(3.01)	(3.15)
ΔGDP (t-1)	-0.075	-0.065	-0.0743
	(-1.52)	(-1.27)	(-1.47)
Risk	-0.15 *	-0.192***	-0.232**
	(-1.88)	(-3.18)	(-4.05)
Short (t-1)	0.02*	0.023*	0.021*
	(2.34)	(2.44)	(2.47)
Ideology	0.04	0.06	0.071
	(0.55)	(0.95)	(1.19)
Election	-0.1*	-0.12*	-0.115*
	(-2.06)	(-1.99)	(-2.04)
Concentration	0.04	-0.01	0.018
	(0.56)	(-0.18)	(0.23)
Foreign	-	0.001	0.001
		(0.075)	(0.58)
*Yield*Foreign*			0.007*
			(3.66)
Constant	0.09	-0.08	0.107
	(0.47)	(-0.40)	(0.71)
N	275	259	259
R2	0.17	0.22	0.24

Note: Standard errors are within parentheses. ∗∗∗ , ∗∗ , and ∗ denote significance at 1%, 5%, and 10%, respectively. See Table 1 for variable sources.

Bibliography (not quite complete)

Abbas, S., Blattner, L. De Broeck, M., El-Ganainy, A. and H. Malin (2014) 'Sovereign Debt Composition in Advanced Economies: A Historical Perspective', IMF Working Paper 14/162.

Adler, G. (2012) 'Intertwined Sovereign and Bank Solvencies in a Model of Self-Fulfilling Crisis', IMF Working Paper No. 12/178.

Alesina, A., M. De Broeck, A. Prati, and G. Tabellini (1992) 'Default Risk on Government Debt in OECD Countries', *Economic Policy*, 7(15): 427 – 63.

Alesina, A. and and R. Perotti (1995) 'The political-economy of budget deficits', *International Monetary Fund Staff Papers* 42 (1):1-31.

Allan, J. P., & Scruggs, L. (2004) 'Political partisanship and welfare state reform in advanced industrial societies', *American Journal of Political Science*, *48*, 496-512.

Andritzky, J. (2012) 'Government Bonds and Their Investors: What Are the Facts and Do They Matter?', *IMF Working Paper* No. 12/158.

Arslanalp, S. and Poghosyan, T. (2014) 'Foreign Investor Flows and Sovereign Bond Yields in Advanced Economies', *IMF Working Paper*, WP/14/27.

Arslanalp, S., & Tsuda, T. (2012). *Demand for Government Debt of Advanced Economies: A New Database*. IMF Working Paper (forthcoming).

Baldacci, E., & Kumar, M. (2010). Fiscal deficits, public debt, and sovereign bond yields. *IMF Working Papers*, 1-28.

Baum, C., F. Kleibergen and S. Stillman (2002) "Stata software package for IV/GMM estimation and testing: ivreg2, xtivreg2, overid, xtoverid, ivendog, ivhettest, ivreset, ranktest, ioverid, xtivreg2, xtoverid, ivhettest, ivactest, ivreset, ivactest" (01/04/2002), Research Papers in Economics (RePEc).

Beltran, D., Kretchmer, M., Marquez, J., and Thomas, C. (2012) 'Foreign Holdings of U.S. Treasuries and U.S. Treasury Yields', Federal Reserve Board, Washington D.C.

Bernoth, K., & Erdogan, B. (2012). Sovereign bond yield spreads: A time-varying coefficient approach. *Journal of International Money and Finance*, *31*(3): 639-656.

Bikhchandani, S. and Sharma, S. (2001) 'Herd Behavior in Financial Markets', *IMF Staff Papers* 47 (3): 279 – 310.

Breen, M. and McMenamin, I. (2013) 'Political Institutions, Credible Commitment, and Sovereign Debt in Advanced Economies', *International Studies Quarterly* 57, 842–854.

Cameron, D. (2013) 'Economy speech delivered by David Cameron', available from https://www.gov.uk/government/speeches/economy-speech-delivered-by-david-cameron [last accessed 4.5.2015].

Carruthers, B. (2015) 'Financialization and the institutional foundations of the new capitalism'. *Socioeconomic Review*, 13(2): 379-398.

