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International Portfolio Inflows to GCC Markets. Are There any General Patterns?

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Abstract

In this paper, we document the main factors underlying the foreign portfolio inflows to Gulf Corporation Council countries (hereafter GCC) by employing a recently published database of cross-country portfolio holdings by the International Monetary Fund. We find that bilateral factors such as trade volume and debt to GDP ratio between the source and GCC (host) countries play a truly significant role in determining the volume of cross border portfolio inflows to GCC markets. Particularly, there is a strong correlation between trade volume and the volume of portfolio inflows. This connection becomes even stronger over time. Moreover, GCC members' stable fiscal position (lower debt to GDP ratio) is practically one of the important determinants of the volume of portfolio inflows to GCC markets. Specifically, for the international bond holders, the foremost motivation for investing cross borders is the absence of default risk and the higher return in comparison to other countries. We have also found that the extent of openness in capital account transactions and the income level of source country are additional factors that help to explain the volume of foreign portfolio inflows to GCC members. Last but not least, although there is a remarkable increase in the volume of the international portfolio inflows to GCC countries, there also exists a "GCC bias", a huge share of the portfolio inflows to GCC markets is coming from the GCC countries. This bias is the notable consequence of the high level financial and economic integration that characterizes the GCC countries as they are heading towards a monetary union. A similar bias occurs in European Union markets as well.

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1 Introduction

Capital and goods markets integration are the two pillars of globalization. However, although goods market integration has been broadly researched by macroeconomists, there has been little attention given to capital markets integration despite the remarkable increase in the sheer size of financial assets traded across borders.[1] In particular, issues related to international asset flows as well as the impact of economic and financial integration on the patterns of international asset allocation remain an area deserving further research as the world economy becomes more globalized. This paper contributes to the existing literature by uncovering the main factors underlying the foreign portfolio inflows to Gulf Cooperation Council countries (hereafter GCC),[2] It is, to our knowledge, the first of its kind for Middle-East countries.

Whether we assume that investors are rational or near-rational, when it boils down to portfolio allocation, their main objective is minimizing the portfolio risk. In this respect, the typical risk-averse investor has a genuine tendency to hold both foreign and domestic assets as a way to diversify their portfolio, ceteris paribus. Grubel (1968), showed that the main reason investors opt for an internationally diversified portfolio of financial assets as opposed to a purely domestic one is due to the fact that the variance of the former is smaller in comparison to the latter. In a recent study, Chow and Denning (1992) empirically illustrated how effective is the international portfolio diversification on reducing the portfolio risk. Similarly, Lewis (1996 and 1999) substantiates Grubel's and Chow and Denning's main findings by providing both theoretical foundation and empirical evidence.

A substantial number of subsequent empirical works, however, have provided evidence on two "biases" that contradict Grubel's (1968) findings: the "home" bias and the "regional" bias. Using the international capital asset pricing model, first Poterba (1991) and Tesar and Werner (1995) have shown that investors hold the vast majority of their portfolio in domestic assets and do not hold foreign financial assets as much as they optimally should, thus they are "home biased". There are a number of factors that can explain investor's preferences for

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[1]Mostly the internet that makes access to information readily available and thereby helps in the integration of financial markets.

[2]Namely, Bahrain, Kuwait, Qatar, Oman, Saudi Arabia, and the United Arab Emirates (UAE), which plan to enter a monetary union in 2010.

holding assets within their borders. For example, Brennan and Cao (1997) argue that because of information lags between domestic and foreign markets, domestic investors become trend followers and as a result invest in foreign markets only when contemporaneous foreign returns are positive. Portes and Rey (2005) find that information variables, such as telephone traffic, help explaining the home bias. Transactions costs associated with international financial asset trading is among other factors that explain home bias. Domowitz et al. (2001) and Coval and Moskowitz (1999) claim that such transaction costs existing in trading the financial assets are important, especially for emerging markets. In the literature, home bias has been accepted as a puzzle but it began to fade away. In a recent empirical study, Foad (2007) indicates that home bias levels of countries have decreased lately and they are certainly below 1990s levels however, still fall short of the optimal levels predicted by international CAPM models.

The regional bias contends that investors tend to hold a large share of their assets portfolio—both debt and equity–within their geographical boundaries even when they have the opportunities to spread their investments equally in various markets. To this end, European investors hold mostly financial assets from Europe while Asian investors hold assets mostly from Asia, and so on. These patterns are consistently observed lately, despite the overall increase in the volume of international assets holdings that take place due to financial market integration and economic booms that have occurred in other parts of the world. Lane (2005a, 2005b) have found the euro portfolio bias in their studies, while Balli (2007), which can be considered as an extension of Lane's, has focused on both Europe and other OECD countries found that with the extended data, euro investors have "euro bias" when they consider to hold foreign portfolios. He claimed that this is the remarkable consequence of the economic and financial integration across euro region. Indeed the same pattern might be observed among GCC markets as well as south-east Asian countries where further financial and economic integration among the region countries took place.[3]

In this aspect, our paper investigates the extent of regional biases and the lack thereof in international portfolio inflows for the GCC countries. As can be gleaned from the literature,

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[3]There is not such study regarding the patterns of portfolio allocation across the South Asian countries, given that those countries has been experiencing higher level of economic integration lately. It might be an ideal thing to compare those countries in the future.

there are a number of raison d'tres for the unequal allocation of international portfolio investments observed around the world. These reasons include but are not limited to investor's preferences, economic fundamentals, countries' specific characteristics, economic ties between source and host countries, the level of real income of source countries and the financial openness of the host country. More fundamentally, economic ties are exceedingly important when considering trade volume, distance, the relative easiness of securing loans, and transferring money across borders to settle financial transactions. Since the GCC countries are heading towards monetary union, studies on the level of integration such as Sturm and Siegfried (2005) and Iqbal and Fasano (2002) have concentrated on the convergence criteria adopted by the European countries prior to the realization of their monetary union to elucidate on how much adjustments the GCC countries need to implement in order to achieve their goal of monetary union. Congruently, our paper is a natural complement to these studies in that we focus on the integration of the GCC markets. Our motivation is mainly to inform policymakers whether the pattern of portfolio allocation observed for the European Union is comparable to that of the GCC countries, and most importantly the key factors underlying international portfolio inflows to these countries.

Our study on the pattern of international portfolio allocation for the GCC countries is captivating for many reasons. Firstly, the GCC countries have a common culture—a common religion Islam and a common language Arabic. Secondly, all GCC members are emerging markets with double-digit growth rates on average and relatively high income per capita comparable to that of the developed countries. Thirdly, all have fairly new financial markets where companies listed in the stock markets are at least 50 % state-owned, which reduces default risks for cross-border investment inflows, and governments have lower debt to GDP ratios compared to other emerging markets. Fourthly, oil and gas output on average accounts for more than 50 % of their total output and there is a planned initiative from these governments to reinvest oil revenues in infrastructure, industry and services to diversify their economies. These features are mostly attractive to investors looking for a high rate of return at the lowest risk possible. In this respect, at the first view, we expect to observe a more diversified pattern of portfolio investment in GCC countries rather than biases.

