

Capital flows, capital account liberalisation and the southern Mediterranean countries *

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1. Introduction

Capital account liberalisation can bring significant benefits to a country, including increased access to international capital markets, broader opportunities for risk sharing, greater FDI inflows and greater discipline in the exercise of economic policy (Eichengreen *et al.* 1998). Southern Mediterranean countries (Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, The Palestinian Authority, Syria and Tunisia), in particular, stand to gain considerably from the benefits that capital account liberalisation is purported to offer. While *per capita* income in these countries (with the exception of Israel) lags significantly behind that of southern European EU members¹ (see fig-

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¹ The group of southern EU member countries considered here includes all the Mediterranean members of the EU, plus Portugal and Ireland, the latter being a

ure 1), growth rates remain lower, as their development is constrained by the amount of capital available in the domestic economy.² Moreover, the variability of their growth rates has been significantly higher than that of their European neighbours (see table 1), making it all the more important for these countries to have recourse to the risk-sharing opportunities that foreign capital flows offer.

TABLE 1

GROWTH RATES:* SOUTHERN MEDITERRANEAN -
SOUTHERN EUROPEAN EURO AREA COUNTRIES COMPARED

Country	Average growth rate, 1980-2003	Standard deviation of growth rates
Algeria	3.2	3.2
Egypt	5.2	3.0
Israel	4.7	3.0
Jordan	2.7	4.8
Lebanon	4.4	20.2
Libya	0.2	5.6
Morocco	4.5	5.3
Syria	3.8	6.0
Tunisia	5.3	2.9
Average	3.8	6.0
France	4.4	1.8
Greece	4.3	2.0
Ireland	7.5	3.1
Italy	4.7	2.0
Portugal	5.8	3.1
Spain	5.5	1.9
Average	5.4	2.3

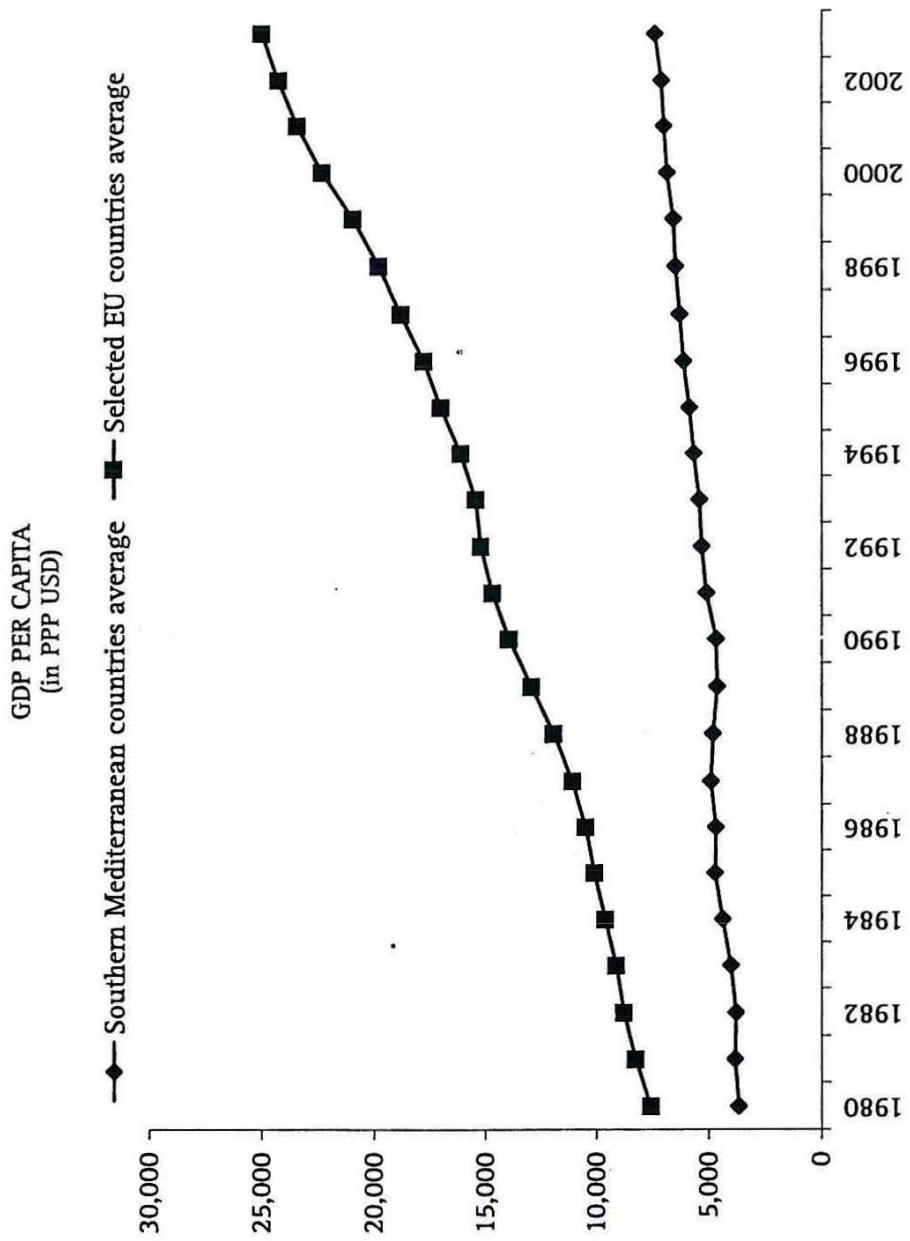
* Growth rates of GDP per capita in PPP USD.

Source: own calculations based on data from IMF, *World Economic Outlook Database*, April 2005.

country that, although certainly not southern in the geographical sense, in many ways resembled the EU Mediterranean countries until recently.

² Given that sufficient data for an analysis along the lines of Feldstein and Horioka (1980) is not available, one can substantiate this by looking at the current account deficit, which has been low and relatively stable in the countries of this region (indeed Algeria and Libya carry surpluses). This indicates that investment in these countries is chronically financed mainly through domestic savings.