Cohen, B. J. (1998). *The geography of money*. Cornell University Press.

Cox, H. (2016) *The market as God*. Massachusetts: Harvard University Press.

Culbertson, J. (1957) 'The Term Structure of Interest Rates', *Quarterly Journal of Economics* 71(4): 485-517.

D'Agostino, A. and Ehrmann, M. (2014) 'The pricing of G7 sovereign bond spreads – The times, they are a-changin', *Journal of Banking & Finance*, 47(C): 155-176.

DeHoyos, R. E., and V. Sarafidis. 2006. Testing for cross-sectional dependence in panel-data models. Stata Journal 6: 482–496.

Driscoll, J., and A. C. Kraay (1998) 'Consistent covariance matrix estimation with spatially dependent data', *Review of Economics and Statistics* 80(1): 549–560.

Dell'Erba, S., T. Mattina and A. Roitman (2013) 'Pressure or Prudence? Tales of Market Pressure and Fiscal Adjustment', *IMF Working Paper* No. 13/170.

Devries, P., J. Guajardo, D. Leigh, and A. Pescatori. (2011) 'A New Action-Based Dataset of Fiscal Consolidation', *IMF Working Paper* WP/11/128.

Diamond, D. W., & Rajan, R. G. (2011). Fear of fire sales, illiquidity seeking, and credit freezes. *The Quarterly Journal of Economics*, *126*(2): 557-591.

DMO [Debt Management Office] (2014) 'Annual Review 2013-14'. Available from: http://www.dmo.gov.uk/documentview.aspx?docname=publications/annualreviews/gar1314.pdf&page=Annual_Review [accessed 4.5.2015].

Dolowitz, D. and Marsh, D. (2002) 'Learning from Abroad: The Role of Policy Transfer in Contemporary Policy-Making', *Governance*, 13(1): 5-23.

Drelichman, M. and Voth, H. (2014) *Lending to the Borrower from Hell: Debt, Taxes, and Default in the Age of Philip II*, Princeton University Press.

Eichengreen, B. and and Hausmann, R. (eds.) (2005), *Other People's Money,* Chicago: The University of Chicago Press.

Eijffinger, S. and E. Mujagic (2004) 'An Assessment of the Effectiveness of the Monetary Dialogue on the ECB's Accountability and Transparency: A Qualitative Approach', *Intereconomics*, 39 (4): 190–202.

European Commission (2013), *Long-Term Financing of the European Economy*. Green Paper 25 March. Available at http://ec.europa.eu/internal_market/consultations/2013/long-term- financing/index_en.htm [accessed 13.4.2015].

Farhi, E. and J. Tirole (2014) 'Deadly Embrace: Sovereign and Financial Balance Sheets Doom Loops'. Available at http://idei.fr/doc/by/tirole/deadly_embrace_041514.pdf [accessed 7.6.2015].

Gill, S. (1998) 'European Governance and New Constitutionalism: Economic and Monetary Union and Alternatives to Disciplinary Neoliberalism in Europe', *New Political Economy*, 3 (1): 5–26.

Grabel, I. (2015). The rebranding of capital controls in an era of productive incoherence. *Review of International Political Economy*, 22(1), 7-43.

Greenwood, R., and D. Vayanos, (2010) 'Price Pressure in the Government Bond Market', *American Economic Review*, 100(2): 585-90.

Guichard S., Kennedy M., Wurzel E. and André C. (2007) 'What Promotes Fiscal Consolidation', *OECD Economics Department Working Papers* No. 553.

Hardie, I. (2012). *Financialization and government borrowing capacity in emerging markets*. Basingstoke: *Palgrave Macmillan.*

Hirschman, A. O. (1970). *Exit, voice, and loyalty: Responses to decline in firms, organizations, and states* (Vol. 25). Harvard university press.

Hoechle, D. (2007) 'Robust standard errors for panel regressions with cross-sectional dependence', *The Stata Journal*, 7(3): 281–312.

Howarth, D., & Quaglia, L. (2015). The political economy of the euro area's sovereign debt crisis: introduction to the special issue of the Review of International Political Economy. *Review of International Political Economy*, *22*(3): 457-484.