In this paper, we carry out a panel data analysis by using a recently published database of cross-country portfolio holdings by the International Monetary Fund's (IMF) Coordinated Portfolio Investment Survey Database (CPIS) for the period 2001–2005 along with data from other reliable sources to reveal the factors that characterize the pattern of portfolio allocation to the GCC's financial markets. Our results show that: (a) religion; (b) degree of openness in capital accounts; (c) the real GDP per capita level of the source country; (d) the default risk rate differences between host and source countries and (e) bilateral factors, in particular, trade volume between source country and GCC (host) country play significant role in determining the volume of cross border portfolio inflows to the GCC markets. Most importantly, our paper shows that while there is a remarkable increase in the volume of the international portfolio inflows to the GCC countries, similar to the European markets, there is also a "GCC bias", i.e., remarkable share of the portfolio inflows to the GCC markets is coming from the GCC countries. This bias is the notable consequence of not only the high level of financial and economic integration that characterizes the GCC countries as they are heading towards monetary union but also the post-September-11 reactions by both Arab investors in fear of their capital being mistakenly expropriated by the western world and foreign investors' lack of proper information about this part of the world.

The remainder of the paper is organized as follows. Section 2 presents a multi-market portfolio model relating international portfolio allocations with bilateral linkages. Section 3 describes the data set and the construction of the variables of some key variables of interest. Section 4 presents the empirical findings and analyzes the determinants of cross border asset holdings. Section 5 concludes the paper.

2 Model

2.1 Bilateral Linkage Model

The underlying framework of this paper is the original Obstfeld and Rogoff (2001) model where trading costs play a crucial role in explaining empirical macroeconomic puzzles. This framework has specially proven to be useful in addressing home bias puzzles by French and

Poterba (1991). Lane and Milesi-Ferretti (2008) have extended the Obstfeld and Rogoff's model to N countries in order to show that existing trading costs in the goods market and individual preferences mostly affect bilateral equity positions in both industrial and developing nations. The N country model of Lane and Milesi-Ferreti (2008) reveals that the home country's share of equity that is held by foreign country is a decreasing function of the trading costs between home and foreign country and increasing function of the realtime importance of good that is traded. We use the same theoretical approach to shed some light on the international portfolio inflows to the GCC countries.

The model has been set up as follows. Theoretically, there are N countries in the world and each country is endowed with a stock of perishable goods that is random. Output is unevenly produced across countries and there is a complete set of Arrow-Debreu (AD) securities in the capital markets. The model assumes that individuals hold cross-border portfolio in only one period as they try to maximize their expected utilities. We partition the N countries into two: h home country and j foreign countries. The expected utility of the representative consumer in the home country is given by:

$$EU_h = E\{\frac{1}{1-\rho}([\sum_{j=1}^{j=N} \varpi_{ij} C_{ij}^{\frac{\alpha-1}{\alpha}}]^{\frac{\alpha}{\alpha-1}})^{1-\rho} = E\frac{C_h^{1-\rho}}{1-\rho}, \tag{1}$$

where ϖ_{ij} is the relative preference by consumers in country j for good i, C_j is the index of total real consumption, α is the elasticity of substitution between any two goods and ρ is the coefficient of relative risk aversion.

There are iceberg shipping costs η only a fraction of a unit of a good shipped from country h to country j reaches to the destination. Accordingly, η_{hj} is bigger than zero. while assuming there are no shipping costs for good i within the foreign country $\eta_{jj}=0$, or within home country, $\eta_{jj}=0$. In addition, we normalize $\varpi_{jj} =1$.

Perfect competition in product markets requires that

$$P_{ih} = (1 - \eta_{hj})P_{ij}, \tag{2}$$

where P_{ih} and P_{ij} denotes the price of good i in countries h and j respectively. In the model,

we have free traded Arrow-Debreu securities where the marginal utilities of the consumption of good i between two individuals on countries h and j must reflect the relative price of the good i between countries.

In other words,

$$\frac{1}{P_{ih}}\frac{\partial U}{\partial C_{ih}} = \frac{1}{P_{ij}}\frac{\partial U}{\partial C_{ij}} \tag{3}$$

$$C_{ih}^{-1/\alpha}C_h^{1/\alpha-\rho} = (1-\eta_{hj})\varpi_{hj}C_{hj}^{-1/\alpha}C_j^{1/\alpha-\rho} \tag{4}$$

under a simplifying assumption where $1/\alpha=\rho$

$$C_{ij} = (1-\eta_{hj})^{\alpha}\varpi_{ij}^{\alpha}C_{ih}. \tag{5}$$

The goods market equilibrium is

$$Y_i = C_{ih} + \frac{P_{ij}}{P_{ih}} * C_{ij}. \tag{6}$$

If we generalize the output clearing condition to N markets,

$$Y_i = \sum_{j=1}^{j=N} \frac{C_{ij}}{(1-\eta_{ij})}. \tag{7}$$

In line with AD securities, the ratio of home to foreign consumption of goods must be equal to net asset inflows to home country from foreign country.

$$\theta_{hj} = \frac{P_{hj} * C_{hj}}{\sum_{j=1}^{N} P_{hj} * C_{hj}} \tag{8}$$

After appropriate substitution of equations 5 and 7 into equation 8, we get;

$$\theta_{hj} = \frac{(1-\eta_{hj})^{\alpha-1}\varpi_{ij}^{\alpha}}{\sum_{j=1}^{j=N}[(1-\eta_{hj})^{\alpha-1}\varpi_{ij}^{\alpha}]}Y_h. \tag{9}$$

Under the simplifying assumption that $1/\alpha=\rho$, this allocation can be achieved by foreign

asset trading. The allocation means that country j holds a larger share in country h's equity, the lower is the transportation cost between countries h and j relative to the average transport cost between country h and all other countries; and the greater is the relevant importance attached to good i in country j's consumption preferences.

After taking log of the equation, the equation becomes

$$log(\theta_{hj}) = (\alpha - 1)log(1 - \eta_{hj}) + \alpha log(\varpi_{hj}) - log(\sum_{j=1}^{j=N}[(1 - \eta_{hj})^{\alpha-1}\varpi_{hj}^{\alpha}] + logY_h. \quad (10)$$

The very last two terms are fixed terms for both home and foreign country. Therefore we can represent those terms as constant terms. This allows us to further simplify the expression to[4]

$$log(\theta_{hj}) = A_h + (\alpha - 1)^*log(1 - \eta_{hj}) + \alpha^*log(\varpi_{hj}). \quad (12)$$

This reduced form will help us to test the model empirically. In the reduced form, directly, transportation costs and consumer preferences are not observable, but may be captured by a host of proxy variables. The linear model can be set up as follows;

$$log(1 - \eta_{hj}) = \lambda\chi_{hj}^{\tau} + \upsilon_{hj}^{\tau}, \quad (13)$$

and

$$log(\varpi_{hj}) = \lambda\chi_{hj}^{\varpi} + \upsilon_{hj}^{\varpi}. \quad (14)$$

Obviously, the vectors could be overlapping sets such that the parameters may not be individually identifiable. In the end, we obtain a reduced form specification, particularly, the vectors

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[4]When we changed the order of the countries, the equation will be as follows;

$$log(\theta_{j*h}) = (\alpha - 1)log(1 - \eta_{j*h}) + \alpha log(\varpi_{j*h}) - log(\sum_{j=1}^{j^*=N, j \neq j^*}[(1 - \eta_{jh})^{\alpha-1}\varpi_{j*i}^{\alpha}]) + logY_{j*}. \quad (11)$$

the very last two terms will be the fixed effect of the foreign country pair. In the empirical model, the constant effects for both host(home) and source(foreign) country have been used accordingly.

of χ_{hj} contain the proxy estimates for the bilateral factors, such as distance between the source and host country, trade competition in the third markets, cultural linkages, foreign lending from foreign country to home country and bilateral trade volume between home and foreign country.[5]

3 Data

We use a broad sample of countries to capture the patterns of international portfolio inflows to GCC markets. We classify Gulf Corporation Council members as the host countries and 35 countries, which are listed in the Table 2, as source countries. The data set for this paper originates from various sources. We obtain a pair-wise volume of cross border portfolio holdings in US dollars from the International Monetary Fund's Coordinated Portfolio Investment Surveys (CPIS) for the period 2001 to 2005. These are reliable surveys that use consistent guidelines in measuring holdings of equity and bonds across countries. We could not use the survey data collected for the years 1994 and 1997 due to the unavailability of survey data for the GCC countries, which by and large have fairly new financial markets and have recently opened the non-oil sector of their economies to the rest of the world.