FIGURE 1



However, experience has shown that capital account liberalisation is not a panacea and can bring about another set of problems and complications for macroeconomic management, particularly in cases where the authorities have an interest in the level of the exchange rate (Eichengreen and Wyplosz 1993; Eichengreen, Rose and Wyplosz 1995 and 1996; Begg, Halpern and Wyplosz 1999 and Gibson and Tsakalotos 2004 and 2005). Indeed Tavlas (2003) has argued that increased capital flows and their consequences can go a long way to explaining the so-called 'vanishing middle' hypothesis in the literature on exchange rate regimes. That is, countries with liberalised capital accounts should choose either a floating exchange rate or monetary union – any middle position will simply be unsustainable. In this paper we propose to explore the issues and challenges surrounding the question of capital account liberalisation in the southern Mediterranean region by examining the specific experience with capital flows in these countries.

The paper is motivated by the fact that although most of the countries in the southern Mediterranean have taken, to various extents, steps towards capital account liberalisation, they still have some distance to cover before reaching a position of effectively free capital flows. In this respect, the question of the advisability of full liberalisation along with the ensuing issues of choosing the optimal path and pace for this process remains open. In view of this, we aspire to enrich the policy discussion by providing an examination of the experience that the southern Mediterranean countries have had with capital flows thus far and an assessment of the implications that these flows can have for macroeconomic management. Our focus on this rather diverse group of countries is justified by their participation in the Barcelona process, one of the pillars of which is the building of an economic and financial partnership between these countries and the EU. More particularly, this entails the goal of creating a Free Trade Area between these countries and the EU by 2010. More generally, the agreement refers to the enhancement of economic cooperation including the creation of conditions conducive to investment and the elimination of barriers which might prevent the inflow of investment from abroad.

Although a number of contributions in the literature have discussed issues related to capital flows in the southern Mediterranean countries, they have tended to focus on Foreign Direct Investment

(FDI) flows (Petri 1997, Boukha-Hassane and Zatlá 2000, Alessandri and Resmini 2001, Jaumotte 2004, Sekkat and Veganzones-Varoudakis 2004 and Bäcker 2005) or the longer-term effects of capital flows in general (Laureti and Postiglione 2005) while others (Nsouli and Rached 1998) essentially provide a roadmap to full capital account convertibility. In this paper, on the other hand, we focus on the more immediate challenges that increased capital flows can raise for macroeconomic policy and for this reason we specifically examine net capital flows excluding FDI. Whilst FDI flows are longer-term in nature and as such they are driven by considerations spanning a longer time-horizon, such as the productive capacity of the host economy, non-FDI flows can exhibit excessively erratic patterns caused, for example, by contagion effects. These are precisely the types of patterns that we wish to examine in this paper.

The main conclusion stemming from the analysis is that the experience of these countries with non-FDI private capital flows confirms the importance of sound macroeconomic policies. Furthermore, whilst up until now contagion has not featured greatly in their experience, liberalisation in other regions suggests that this is unlikely to continue. Countries should therefore be prepared to deal with the challenges that might emerge during and after liberalisation.

The rest of the paper is structured as follows. In section 2 we present some stylised facts on capital flows, the extent of controls on capital movements and the type of exchange rate regime in the southern Mediterranean countries. The aim of this section is to identify both similarities and differences between countries and to set the scene for the rest of the paper. Section 3 introduces the possible problems and challenges that capital account liberalisation can bring about from the perspective of macroeconomic management, thus leading into the main section of the paper, which follows. More specifically, in section 4 we seek to explain the actual capital flow experience in these countries since the early 1990s. The role of the exchange rate regime along with macroeconomic conditions and possible instances of contagion are examined. This reflects the factors which have been identified in the literature as being important in determining the likelihood of a country experiencing either large capital inflows or speculative attacks. Finally, section 5 offers some concluding remarks in the light of the previous analyses.

2. The southern Mediterranean countries: some stylised facts

We begin by trying to draw out a few stylised facts for the southern Mediterranean countries.³ The policy "trilemma" between free capital flows, fixed exchange rates and monetary policy independence⁴ implies that the choice of exchange rate regime will have important implications for the ability of a country to effectively exercise an independent monetary policy when there are no restrictions on capital flows. With the focus of the paper being on capital flows and capital account liberalisation, it is therefore useful to examine the history of the exchange rate regimes operated by these countries along with the extent to which capital flows are controlled.

Table 2 catalogues the history of exchange rate regimes in the region. What stands out clearly from the information given is that all countries have had or still do have a pegged exchange rate of some kind.⁵ Indeed, if we take all 9 countries in table 2 and classify each year for each country as being characterised by some kind of pegged exchange rate or not, then only 13% of the sample observations can be considered as having a floating or managed-floating exchange rate. Over time, the move is towards less rigid exchange rate regimes; the majority of countries, however, still operate some kind of peg.

Some history of controls on capital movements in 9 Mediterranean countries is to be found in table 3 and an index of capital controls for each country is shown in figure 2.⁶ All countries, except Lebanon, had a fairly extensive system of controls in place in the early 1990s. Israel and Jordan have by and large liberalised capital flows while the general trend in the other countries, with the exception of Lebanon, is for varying degrees of liberalisation; in some

³ We do not discuss the Palestine Authority in this paper. Since the Authority does not issue its own currency, it has no independent monetary policy.

⁴ The "trilemma" is due to Cohen (1993 and 1998), who originally coined it the "Unholy Trinity", and can be derived from the Mundell-Flemming model under perfect capital mobility. Obstfeld, Shambaugh and Taylor (2004) provide empirical evidence on the relevance of this "trilemma".

⁵ For a taxonomy of the types of exchange rate regimes available, see Tavlas (2003).

⁶ This index of capital control intensity aims not only to provide a comparison for individual countries over time, but also between countries. Details of its construction are given in the Appendix.