Hübscher, E. (2015) 'The politics of fiscal consolidation revisited', *Journal of Public Policy* m DOI: 10.1017/S0143814X15000057, Published online: 09 February 2015.

Illing, M. and Aaron, M. (2012) 'A Brief Survey of Risk-Appetite Indexes', available from: http://www.bankofcanada.ca/wp-content/uploads/2012/01/fsr-0605-illing.pdf

Investment & Pensions Europe (2012) 'Sovereign Bonds: Risk-free no longer', October.

Jaramillo, L., and Zhang, Y. (2013) 'Real Money Investors and Sovereign Bond Yields', *IMF Working Paper* No. 13/254.

Jeanne, O. (2009). Debt maturity and the international financial architecture. *The American Economic Review*, 99(5): 2135-2148.

Johnson, J., & Barnes, A. (2015). Financial nationalism and its international enablers: The Hungarian experience. *Review of International Political Economy*, *22*(3): 535-569.

Karcher, S. and Steinberg, A. (2013) 'Assessing the Causes of Capital Account Liberalization: How Measurement Matters*', International Studies Quarterly* 57 (1): 128-37.

Keele, L. J. (2008). *Semiparametric regression for the social sciences*. John Wiley & Sons.

Korpi, W., & Palme, J. (2003) 'New politics and class politics in the context of austerity and globalization: Welfare state regress in 18 countries, 1975-1995', *American Political Science Review*, 97(1): 425-46.

Kim, H. and Fording, R. (2001) *Extending Party Estimates to Governments and Electors. In Mapping Policy Preferences: Estimates for Parties, Electors, and Governments 1945–1998*, edited by Hans- Dieter Klingemann, Ian Budge, Andrea Volkens, Judith Bora and Eric Tanenbaum. Oxford: Oxford University Press.

Kirkegaard, J. and C. Reinhart (2012) 'Financial repression, then and now', *VoxEU.org*, May.

Krugman, P. (2010) 'Appeasing the Bond Gods', *New York Times*, 19.08. Available from: http://www.nytimes.com/2010/08/20/opinion/20krugman.html [accessed 13.4.2015].

Lojisch, D., Rodriguez-Vives, M. and Slavik, M. (2011) 'The Size and Composition of Government Debt in the Euro Area', *European Occasional Paper Series*, 132.

Lucas, R. and N. L. Stokey, (1983) 'Optimal Fiscal and Monetary Policy in an Economy without Capital', *Journal of Monetary Economics*, 12(1): 55-93.

Lustig, H., C. Sleet, and S. Yeltekin (2008) 'Fiscal Hedging with Nominal Assets', *Journal of Monetary Economics*, 55(4):710-727.

Mabbett, D., & Schelkle, W. (2015). What difference does Euro membership make to stabilization? The political economy of international monetary systems revisited. *Review of International Political Economy*, *22*(3), 508-534.

Maltritz, D. (2012) 'Determinants of sovereign yield spreads in the Eurozone: A Bayesian approach', *Journal of International Money and Finance* 3(2):657–72.

Maxfield, S. (1998). *Gatekeepers of growth: the international political economy of central banking in developing countries*. Princeton University Press.

McKinnon, R. (1973). *Money and Capital in Economic Development*, Washington, DC: Brookings Institution.

McMenamin, I., Breen, M. and Muñoz Portillo, J. (2015) 'Austerity and Credibility in the Eurozone', *European Union Politics*, 16(1): 45-66.

Merler, S., & Pisani-Ferry, J. (2012). Who's afraid of sovereign bonds. *Bruegel Policy Contribution*, *2*(2012), 1-8 (updated 2016).

Mosley, L. (2003) *Global Capital and National Governments*. Cambridge: Cambridge University Press.

Molnar, M. (2012) 'Fiscal Consolidation: Part 5, what Factors Determine the Success of Consolidation Efforts?', *OECD Economics Department Working Papers* No. 936.

Monnet, E., Pagliari, S. and Vallee, S. (2014) 'Europe between financial repression and regulatory capture', *Breugel Working Paper* 08.

Mulas-Granados, C. (2003) 'The Political and Economic Determinants of BudgetaryConsolidation in Europe', *European Political Economy Review* 1(1):15-39.