We construct two variants of portfolio holdings from the data set by looking at portfolio flows from source to host country. The first variable is the total foreign portfolio, which is the sum of debt and equity securities and the second one only captures debt securities. We discarded a third variable that would purely embrace financial inflows originating from equity securities transactions due to the fact that the volume as well as the allocations of equities to GCC markets are very limited and most of the times biased towards certain markets. Figure 2 corroborates that the majority of foreign portfolio inflows to the GCC market is the debt securities. This perceptible feature of the data supports our approach in focusing on both total portfolio inflows and total debt securities, not on equities as a dependent variable.

Following Sørensen *et al.* (2007), we construct a variable on total market capitalization by taking the weighted average of bond and equity markets capitalization for each country.

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[5]We use bilateral factors which are available for the GCC markets.

We extract the data from the Bank for International Settlements (BIS) Quarterly Review and measure the size of a country's total bond market capitalization as outstanding domestic debt securities minus outstanding short term domestic securities plus outstanding international bonds and notes.[6] We obtain the data of the total market capitalization of equity markets from the World Development Indicators (WDI) database.[7] Data sets for both the total debt and government deficit levels for each country are taken from International Financial Statistics (IFS). Data set of the sum of external and internal debts for the countries is obtained from different sources, including, IFS statistics and European Commission Database. The other variables that are used for the control of cross border bond holdings are distance and trade volume between host and source country. We obtain the data on distance in kilometers between two countries' capital cities from the airport accommodation web-site of UK.[8] Bilateral trade volumes-considering both exports and imports-between source and host countries in U.S. currency are extracted from IMF Direction of Trade Statistics (DOTS) Database.[9]

3.1 Capital Controls

Measuring capital control has always been a dilemma for researchers since it is difficult to distinguish between pure capital inflows and capital inflows that originate from the relaxation of rules and policies. We follow Chinn and Ito (2007) in constructing a variable that measures the level of financial openness of GCC markets. Chinn and Ito broadly define capital openness (KAOPEN), as a set of dummy variables by taking into consideration a set of restrictions on cross border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). These include variables indicating:

- variable indicating the presence of multiple exchange rates(k1)

- variable indicating restrictions on current account transactions(k2)

- variable indicating restrictions on capital account transactions (k3);

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[6]Short-term securities are defined as securities with maturity of less than a year.

[7]The data set for the total market capitalization is constructed by taking weighted average of bond market capitalization and equity market capitalization of each country.

[8]http://www.airport-accommodation.co.uk/worlddistances.php.

[9]http://www.imfstatistics.org/DOT/about.asp.

- variable indicating the requirement of the surrender of export proceeds (k4).

Among those binary variables, the restrictions on the capital account transactions is the most significant variable that will definitely affect the international portfolio allocation. Accordingly, we trace the dummy variable that captures restrictions on capital account transactions, (k3), over time and take its average over a five-year period to build our own dummy variable. At the end, we are able to observe the effects of the changes in capital restricting in a broader scope. Analogous to Mody and Murshid (2005) and Chinn and Ito (2007), we create the binary variable on capital restriction by considering financial openness rather than capital restrictions. Our dummy variable takes the value of 1 when the country does not have capital control restrictions and 0 otherwise.

The capital control variable is constructed as

$$CapitalControl = \frac{k_{3,t} + k_{3,t-1} + k_{3,t-2} + k_{3,t-3} + k_{3,t-4}}{5}, \tag{15}$$

where $k_{3,t-n}$ is the dummy variable for the capital restriction decision by IMFs Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) n years ago.

4   Empirical Model

In this section, we scrutinize the main determinants of the international financial asset inflows to the GCC markets by estimating the reduced form of Lane and Milesi-Feretti's (2008) N-country portfolio model. The regression equation is given by;

$$\theta_t^{hj} = \alpha_t^h + \alpha_t^j + \beta_{0,t}^* \text{DEBT}_t^{j-h} + \beta_{1,t}^* \text{GCC} + \beta_{2,t}^* \text{REL} + \beta_{3,t}^* X_t + \epsilon_t , \tag{16}$$

where dependent variable θ^{hj}, is the log volume of source country (j)'s foreign portfolio allocated in host country (h); α^h and α^j are corresponding the fixed effect variables of host and source country respectively. We used several variables to test these fixed effects. Considering the source country, we employed factor market capitalization rate of the source country, PPP adjusted real GDP per capita, as well as the log linearized population. The host country fixed

effect is controlled by the financial openness variable, PPP adjusted real GDP per capita, and log linearized population of the host country. DEBT^{j-h} is the debt to GDP ratio differentials between host and source country. Since the investors are particularly interested in the ability of the borrowers to pay back its debts we could not overlook the effect of fiscal indebtedness on the bonds markets. To this effect, we use the debt to GDP ratio variable in an approach that is that we can test the significance of both fixed effects. In addition, we incorporate two dummy variables so that we can test for bilateral linkages between source and host countries: (a) GCC that takes one when the source country is a member of GCC countries, and zero for elsewhere; and (b) REL that takes 1 when the dominant religion in the source country is Islam and 0 elsewhere. Later binary variable is created to test the effect of sharing the same culture and religion on the portfolio allocation to GCC countries. X_t contains the bilateral factors that help to explain the volume of financial asset flows to GCC markets. To account for bilateral factors in international portfolio inflows to GCC, we use export volume from source country to host countries in U.S Dollars and distance in kilometers between the capital city of the source country and the host country in logarithmic forms.

5 Empirical Results

Tables 3–9, summarize the results of the estimated panel regressions model. We ran panel regressions for account for fixed effects and for bilateral linkages for the period for years 2001–2005. Hence, the only explanatory variables included in the regression are those that have variation along sample dimensions. Table 3 contains the estimated coefficients of the reduced form model equation 16 for different sub-samples. Since in the IMF's portfolio survey (CPIS), the number of countries that invest in GCC countries is much less in 2001 compared to 2005, we divide the sample into different sub samples to capture the main determinants of the portfolio inflows effectively[10]. In particular, there has been considerable changes in the decomposition of the financial asset inflows to GCC markets. Sub samples are selected in consideration with the

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[10]The volume of the foreign asset inflows as well as the number of the investors investing to GCC markets is quite limited in 2001, however, both the number and the volume are gradually increasing in the later years. We propose that it will be a better estimation way to have different sub samples, besides we may be able to test the robustness of the variables by having such sub samples.

higher volatility in the portfolio inflows and to provide robust estimations. The main bilateral linkage variable, the import volume of the host country from source country is significant and positive for all sub-samples and the magnitude of the coefficient is increasing over time. Such increase is likely to reflect the result of trade agreements between the GCC countries and the source countries and its effect on the portfolio inflows. Our panel regression consequently corroborates the view that trade in goods is an important determinant of the volume of the portfolio inflows to the GCC markets. Similar to this, Lane and Milesi-Feretti (2008) provided a strong relationship between bilateral trade volume and portfolio inflows for 2001 survey data.