TABLE 2

HISTORY OF EXCHANGE RATE REGIMES IN 9 SOUTHERN MEDITERRANEAN COUNTRIES

Algeria	From 1991 to 1995 the Algerian dinar was fixed to a basket of currencies (the weights being determined by trade and capital movements). On 23 December 1995 it moved to a managed floating system, although in practice it still maintains tight control over the dinar/dollar exchange rate.
Egypt	<i>De facto</i> operating an exchange rate peg to the dollar from 1991 to mid-2000; significant depreciation was allowed from mid-2000 onwards. At end-January 2001, a band was introduced ($\pm 1\%$ on either side of the central rate of LE 2.85/\$). Throughout 2001 and into 2002, the central rate was devalued on a number of occasions and the band widened to $\pm 3\%$. As of end January 2003, the exchange rate was officially allowed to float. In December 2004, Egypt moved to a unified flexible exchange rate system and established a formal interbank foreign exchange market.
Israel	The New Shekel was pegged to a basket of currencies (DM, FrF, £, ¥, \$) with bands around the central rate of $\pm 5\%$. From end 1991, the central rate and bands were adjusted according to inflation differentials. In June 1995, the bands were widened to $\pm 7\%$ and the weights adjusted (on basis of 1994 direction of trade statistics). In June 1997, the bands were widened to $\pm 15\%$ and the rate of adjustment of the upper and lower bands were altered such that the bands eventually became wider and wider. By 2003, the band width had reached 55% (that is, $\pm 27.5\%$). In 2004, the regime was reclassified as an independent float (on a <i>de facto</i> basis) and in June 2005 the exchange rate band was abandoned <i>de jure</i> .
Jordan	Up until 1995, the dinar was pegged to the currencies of the SDR; from end-1995 it has been effectively pegged to the dollar.
Lebanon	Up until 1998 it was classified <i>de jure</i> as floating. However, <i>de facto</i> , from the early 1993 it was operating a crawling depreciation peg to the \$ before moving to a fixed peg in 1998; the exchange rate <i>vis-à-vis</i> the dollar depreciated by only 13.5% between 1993 and 1998.
Libya	<i>De jure</i> the dinar is pegged to the SDR and the exchange rate moves within bands that get larger and larger with the dinar being allowed to depreciate to the limit of the band. Only in 2002 and 2003 were official devaluations carried out. <i>De facto</i> the dinar should be classified as a peg with discrete devaluations.
Morocco	Initially the Dirham was pegged to the French franc. In June 1996, a central rate was established relative to a basket of currencies and the exchange rate was kept within a band around the central rate. From 1999, with the creation of the euro, the basket of currencies changed to include €, £ and \$ (with the weights determined by trade).
Syria	A multiple exchange rate system operates (recently the number of rates was reduced to two, the official rate and the neighbouring markets rate). The pound is pegged to the dollar.
Tunisia	Until February 1994, the dinar was pegged to a basket of currencies. Thereafter it became a managed float; it was reclassified in 1999 as a crawling peg; reclassified in end 2000 as managed floating with no preannounced path. From 1 January 2002, it has been following a real effective exchange rate rule.

Sources: IMF, *Annual Report on Exchange Arrangements and Exchange Restrictions*, various years, IMF Website, ECB Country Review Sheets prepared for the Workshop on Economic and Financial Developments in Mediterranean Countries (Frankfurt, 21-22 September 2005).