Nickel, C., Rother, P. and Zimmermann, L. (2010), 'Major Debt Reductions: Lessons from the Past, Lessons for the Future', *ECB Working Paper Series* 1241.

NTMA [National Treasury Management Agency] (2011) 'NTMA sets out "road map" for re-engagement with bond markets'. Available from: http://www.ntma.ie/news/ntma-sets-out-road-map-for-re-engagement-with-bond-markets/?keywords=\%22investor%20type\%22 [accessed 13.4.2015].

Obstfeld, M. (1998) 'The global capital market: benefactor or menace?', *Journal of Economic Perspectives*, 12, 9-30.

OECD (2011), Promoting Longer-Term Investment by Institutional Investors: Selected Issues and Policies, OECD Discussion Note, 17 February.

Osborne, G. (2012) Commons debate, available from: http://www.publications.parliament.uk/pa/cm201213/cmhansrd/cm121205/debtext/121205-0002.htm [last accessed 4.5.2015].

Parenteau, R. (2005), 'The Late 1990s' US Bubble: Financialization in the Extreme', in Epstein, G., *Financialization and the world economy*, Edward Elgar, Cheltenham, 111-148.

Riksgalden (2010) 'Basis for evaluation of central government debt management'. Available from: https://www.riksgalden.se/Dokument_eng/press/reports/annual-reports/Evaluation%20of%20central%20government%20debt%20management.pdf [accessed 4.5.2015].

Sarkozy, N. (2012), cited in Debrun, X and Kinda, T. (2013) 'That Squeezing Feeling: the Interest Burden and Public Debt Stabilization', IMF Working Paper No. 13/125.

Schäuble, W. (2011) 'Die Märkte wollen Taten sehen', Interview at RPOnline, 19.12.2011.

Schuknecht, L., von Hagen, J. and Wolswijk, G. (2009), 'Government Risk Premiums in the Bond Market: EMU and Canada', *European Journal of Political Economy*, 25 (3): 371–84.

Strange, S. (1996), The Retreat of the State: The Diffusion of Power in the World Economy (Cambridge: Cambridge University Press).

Tirole, J. (2012). Overcoming adverse selection: How public intervention can restore market functioning. *The American Economic Review*, *102*(1): 29-59.

Tsebelis, G (1995) 'Decision Making in Political Systems: Veto Players in Presidentialism, Parliamentarism, Multicameralism and Multipartyism', *British Journal of Political Science* 25: 289–326.

Van Riet, A. (2013) 'Financial Repression to Ease Fiscal Stress: Turning Back the Clock in the Eurozone?'. Paper presented at the Banco Central do Brasil, 8th Annual Seminar on Risk, Financial Stability and Banking, Sao Paolo.

Von Hagen, J., Schuknecht, L., Wolswijk, G., 2011. Government bond risk premiums in the EU revisited: The impact of the financial crisis. *European Journal of Political Economy*, 27(1): 36-43.

Wagschal, U. and Wenzelburger, G. (2008), 'Roads to Success: Budget Consolidations in OECD Countries', *Journal of Public Policy*, 28 (3): 309–39.

Warnock F. and Warnock, V. (2009) 'International Capital Flows and U.S. Interest Rates', J*ournal of International Money and Finance*, 28(6): 903-919.

Warnock, E. (2015) 'The Finance Ministry Chats Up the Market', *Wall Street Journal*, 13.2.2015, http://www.ntma.ie/news/ntma-sets-out-road-map-for-re-engagement-with-bond-markets/?keywords=\%22investor%20type\%22 [accessed 21.5.2014].

Wibbels, E., & Arce, M. (2003). Globalization, taxation, and burden-shifting in Latin America. *International Organization*, *57*(01), 111-136.

Weiss, L. (1998) *The Myth of the Powerless State*. Ithaca, NY: Cornell University Press.

Wellhausen, R. L. (2015). Bondholders vs. Direct Investors? Competing Responses to Expropriation. *International Studies Quarterly*, *59*(4), 750-764.

Woll, C. (2014). *The power of inaction: bank bailouts in comparison*. Cornell University Press.