Although distance among the capital cities between host and source country has an intuitive—negative—coefficient in the regressions, it is statistically significant at the 10 % level. Physical distance between the financial centers of the source and host countries matters for the portfolio inflows. One of the source-country-fixed-effect variable, PPP adjusted real GDP per capita level has positive and significant effect in explaining the portfolio inflows to GCC markets. We can rephrase that as income levels increase in the source countries, individuals who have accumulated enough wealth tend to diversify their portfolio by investing in abroad. Our findings might suggest that investors have found the GCC markets attractive in this aspect.

Our study also reveals that factor market capitalization of the source country play a significant role in international portfolio inflows to the GCC markets. Its coefficient is positive and statistically significant, suggesting that the more the source country is investing abroad, the higher the possibility that a portion of their portfolio will be invested at the GCC countries financial assets. This can be explained by the relatively higher returns these markets offer, the easiness of capital investing and repatriation that are in place, without negating the stability of the individual currencies, all mostly pegged to or fluctuate little against the US Dollars.[11] Financial openness variable is also found to have the expected positive and is statistically significant. This is typical expected result for the investors investing in the emerging markets. The lesser the barriers for capital account transactions, the greater the capital inflows took place. In a similar study, Alfaro *et al.* (2004) revealed that for emerging markets capital inflows will enhance with less financial market restrictions, most likely will be resulted in higher

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[11]All GCC countries except Kuwait, have pegged their currencies to US dollars. Kuwait, currently have been using a basket of currencies for its exchange rate regime

economic growth. Among the GCC countries, Sultanate of Oman has erected more barriers than any other member towards capital transactions; therefore, financial asset flows to Oman are lower in terms of the volume.[12]

Since the total portfolio inflows include a significant share of debt inflows and investors are usually concerned about default risk, the debt to GDP ratio is a good indicator of how likely a nation is to meet its financial commitments. It is also the case that fiscally stable countries tend to make investors feel confident about investing in their markets, particularly in the bond markets leading to higher bond portfolio inflows. We control for the fiscal position of the host country relative to the foreign country with the debt to GDP ratio differences, namely, DEBT^{j-h}. The coefficient for GCC countries is found to be positive and significant over different sub-samples, indicating that foreign portfolio holders do consider the fiscal position of the member countries when investing aborad. This is consistent with the previous studies as well. For comparison purposes, we ran a separate set of panel regression with similar variables considering OECD countries as both source and host countries over different samples. Table 4 contains the regression results for the sample of OECD members. We observe the coefficient of DEBT^{j-h} is also positive and significant but of a lesser magnitude than that of GCC countries as in Table 3. This finding substantiates the presumption that investors located in OECD markets also considers the fiscal vulnerability of the host countries they want to hold assets from. [13]

As shown in Figure 2, debt securities as a share of total portfolio is considerably large, we present in Table 5 the results obtained from concentrating solely on total debt securities as our measure of international portfolio inflows to the GCC countries and there are no significant changes in the results. For instance, all the key variables, such as bilateral trade, capital control, and income level had the expected signs and were statistically significant. These variables have shown to be the principal determinants of portfolio inflows to the GCC, irrespective of the measures used as the dependent variable. We further observe that our dummy variable,

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[12]Figure 1 provides the financial asset inflows relative to GDP of each GCC member. It also indicates that Oman has the lowest forein asset inflows compared to other GCC members.

[13]In our study, in order to have a comparative analysis , we extracted the pair wise panel regressions performed for samples of euro region and OECD samples.

GCC, is positive and significant, indicating that there is a "GCC bias" in the debt inflows as well. The GCC countries are allocating an important share of their portfolios in GCC markets, instead of investing elsewhere. When we compare these results with Table 6 where source countries are listed as members of the European Monetary Union (EMU) and host countries are listed as members of OECD, we note a similar bias, namely, a "euro" portfolio bias, irrespective of which variable used in the regression total debt or equity securities.[14] This is an important finding that appears to suggest that in GCC and European regions where economic integration has reached or is near its highest stage—monetary union—, investors prefer allocate their portfolio mostly within their respective regions. Although this pattern may further enhance relationships among member countries, it carries the drawback of limiting income smoothing via portfolio diversification. In fact, this is a more serious issue for GCC countries where output diversification is quite limited. With 50 % or less of total output coming from the non-oil sector, GCC investors bear higher risks due to the impediment of further diversifying their portfolio across industries within member countries.

Although, it is conventional that investors allocate their portfolio where they can get higher returns for similar levels of risks, however, in the case of GCC countries where Islam is the official religion, investments to securities may be governed by strict rules. We test whether such cultural similarities play an important role in international portfolio inflows to the GCC countries given the verity that it is prohibited by the Qu'ran to earn income through interest-earning-based activities. Our dummy variable, REL, is positive and significant in both Tables 3 and 5, where total portfolio and total debt equities are respectively used as response variables. We therefore conjecture that for the debt inflows to the host countries, GCC investors' priority is to allocate their wealth to Sharia'a-compliant debt instruments from Islamic markets. This also partly explains the GCC bias observed because investors adhere to religious norms.

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[14]Similar to GCC portfolio bias, euro portfolio bias exists, since the euro investors tend to allocate most of their portfolio inside of euro region.

5.1 Robustness Checks

One of the characteristics of the GCC markets is that Bahrain is classified as an offshore center for financial business. This may be seen as a weakness of our approach, hence, our findings due to the fact that international income inflows to Bahrain may have little to do with portfolio diversification but rather to its offshore status. Moreover, although Bahrain is the smallest of all the GCC countries, it is also the most open in terms of capital markets. Therefore, our total portfolio and debt equity measures of international portfolio inflows to GCC markets might be influenced by Bahrain's weight. We address this issue by excluding Bahrain when re-estimating the panel regressions. Tables 7 and 8 present those estimation results. Similar to the previous results, the coefficients of import level of host country from source country is positive and significant and gradually increasing through 2005. Other variables such as factor market capitalization of the source country, PPP adjusted Real GDP of the host country, and financial openness are statistically significant, indicating that our results are quite robust. It is worth noting, however, that variables such as distance and religion are no longer significant when Bahrain is excluded from our sample.

One noteworthy feature of the data is that for the GCC and other emerging markets, IMF's portfolio survey data set contains a large number of observations for portfolio inflows from other countries to the GCC markets that have a value of zero. This implies that a significant portion of portfolio inflows to the GCC markets from our source countries sample is negligible. In search for further robustness of the results, we re-run the regressions using the Tobit model and the results are documented in Table 9.[15] By and large, these findings are similar to earlier results and are even stronger for the regressions performed for year 2005. All variables had the expected signs and were statistically significant for this sub-sample period. The volume of imports for the host country explains a large share of the portfolio inflows to the GCC countries, but its coefficient is relatively smaller when compared across samples and with OECD and euro markets in Tables 4 and 6, respectively[16]. The GCC bias is again present,

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[15]Tobit is an econometric, biometric model proposed by James Tobin (1958) to describe the relationship between a non-negative and non-zero dependent variable with the independent variables.