TABLE 3

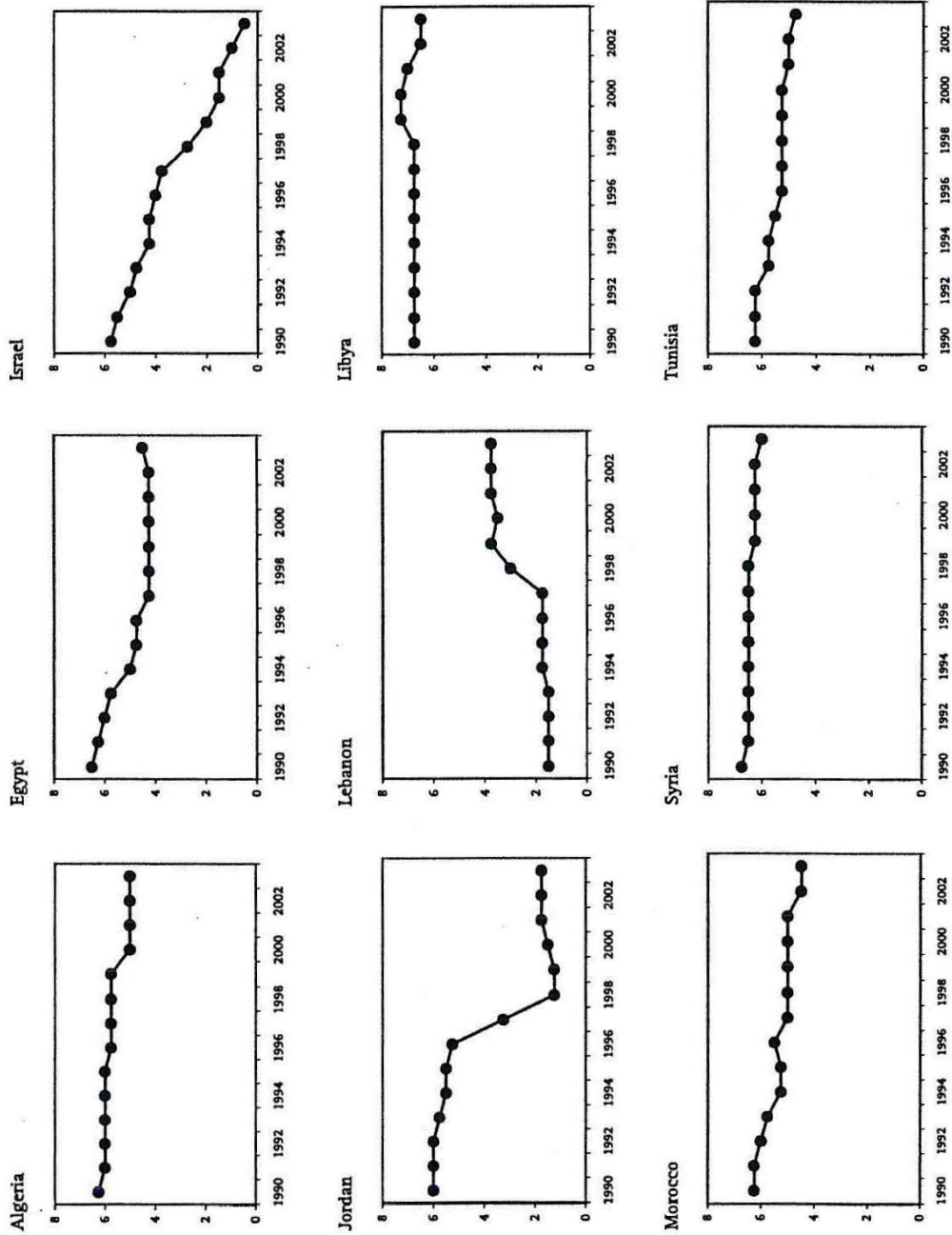
CONTROLS ON CAPITAL MOVEMENTS IN 9 SOUTHERN MEDITERRANEAN COUNTRIES

Algeria	1990: fairly extensive controls. Export proceeds needed to be surrendered; residents had to repatriate and surrender any assets acquired abroad; capital transfers abroad required authorisation; inward FDI was permitted and repatriation guaranteed. In 2000 there was some opening of portfolio investment to foreigners (allowing investments in the Algerian Stock Market, bond markets, etc., and the repatriation of investment sale proceeds).
Egypt	1990: fairly extensive controls. Export receipts repatriation and surrender requirements were in place; outward capital transactions were restricted; some inward FDI and portfolio investment was permitted; a multiple exchange rate system operated. By end-1991 a unitary exchange rate system had been adopted. From 1994, repatriation of export receipts was abolished; it was reintroduced briefly in March 2003 and abolished again in December 2004.
Israel	1990: fairly extensive controls on export proceeds, capital movements. These were liberalised slowly starting in 1994 when outward FDI was partially liberalised, for example. In 1998 significant liberalisation occurred with limits on controlled capital movements being raised. From 1 January 2003, all controls were removed, with only some reporting requirements remaining.
Jordan	1990: fairly extensive controls. Export receipts were controlled; inward capital movements were not restricted (including FDI), although permission was required for outward flows; repatriation of inward FDI capital was subject to approval. In 1994-95 the requirements for export receipts were liberalised. In 1997 most controls on capital transactions were abolished (July), although a few (minor) restrictions were introduced in 2000.
Lebanon	1990: only some capital transactions (including lending to non-residents, taking deposits from non-residents and bank lending to residents to purchase foreign exchange) involved controls; no controls on FDI. In 1998 more controls were added, with less important restrictions being introduced in subsequent years, although the system of controls does not appear to be that extensive.
Libya	1990: an extensive system of capital controls was in place, including export receipt surrender rules and a requirement to obtain permission for any investment of capital abroad; inward FDI, on a joint-venture basis, was allowed provided that it is in the interests of the country's development. In 1999 the parallel exchange market was legalised by creating a dual exchange rate system while the two rates were unified in 2002.
Morocco	1990: significant controls applied including export receipt surrender rules and restrictions on transfers of capital abroad; inward FDI was allowed although approval may have been necessary. Full liberalisation of inward FDI (including the repatriation of sale proceeds) was made in 1992. Liberalisation has subsequently been measured.
Syria	1990: extensive controls on export receipts surrender, outward FDI flows and capital flows in general; FDI inflows were actually encouraged by favourable conditions in some areas; a system of multiple exchange rates operated. 2003-04 saw some simplification of the system (elimination of the repatriation and surrender requirements for export proceeds) but controls are still extensive.
Tunisia	1990: extensive controls on export receipt surrender and capital account transactions; inward FDI was allowed and incentives were provided in some cases. Inward portfolio investment was partially liberalised in 1995. Limited liberalisation, mainly relating to export proceeds surrender rules and outward FDI, was recorded in later years.

Source: IMF, *Annual Report on Exchange Arrangements and Exchange Restrictions*, various years.

FIGURE 2

CAPITAL CONTROLS INDEX



Source: own calculations.

countries extensive controls still remain in place. One interesting factor which emerges from a matching of the information in tables 2 and 3, is the fact that two of the countries with more liberalised capital flows also moved towards a more flexible exchange rate (Egypt and Israel). Jordan, however, remains with its effective peg to the dollar.

When examining capital flows, it is useful to distinguish two main types: private flows and those related to government or monetary authorities' borrowing/lending. Within private capital flows, the breakdown into FDI flows and other private capital flows is also useful. The rationale for breaking capital flows up into these three parts is two-fold. First, our interest principally lies with the impact of capital flows on macroeconomic policy making. The fact that the government/monetary authorities could try to offset the effect of private sector flows on the rest of the economy (by undertaking mirror-image transactions) suggests that a better measure of the pressure on macroeconomic policy comes from an examination of private capital flows only. Second, the division of private flows into FDI and other flows stems from the fact that (as previously indicated) FDI flows are usually seen as longer-term and hence result from long-term decisions about the productive capabilities of the country whereas other flows can be more speculative in nature.

Figures 3a-3b and 4 provide a graphic account of a measure of capital flows as a proportion of GDP⁷ for those countries for which data exists in the IMF's *Balance of Payments* statistical source.⁸ Each graph includes net capital inflows excluding FDI with and without errors and omissions. In countries where capital controls are extensive, errors and omissions can help to identify hidden capital flows or contain what has been called in the literature "capital flight" (Cuddington 1986). Indeed it is clear from the figures that there is some