[16]In Table 4 and 6, we performed the regressions, the trade variable is the bilateral linkage variable between source and host country. The coefficients is in between %50 to %60, indicating that bilateral trade volume

providing convincing evidence that when GCC investors make the decision to diversify their portfolio, they–at least the two members, Bahain and Kuwait, that IMF's CPIS survey has available data—primarily choose other GCC countries to allocate their wealth.

6   Concluding Remarks

This paper has contributed to the literature by elucidating on the patterns of financial asset inflows to GCC markets. Following along the lines of Obstfeld and Rogoff (2001) and its extended version by Lane and Milesi Feretti (2008), we investigate the cross-country portfolio investment patterns of the GCC countries. We estimate a panel regression model using data from various sources and conduct a comparative analysis with the European region to shed light on the determinants of portfolio inflows to the GCC markets. We consider the GCC countries as the host countries to 35 source countries as per the IMF survey on international portfolio inflows. Our results show that international portfolio inflows to the GCC markets are primarily explained by bilateral linkages mainly the volume of import of host countries from the source countries, strong fiscal position of the GCC markets, regional affinities, religion, world market capitalization, capital market liberalization, and income levels of the source countries. We also found similar patterns for Europe and OECD members, regardless of whether we use OECD members as both source and host countries or European Monetary Union as source and other OECD countries as host. In the main, our finding of the determinants of the international portfolio inflows to the GCC is very similar to those of the European and the OECD countries.

One noteworthy feature of the results is that international portfolio inflows to the GCC countries are characterized by a GCC bias. This implies that the GCC markets are getting international portfolio investment mostly from other GCC markets—at least we can able to observe the investors located in Kuwait and Bahrain's patterns. This bias can be explained in part by regional affinities, religion, further economic integration, and post-September-11 strategies to mitigate risks in investing in other countries where foreign capital might be frozen for political reasons. In contrast, a similar bias in portfolio allocation exists in European region

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between source and host country is roughly explaining %50 to %60 of the portfolio inflows from source country to host country

but with different explanations. An other important feature of our findings is that the results are still valid when we exclude Bahrain from the panel regression to account for its status as an offshore financial center and use the Tobit model to differentiate between non-negative and non-zero relationships of the dependent variable with the independent variables. Needless to say that Oman has recently decided to pull out of the GCC monetary union initiative that was scheduled to materialize in 2010, we expect further economic and financial integration among the remaining member countries to bring about more investment flows to these markets, ceteris paribus.

References

Adjaout, K., Laura, B., Danthine, J., Fischer, A., Hamaui, R., & Portes, R. (2002). EMU and portfolio adjustment. CEPR Policy Paper No:5.

Alfaro, L., Kalemli-Ozcan, S., & Volosovych, V. (2005). Why doesnt capital flow from rich to poor countries? An empirical investigation. Review of Economics and Statistics 90, 347–368.

Anderton, F., & Moneta, F. (2004). Understanding impact of the external dimension on the Euro Area: Trade, capital flows and other international macroeconomic linkages. European Central Bank, Working Paper No:2.

Balli, F., & Sørensen, B. (2005). Impact of the EMU on channels of risk sharing between member countries. University of Houston Working Paper.

Bernoth, K., Hagen, J., & Schuknecht, L. (2004). Sovereign risk Premia in the European government bond market. European Central Bank, Working Paper No:2.

Cooper, I. A., & Kaplanis, E. (1994). Home bias in equity portfolios, inflation hedging, and international capital market equilibrium. Review of Financial Studies 7, 45–60.

Coval, J. D., & Moskowitz T.D. (1999). Home bias at home: Local equity preference in domestic portfolios. Journal of Finance 54, 2045–2073.

Domowitz, I., Glen J., & Madhavan, A. (2001). Liquidity, volatility and equity trading costs across countries and over time. International Finance 4, 221–255.

Chinn, M. & Hiro I. (2005). What matters for financial development? capital controls, institutions, and interactions. Journal of Development Economics 81, 163–192.

Chinn, M. & Hiro I. (2007). A new measure of financial openness. UC Santa Cruz SCCIE Working Paper.

Denning, K. C., & Chow, K. V. (1992). The symmetry and stability of word equity markets: Getting to the issue on international portfolio diversification. Journal of Multinational Financial Management 2, 35–58.

Fasano, U., & Iqbal, Z. (2003). GCC Countries: from oil dependence to diversification, International Monetary Fund, Washington D.C.

Foad, H. (2007). Equity home bias in the EMU. San Diego State Working Paper.

Forbes, K. J., & Chinn, M. (2004). A Decomposition of global Linkages in financial markets over time. Review of Economics and Statistics 86, 705–722.

French, K., & Poterba, J. (1991). International diversification and international equity markets. American Economic Review 81, 222–226.

Grubel, H. L. (1968). Internationally diversified Portfolios: Welfare Gains and Capital Flows. American Economic Review 58, 1299–1314.

Iqbal, Z., & Ugo F. (2003). Gulf Cooperation Council: Challenges on the road to a monetary union. Box 1.5, World Economic Outlook, September, IMF, Washington DC.

Lane, P. (2005.) Global Portfolios and EMU. ECB Working Paper No:553.

Lane, P.,& Milesi-Ferretti, G.M. (2001). The external wealth of nations: Measures of foreign assets and liabilities for industrial and developing nations. Journal of International Economics 55, 263–294.

Lane, P., & Milesi-Ferretti, G.M. (2005). The International equity holdings of Euro Area investors. The Institute for International Integration Studies Discussion Paper Series No:104

Lane, P., & Milesi-Ferretti, G.M. (2008). International investment patterns. IMF Working Paper No:134. Also Review of Economics and Statistics forthcoming.

Lewis, K. (1995). Puzzles in international financial markets, in: Gene Grossman and Kenneth Rogoff, eds. Handbook of International Economics North Holland, Amsterdam.

Lewis, K. (1996). What explain the apparent lack of international consumption risk sharing? Journal of Political Economy 104, 267–297.

Lewis, K. (1999). Trying to explain home bias in equities and consumption. Journal of Economic Literature 37, 571–608.

Mann, C., & Meade E. (2003). Home bias, transactions costs, and prospects for the Euro. in W.C. Hunter, G.G. Kaufman, and M. Pomerleano (eds.): Asset Price Bubbles: The Implications for Monetary, Regulatory, and International Policies, Cambridge: MIT Press.

Mèlitz, J., & Frédéric Z. (1999). Interregional and international risk sharing and lessons for EMU. Carnegie-Rochester Conference Series on Public Policy 51, 149–88.

Obstfeld, M., & Rogoff K. (2001). The six major puzzles in international macroeconomics: Is there a common cause? Center for International and Development Economics Research (CIDER) Working Papers C:00-112, University of California at Berkeley.

Portes, R. & Rey, H. (2005). The determinants of cross border equity flows. Journal of International Economics 65, 269–296.

Sørensen, B. E., Wu, Y.T., Yosha, O., & Zhu,Y. (2007). Home bias and international risk sharing: Twin puzzles separated at birth. Journal of International Money and Finance 26, 587–613.

Sturm, M., & Siegfried N. (2005). Regional monetary integration in the members states of the gulf cooperations council. Occasional Paper Series No:31, European Central Bank.

Tesar, L., & Werner, I. (1995). Home bias and high turnover. Journal of International Money and Finance 14, 467–492.

Warnock, F. E. (2002). Home bias and high turnover reconsidered. Journal of International Money and Finance 21, 795–805.

Table 1: **Data Description and Construction of the Variables**

Variable	Source and Explainations
Foreign Portfolio Inflows	IMF's Coordinated Portfolio Investment Survey (CPIS) for years between 2001 and 2005. In the regressions, we employ the log linearized U.S. Dollar value of the financial asset inflows to GCC markets. Survey data exists for 1997 year as well. However for 1997, the survey was not conducted extensively.
Import	Import of the GCC countries from the source countries listed below. The data source is taken from IMF's Direction of Trade Database (DOTS) for years 2001–2005. We employed the log linearized values of the imports.
Distance	The data on distance between two countries's capital cities in terms of kilometer from IMF and Shang Wei's Website.
Debt Market Capitalization	Domestic Debt securities and outstanding short term securities are obtained from Bank of International Settlements (BIS) Quarterly Review. We created size of a country's total bond market capitalization as outstanding domestic market securities minus outstanding short term domestic securities plus outstanding international bonds and notes.
Equity Market Capitalization	This data set is obtained from World Bank's World Development Indicators (WDI).
Gross Domestic Product	(PPP adjusted.) United Nation's National Accounts Database and authors' own calculations.
CPI Index	United Nation's National Accounts Database.
Population	(In person) United Nation's National Accounts Database. We employed the log linearized of population in person.
Debt Position	International Financial Statistics Database and European Commission Database. We normalize the outstanding debt of each country to its GDP.
Capital Controls	IMF's Annual Report on Exchange Rate Arrangements and Exchange Restrictions(AREAER). We created the capital control variable using restrictions on capital account transactions. We created the capital control variable by taking the average of these binary variables for 5 year period. Details are explained in the text.

Table 2: **Countries in the Data Sets**

Source Countries

Austria	Japan	Thailand
Bahamas	Korea	Turkey
Bahrain	Kuwait	United Kingdom
Belgium	Macao SAR of China	
Bermuda	Malaysia	**Host Countries**
Canada	Malta	Bahrain
Cyprus	Mauritus	Kuwait
Denmark	Netherlands	Oman
Egypt	Norway	Qatar
France	Pakistan	Saudi Arabia
Germany	Philippines	United Arab Emirates
Guinea-Bissau	South Africa	
Hong Kong SAR of China	Spain	
Ireland	Sweden	
Italy	Switzerland	

Notes: Time period is 2001-2005

Table 3: **The Determinants of Foreign Portfolio Holdings**

	2001-2005	2003-2005	2005
IMPORT(h)	0.1	0.20	0.42
	(2.01)	(2.26)	(3.15)
DISTANCE	-0.08	-0.16	-0.24
	(-1.21)	(-1.70)	(-1.66)
FMC(j)	0.19	0.21	0.18
	(3.21)	(3.93)	(2.17)
CAPITALCONTROL(h)	0.17	0.14	0.43
	(1.94)	(1.99)	(2.15)
GDP(j)	0.11	0.10	0.29
	(2.18)	(2.06)	(1.91)
DEBT^{j-h}	0.28	0.41	0.98
	(1.78)	(1.44)	(2.12)
GCC	2.58	2.45	2.23
	(6.99)	(5.50)	(5.88)
REL	0.92	1.11	1.10
	(3.22)	(3.12)	(1.89)

Notes: Pooled panel regressions for determinants of cross border portfolio holdings. Sub-Samples used in the regression are explained in the text. Heteroskedasticity consistent t-statistics are given in parenthesis. Dataset is employed annual for years 2001-2005. The dependent variable is log linearized volume of source country's (j) portfolio holding in the host country, (h). Similarly, IMPORT(h) is the log linearized import volume of host country shipped from source country. FMC(j) is defined as the source country's share of world market capitalization. DEBT^{j-h} is the debt to GDP ratio differential between source and host country. DISTANCE is the financial center distance between host and source countries in kilometers, this variable is also log linearized. GCC is a dummy variable equal to 1 if source country is a member of GCC, zero elsewhere. GDP(j) is the log linearized PPP adjusted GDP per capita of source country. CAPITALCONTROL(h) is the capital control adjustments of host country. Detail of the variable is explained in the text. REL refers a dummy variable equal to 1 when the recognized religion of the the source country is Islam, 0 elsewhere.

Table 4: **The Determinants of Foreign Bond Holdings**

	Host: OECD Source: OECD	Host:OECD Source: OECD
FMC(j)	0.38 (3.18)	0.42 (3.15)
DEBT^{j-h}		0.33 (1.89)
EMU	1.55 (6.23)	2.11 (6.66)
DISTANCE	−0.13 (−0.2)	−0.21 (−1.81)
IMPORT(h)	0.62 (2.62)	0.59 (3.21)

Notes: Panel regressions are done for country by country total portfolio holdings. Host refers to the classification of the domestic country. Source refers to the classification of the country issuing the foreign asset. For example, when we have "Host: OECD, Source: OECD" this limits the sample to country pairs in which the host country is an OECD member while the source country is taken from the sample of OECD. Heteroscedasticity consistent t-statistics are given in parenthesis. OECD includes Australia,Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Iceland, Japan, Korea Republic, Netherlands, Norway, New Zealand, Portugal, Spain,Sweden, Switzerland, UK, and US. non-EMU: Australia, Canada, Denmark, Iceland, Japan, Korea Republic, Norway, New Zealand, Sweden, Switzerland, UK, and US. Annual data is used for years 1997, 2001–2005. The dependent variable is the share of source country (j)'s bond in the total volume of host country (h)'s foreign bond portfolios. FMC(j) is defined as the source country's share of world market capitalization. DEBT^{j-h} is the total debt to GDP ratio differentials between source and host country.IMPORT(h) is import volume of host country from source country as a ratio of the total imports of host country. Distance is logarithm of the distance in miles between the capital cities of home and foreign country. EMU is a dummy variable equal to 1 if host country is a member of EMU, zero elsewhere.

Table 5: **The Determinants of Foreign Investment Inflows: Debt Holdings**

	2001-2005	2003-2005	2005
IMPORT(h)	0.11	0.11	0.06
	(1.42)	(1.99)	(2.08)
FMC(j)	0.18	0.21	0.19
	(1.16)	(1.88)	(2.11)
DISTANCE	−0.11	−0.11	−0.30
	(−0.39)	(−1.04)	(−1.88)
DEBT^{j-h}	1.45	1.75	3.23
	(1.98)	(1.58)	(2.23))
CAPITALCONTROL(h)	0.12	0.18	1.82
	(1.75)	(1.99)	(2.08)
GDP(j)	0.92	1.15	1.75
	(2.31)	(2.06)	(2.46)
GCC	2.18	2.01	2.07
	(7.09)	(1.82)	(6.03)
REL	1.96	1.97	2.98
	(1.35)	(0.99)	(2.11)

Notes: Pooled panel regressions for determinants of cross border bond holdings. Sub-Samples used in the regression are explained in the text. Heteroskedasticity consistent t-statistics are given in parenthesis. Dataset is employed annual for years 2001-2005. The dependent variable is log linearized volume of source country's (j) portfolio holding in the host country, (h). Similarly, IMPORT(h) is the log linearized import volume of host country shipped from source country. FMC(j) is defined as the source country's share of world market capitalization. DEBT^{j-h} is the debt to GDP ratio differential between source and host country. DISTANCE is the financial center distance between host and source countries in kilometers, this variable is also log linearized. GCC is a dummy variable equal to 1 if source country is a member of GCC, zero elsewhere. GDP(j) is the log linearized PPP adjusted GDP per capita of source country. CAPITALCONTROL(h) is the capital control adjustments of host country. Detail of the variable is explained in the text. REL refers a dummy variable equal to 1 when the recognized religion of the the source country is Islam, 0 elsewhere.