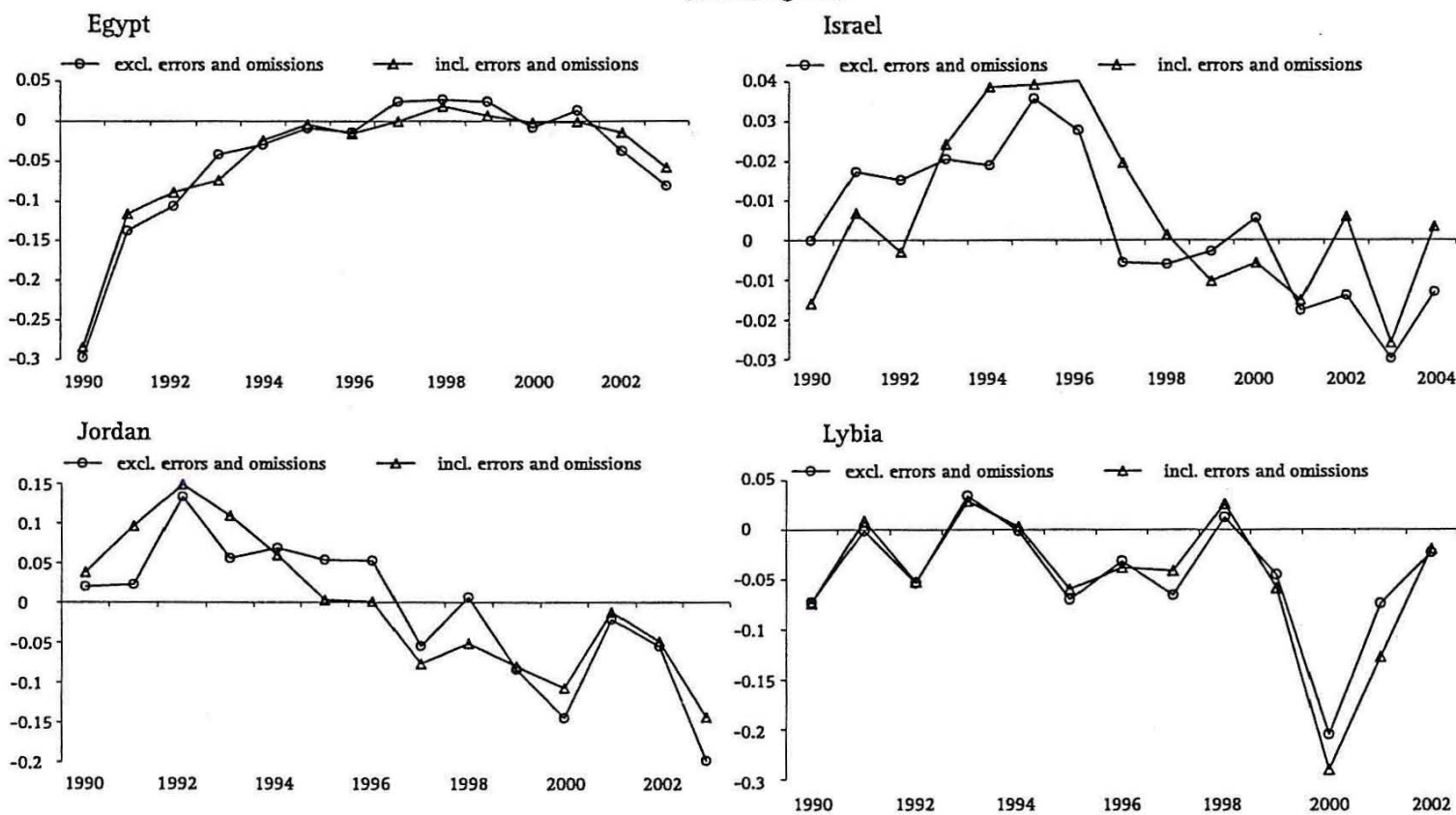
⁷ Our focus is on net flows because our primary interest in this paper is the impact of capital flows on macroeconomic management.

⁸ An alternative source of statistics on capital flows is the World Bank *World Global Development Finance Report*. However, the data provided there is rarely more complete than that of the IMF source used here. Moreover, the emphasis in the World Bank data is on long-term net resource flows and transfers and is more suitable for an examination of, for example, the growth implications of capital flows. On this issue, see Laureti and Postiglione (2005) who examine the effect of different types of capital inflows on growth in these countries. The results however are poor, with only portfolio bond flows and short-term debt flows having a positive effect on growth.

FIGURE 3A

NET CAPITAL FLOWS IN MEDITERRANEAN COUNTRIES

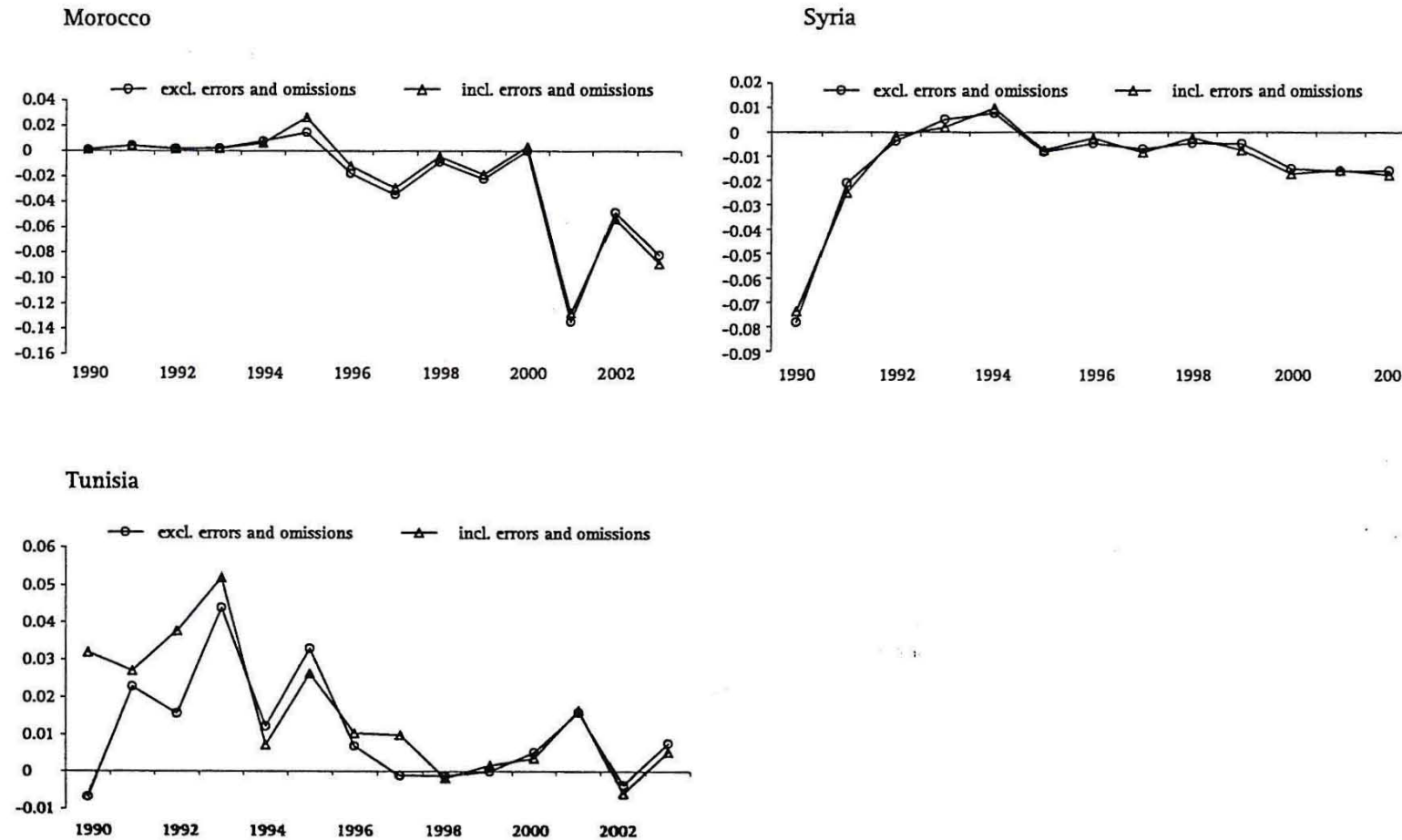
(excluding FDI)



Source: own calculations based on data from IMF, Balance of Payments, CD rom.

FIGURE 3B

NET CAPITAL FLOWS IN MEDITERRANEAN COUNTRIES
(excluding FDI)



Source: own calculations based on data from IMF, *Balance of Payments*, CD rom.

systematic behaviour in the errors and omissions data, especially for Jordan (pre-liberalisation) and Israel. Overall, however, the effect of excluding errors and omissions does not seem to have much of an impact on the basic trend in net capital flows and quantitatively their magnitude is rather small compared to the general level of net flows.

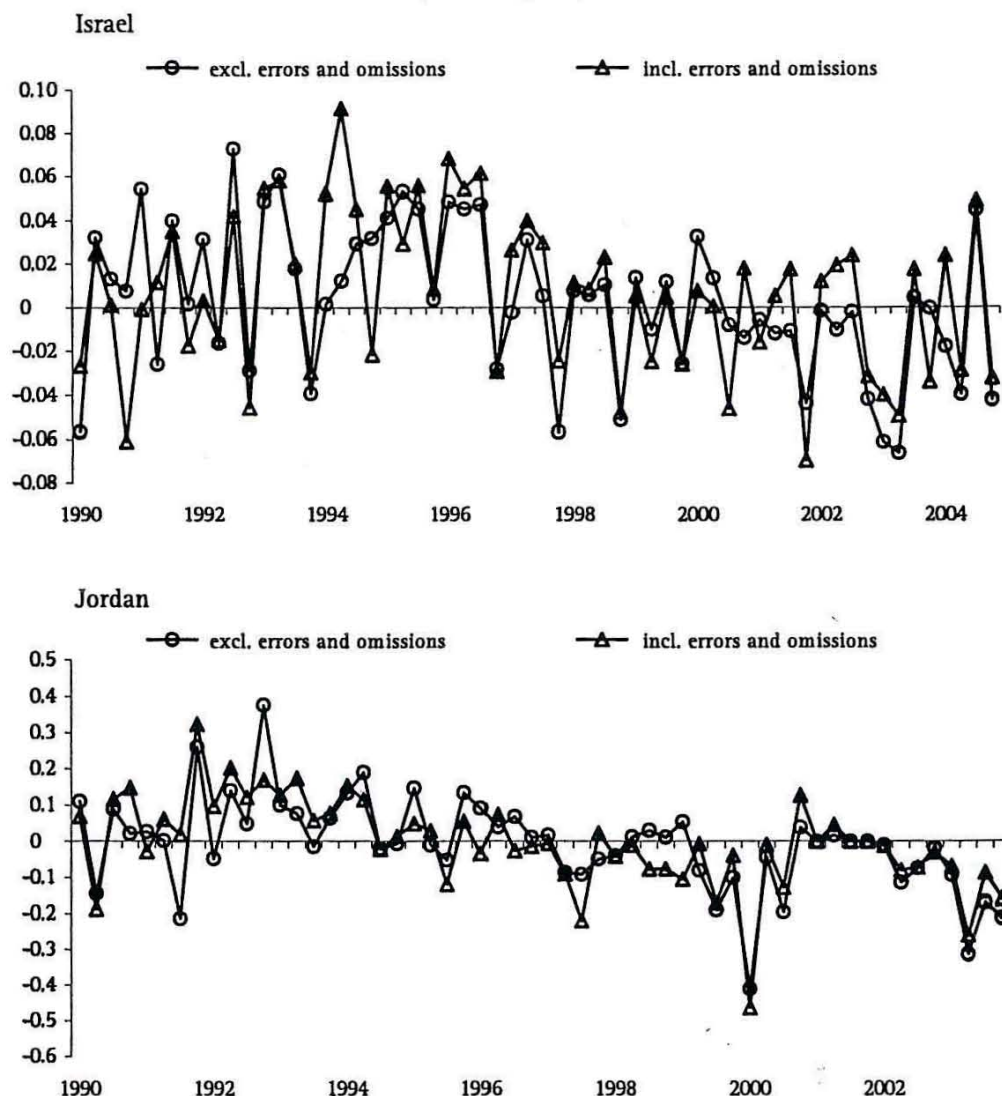
A similar conclusion can be drawn for the impact of including or excluding government/monetary authorities flows – it does not materially affect the conclusions we draw about the nature of net capital flows. By contrast, adding net flows of FDI back in, whilst not affecting the overall trend or volatility of net capital flows, does tend to shift the volume of net capital inflows upward – often by around 1-2 percentage points of GDP.⁹

Normally it is desirable to have quarterly data or, even better, monthly data on net capital flows. However, for this group of countries data frequency is a problem – quarterly data is available for only Jordan and Israel. Quarterly (or even monthly) flows are usually more revealing for the following reason. Since net capital flows can often reverse quickly, annual data tends to smooth the flows and therefore hide substantial difficulties which might have been experienced over any particular year. Thus, for example, an exchange rate peg which might have become increasingly non-credible could lead to large outflows which are quickly reversed to inflows once the expected devaluation of the exchange rate takes place.