Table 6: **The Determinants of Foreign Bond Holdings**

	Host: OECD Source: EMU	Host: OECD Source: EMU
FMC(j)	0.33 (3.19)	0.36 (3.03)
DEBT^{j-h}		0.31 (3.44)
EMU^c	1.33 (6.11)	1.77 (6.21)
IMPORT(h)	0.58 (5.77)	0.55 (4.67)
DISTANCE	−0.07 (−0.66)	−0.11 (−0.44)

Notes: Panel regressions are done for country by country bond holdings. Host refers to the classification of portfolio issuing country. Source refers to the classification of the country buying the financial asset from the host country. For example, when we have "Host: EMU, Source: non-EMU" this limits the sample to country pairs in which the host country is an EMU member while the source country is taken from the sample of non-EMU. Heteroscedasticity consistent t-statistics are given in parenthesis. OECD includes Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Iceland, Japan, Korea Republic, Netherlands, Norway, New Zealand, Portugal, Spain,Sweden, Switzerland, UK, and US. EMU: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain. Annual data is used for years 1997, 2001–2005. The dependent variable is the share of source country (j)'s bond in the total volume of host country (h)'s foreign bond portfolios. FMC(j) is defined as the source country's share of world market capitalization. DEBT^{j-h} is the total debt to GDP ratio differentials between source and host country. IMPORT(h) is import volume of host country from source country as a ratio of the total imports of host country. Distance is logarithm of the distance in miles between the capital cities of home and foreign country. EMU is a dummy variable equal to 1 if host country is a member of EMU, zero elsewhere.

Table 7: **The Determinants of Foreign Investment Inflow: Total Portfolio Holdings Excluding Bahrain**

	2001-2005	2003-2005	2005
IMPORT(h)	0.12	0.15	0.31
	(1.81)	(2.69)	(4.16)
FMC(j)	0.18	0.19	0.22
	(2.16)	(3.11)	(4.11)
DISTANCE	−0.15	−0.07	−0.07
	(−1.26)	(-1.78)	(-0.88)
DEBT^{j-h}	0.33	0.08	1.21
	(1.88)	(3.07)	(2.99))
CAPITALCONTROL(h)	0.30	0.32	0.50
	(2.59)	(2.75)	(2.97)
GCC	2.58	2.63	2.01
	(5.14)	(4.58)	(6.61)
GDP(j)	0.08	0.28	1.21
	(0.96)	(2.29)	(2.99)
REL	0.26	0.18	0.34
	(0.99)	(1.01)	(0.68)

Notes: Pooled panel regressions for determinants of cross border portfolio holdings. Sub-Samples used in the regression are explained in the text. Heteroskedasticity consistent t-statistics are given in parenthesis. Dataset is employed annual for years 2001-2005. The dependent variable is log linearized volume of source country's (j) portfolio holding in the host country, (h). Similarly, IMPORT(h) is the log linearized import volume of host country shipped from source country. FMC(j) is defined as the source country's share of world market capitalization. DEBT^{j-h} is the debt to GDP ratio differential between source and host country. DISTANCE is the financial center distance between host and source countries in kilometers, this variable is also log linearized. GCC is a dummy variable equal to 1 if source country is a member of GCC, zero elsewhere. GDP(j) is the log linearized PPP adjusted GDP per capita of source country. CAPITALCONTROL(h) is the capital control adjustments of host country. Detail of the variable is explained in the text. REL refers a dummy variable equal to 1 when the recognized religion of the the source country is Islam, 0 elsewhere.

Table 8: **The Determinants of Foreign Debt Inflow: Total Portfolio Holdings Excluding Bahrain**

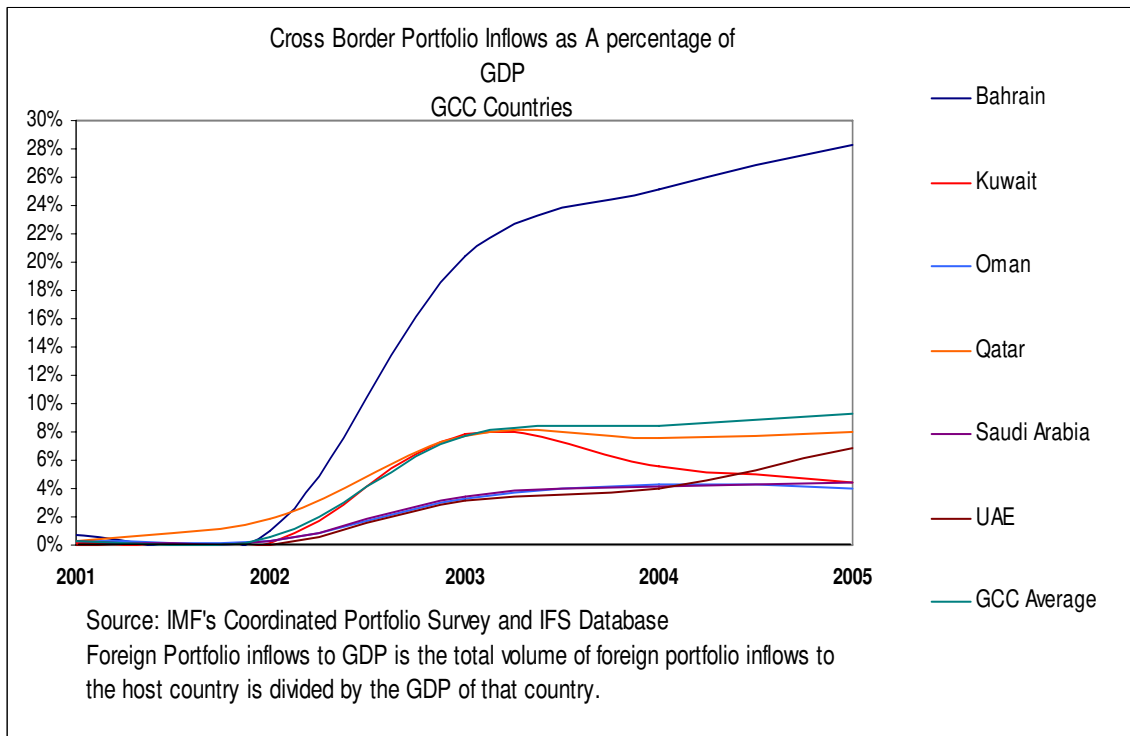|	2001-2005	2003-2005	2005
IMPORT(h)	0.08	0.07	0.03
	(1.88)	(2.16)	(1.75)
FMC(j)	1.19	0.21	0.88
	(2.16)	(2.08)	(1.24)
DISTANCE	−0.13	−0.26	−0.24
	(−0.50)	(−0.66)	(−0.46)
DEBT^{j-h}	0.33	0.08	1.21
	(1.88)	(3.07)	(2.99))
CAPITALCONTROL(h)	0.30	0.32	0.50
	(2.59)	(2.75)	(2.97)
GCC	2.58	2.63	2.01
	(5.14)	(4.58)	(6.61)
GDP(j)	0.08	0.28	1.21
	(0.96)	(2.29)	(2.99)
REL	0.26	0.18	0.34
	(0.99)	(1.01)	(0.68)