A comparison of figures 3a and 4 illustrates that the extent of the problem here is not great. To take the case of Israel, we can identify two periods – a number of years in the mid-1990s with strong net capital inflows and the experience of 2003 with quite significant net outflows. These periods are clearly evident even in the quarterly data where the direction of the flows shows quite a bit of persistence. This persistence implies that annual data does not smooth out the interesting patterns that might have been evident throughout the year. The same conclusion can be drawn (if not even more strongly) for Jordan. The figures suggest that net capital flows are often large (regularly of the order of 5% of GDP; occasionally reaching 15% and even 20% or more). These magnitudes are similar to those found in

⁹ Capital flows excluding flows generated by the government or the monetary authorities or including FDI are not presented in the figures to conserve space. They are, of course, available from the authors on request.

FIGURE 4

ISRAEL AND JORDAN - NET CAPITAL FLOWS - QUARTERLY DATA
(excluding FDI)

Source: own calculations based on data from IMF, *Balance of Payments*, CD rom.

the new EU member states (see Gibson and Tsakalotos 2004) and also to Greece and Portugal prior to their entry into the euro area (Gibson and Tsakalotos 2005). Net capital flows of that magnitude are certainly of interest in that they can and do have important effects on macroeconomic policy management.

One way in which net capital flows can complicate macroeconomic policy is through their effect on changes in the monetary authorities' foreign exchange reserve holdings. Thus inflows can raise

reserves and hence base money contributing to excess liquidity in the domestic financial system; outflows can cause reserves to fall and make an exchange rate peg difficult to defend. Table 4 provides some simple correlations between capital flows and changes in reserves for the whole period and periods distinguished according to the exchange rate regime in place. What is very interesting is the strong negative correlation between flows and reserves. This contrasts strongly with the experience of the southern EU member states (Greece, Portugal and Spain – see Gibson and Tsakalotos 2005) and the new EU member states (Gibson and Tsakalotos 2004). The experience of these other countries was clear – capital flows and changes in reserves were positively correlated overall and more so during periods of more fixed exchange rates. The negative correlations for the southern Mediterranean countries arise from countervailing movements in other parts of the balance of payments which outweigh the impact of capital flows. Indeed, for the countries under examination here, it appears to be the current account which drives changes in reserves. This is clear from the large positive correlation between the current account and changes in reserves shown in the last column of table 4.

TABLE 4

CAPITAL FLOWS, EXCHANGE RATE REGIMES AND
CHANGES IN FOREIGN EXCHANGE RESERVES

Country	Correlation between private non-FDI capital flows and changes in foreign exchange reserves			Correlation between current account and changes in foreign exchange reserves
	Whole period	Periods of non-pegged exchange rates	Periods of pegged exchange rates	Whole period
Egypt	-0.57	-	-0.59	0.79
Israel	0.01	0.21	-0.45	-0.33
Jordan	-0.62	-	-0.62	0.44
Libya	-0.93	-	-0.93	0.90
Morocco	-0.72	-	-0.72	0.68
Tunisia	-0.18	0.01	-0.32	0.25
All countries	-0.62	0.25	-0.64	0.56

Note: There is not sufficient data for Algeria and Lebanon.

Source: own calculations.

3. Challenges of capital account liberalisation for macroeconomic management

If capital account liberalisation can bring about potential benefits, it should not also be forgotten that it raises a number of challenges for macroeconomic policy making, especially in countries with some form of exchange rate peg or where the monetary authorities care about the level of the exchange rate. Such countries frequently suffer from periods of large net capital inflows (excess credibility) or large net outflows (speculative attacks). Both complicate the conduct of macroeconomic policy considerably.

Excessive net capital inflows can arise in the presence of excess credibility. Excess credibility exists if the exchange rate target is highly credible whilst, at the same time, the monetary authorities are pursuing a tight monetary policy in order to lower inflation. The problem can be compounded further if the government has a relatively loose fiscal policy. The result is that domestic interest rates are higher than the foreign rate plus the expected depreciation of the domestic currency. Such a situation encourages large net capital inflows, as non-residents take advantage of high rates of return and residents borrow abroad, both with little perceived foreign exchange risk.

Net capital inflows, however, have consequences for the domestic money market. If the country is to keep its exchange rate target and prevent nominal appreciation of the currency, it has to intervene and sell domestic currency in the foreign exchange market. This causes foreign exchange reserves to increase. As a result the monetary base increases and an excess supply of liquidity in the interbank market at prevailing interest rates is generated. This can undermine the attempt to disinflate or to maintain inflation at acceptable levels. Such problems were common in southern European countries such as Greece, Portugal and Spain during the period of macroeconomic convergence before entry into the euro area (Gibson and Tsakalotos 2005) and in the new EU member countries (Gibson and Tsakalotos 2004). In some periods, the increase in reserves as a consequence of capital inflows was substantial suggesting that the above scenario was indeed common in practice.

Excessive net capital outflows can be equally problematic for macroeconomic policy. A sudden withdrawal of capital can undermine an exchange rate peg as the monetary authorities find it increasingly difficult to maintain the credibility of the current exchange rate in the face of declining foreign exchange reserves. If successful, the speculative attack may lead to the peg being abandoned, thus undermining the credibility of the monetary policy strategy being pursued. A rapid depreciation of the currency can also have negative consequences for inflation.