Notes: Pooled panel regressions for determinants of cross border bond holdings. Sub-Samples used in the regression are explained in the text. Heteroskedasticity consistent t-statistics are given in parenthesis. Dataset is employed annual for years 2001–2005. The dependent variable is log linearized volume of source country's (j) portfolio holding in the host country, (h). Similarly, IMPORT(h) is the log linearized import volume of host country shipped from source country. FMC(j) is defined as the source country's share of world market capitalization. DEBT^{j-h} is the debt to GDP ratio differential between source and host country. DISTANCE is the financial center distance between host and source countries in kilometers, this variable is also log linearized. GCC is a dummy variable equal to 1 if source country is a member of GCC, zero elsewhere. GDP(j) is the log linearized PPP adjusted GDP per capita of source country. CAPITALCONTROL(h) is the capital control adjustments of host country. Detail of the variable is explained in the text. REL refers a dummy variable equal to 1 when the recognized religion of the the source country is Islam, 0 elsewhere.

Table 9: **The Determinants of Foreign Investment Inflow: Total Portfolio Holdings Tobit Estimation**
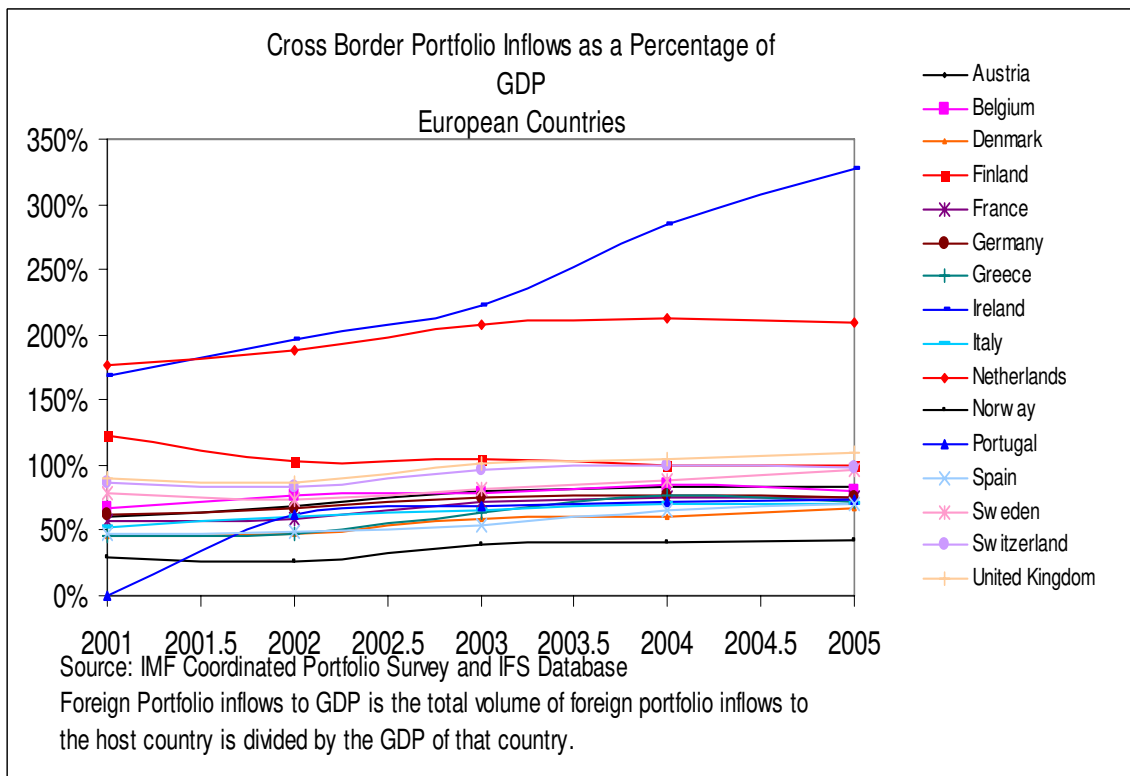
	2001-2005	2003-2005	2005
IMPORT(h)	0.09	0.19	0.28
	(1.88)	(1.97)	(2.59)
FMC(j)	0.33	0.22	0.32
	(2.22)	(1.99)	(2.44)
DISTANCE	−0.18	−0.27	−0.52
	(−1.90)	(-2.32)	(-2.37)
DEBT^{j-h}	0.07	0.44	1.16
	(0.25)	(1.31)	(2.19))
CAPITALCONTROL(h)	0.46	0.36	0.72
	(2.47)	(2.12)	(2.01)
GCC	2.70	2.30	2.01
	(4.40)	(3.42)	(6.61)
GDP(j)	0.03	0.18	0.38
	(0.40)	(1.90)	(2.06)
REL	1.95	2.16	1.80
	(4.53)	(4.13)	(2.25)

Notes: Estimation Method:Cencored Normal TOBIT. Sub-Samples used in the regression are explained in the text. Heteroskedasticity consistent t-statistics are given in parenthesis. Dataset is employed annual for years 2001-2005. The dependent variable is log linearized volume of source country's (j) portfolio holding in the host country, (h). Similarly, IMPORT(h) is the log linearized import volume of host country shipped from source country. FMC(j) is defined as the source country's share of world market capitalization. DEBT^{j-h} is the debt to GDP ratio differential between source and host country. DISTANCE is the financial center distance between host and source countries in kilometers, this variable is also log linearized. GCC is a dummy variable equal to 1 if source country is a member of GCC, zero elsewhere. GDP(j) is the log linearized PPP adjusted GDP per capita of source country. CAPITALCONTROL(h) is the capital control adjustments of host country. Detail of the variable is explained in the text. REL refers a dummy variable equal to 1 when the recognized religion of the the source country is Islam, 0 elsewhere.

Figure 1

Cross Border Portfolio Inflows as A percentage of
GDP
GCC Countries

Legend: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, UAE, GCC Average

Source: IMF's Coordinated Portfolio Survey and IFS Database
Foreign Portfolio inflows to GDP is the total volume of foreign portfolio inflows to
the host country is divided by the GDP of that country.

Figure 1.b

Cross Border Portfolio Inflows as a Percentage of
GDP
European Countries

Legend: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom

Source: IMF Coordinated Portfolio Survey and IFS Database
Foreign Portfolio inflows to GDP is the total volume of foreign portfolio inflows to
the host country is divided by the GDP of that country.

Figure 2

Debt Securities Share in Total Foreign Portfolio Inflows to GCC Markets

Source: IMF Portfolio Survey (CPIS) and authors' own calculations.
GCC is the average of all GCC members excluding Saudi Arabia.