4. The determinants of net capital flows in the southern Mediterranean countries

In the light of the implications of net capital flows for the conduct of macroeconomic policy, it seems important that we attempt to discover their determinants. As previously discussed, the focus is on private net capital flows excluding FDI. The relevant literature falls into two groups, namely that which examines the determinants of net capital flows and that which looks explicitly at speculative attacks (in the latter case the focus is on countries with an exchange rate peg/target of some kind). We can divide the factors which are usually considered in the literature into two groups. First, there are the macroeconomic determinants (inflation, money, interest rates, growth, budget deficits); second, there is the impact of contagion, either via fundamentals or through psychological effects (examples of the latter include the impact of the South East Asian crisis in 1997 and the Russian crisis in 1998).¹⁰

Given the data limitations and the extent of net flows observed, the main focus here is an examination of the determinants of net capital flows in general. Ideally, this requires quarterly data on private net capital flows excluding FDI flows. Unfortunately, as we say in section 2, data on quarterly flows is limited and the breakdown of the financial account in the IMF *Balance of Payments* data is often not sufficient to extract only private flows. Thus we confine our main

¹⁰ For a comprehensive review of the literature in this area, see Gibson (2003) and Gibson and Tsakalotos (2004 and 2005).

analysis to the annual data. A notable feature of our empirical approach is the use of an index that measures the intensity of capital controls in place. A binary variable for the existence of capital controls, as often used in the literature (see for example Grilli and Milesi-Ferretti 1995 and Johnston and Tamirisa 1998), would not provide any insights for this group of countries, given that such controls were used by all countries during most of the sample period. What is relevant, however, from an empirical perspective is the intensity of these controls and how this changes over time, aspects that are captured by the index we compile and use in our specification. A detailed account of how the index is calculated is given in the Appendix.

We estimate the following equation¹¹

$$KF_{it} = \alpha_i + \beta ERR_{it} + \gamma \Delta P_{it} + \delta \Delta \ln y_{it} + \varepsilon GB_{it} + \eta FI_{it} + \zeta \Delta M_{it} + \kappa r_{dit} + (1) \\ + \lambda r_{fit} + \mu KK_{it} + \nu Russia_t + \xi Asia_t$$

where KF_{it} are net capital inflows (excluding FDI) into country i at time t as a proportion of GDP; ERR_{it} is a dummy indicating some form of pegged exchange rate regime; ΔP_{it} is inflation (the change in the CPI); $\Delta \ln y_{it}$ is the rate of growth of real GDP; GB_{it} is the government balance as a proportion of GDP; FI_{it} is the ratio of M2/GDP which attempts to examine whether the degree of financial system development influences capital flows; ΔM_{it} is broad money growth which could influence inflation expectations and hence net inflows; r_{dit} and r_{fit} are the domestic and foreign (US) interest rates, respectively;¹² KK_{it} is the index of capital control intensity presented in figure 2; $Russia_t$ is a dummy capturing the potential effects of the Russian crisis of August 1998 (it takes a value of 1 during the third and/or fourth quarter of 1998); finally, $Asia_t$ is a dummy capturing the possible effects of the Asian financial crisis (it takes a value of 1 during the third and/or fourth quarters of 1997). The time period examined

¹¹ The absence of data on the stock of assets held abroad by residents or the stock of domestic assets held by non residents prevents us from estimating a full portfolio model which includes a long-run relationship between asset stocks and their determinants. Rather we have to be content here with focusing on the short-run dynamics of net capital flows. Given our interest in the interaction between capital flows and macroeconomic policy, this is perhaps not too serious a drawback.

¹² We test for the significance of both the interest rates in levels and first differences. A portfolio model of net capital flows would suggest that changes in interest rates should affect flows and not their levels.

runs from 1990 to 2003 (with the actual time span for each country depending on data availability). We experiment with various lags since often net capital flows are responding to data which refers to a previous period because of publication lags.

The results for various estimation methods are given in table 5; we treat the countries as a panel, since our interest is not so much in the detailed experience of individual countries but rather the general experience of the group as a whole. To this end, it is more useful to exploit both the cross-sectional and time series variation in the data. This is not to deny that specific country effects are present. Thus we also control for fixed country effects, that is, factors that influence the level of net flows in different countries which are fixed through time. The fact that these effects are highly significant in all the models considered testifies to the importance of specific country effects (see F tests in table 5).¹³ However, the significance of fixed effects does not imply that there are no factors that are common to all countries in influencing capital flows. The significance of some macroeconomic variables supports the view that it is possible to find support for a general theory of capital flows that would apply to all countries.

Model 1 includes five countries (Egypt, Israel, Jordan, Morocco and Tunisia; there is no domestic interest rate for Syria for the period) for which there exist annual data on net capital flows excluding FDI flows. Model 2 provides a parsimonious version of model 1 where insignificant variables have been deleted (hence Syria is now included in the sample). The results suggest that sustained growth has a positive impact on net capital inflows whereas government deficits tend to encourage net outflows. Higher inflation reduces net inflows as expected as does our proxy for expected future inflation, the rate of growth of broad money. These results are consistent with work on Greece, Portugal and Spain and the new EU members (Gibson and Tsakalotos 2004 and 2005) where both inflation and growth are found to be significant determinants of capital flows. Two variables which were not included in these studies are financial development and capital controls.¹⁴ The degree of financial development (as represented by

¹³ The preference for a fixed effects model over a random effects model is clear from the Hausman test provided for model 2.

¹⁴ In the case of the study of Greece, Portugal and Spain, a dummy variable for capital controls was not included in the regressions since the sample period when controls were in existence was very limited. In the more descriptive work over a

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Variable	Model 1		Model 2		Model 3	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Growth	0.361*	0.198	0.260**	0.119	0.802*	0.424
Lagged growth	0.326*	0.184	0.261**	0.117	0.606**	0.274
Lagged inflation	-0.347*	0.193	-0.245**	0.114	-0.255*	0.152
Lagged government balance	0.455	0.297	0.540**	0.215	0.568**	0.264
Financial intermediation	-0.183**	0.086	-0.180***	0.052	-0.232***	0.074
Exchange rate dummy	0.003	0.016				
Domestic interest rate (lag)	0.002	0.003				
US CD rate (lagged)	-0.001	0.004				
Broad money growth	-0.322***	0.111	-0.251***	0.078	-0.284***	0.108
Asia	-0.004	0.016				
Russia	0.007	0.017				
Capital control index	0.016**	0.007	0.016***	0.005	0.014*	0.008
Constant	0.095	0.107	0.089	0.053	0.102	0.071
Fixed effects	F(4, 35) = 6.74 [probability > F = 0.000]		F(5,51) = 10.47 [probability > F = 0.000]		F(5,46) = 7.96 [probability > F = 0.000]	
Number of observations	52		64		59	
Overall significance of the model (F-test)	F(12,35) = 5.71 [probability > F = 0.000]		F(7,51) = 11.56 [probability > F = 0.000]		F(13,46) = 7.89 [probability > F = 0.000]	
R-squared: within	0.6620		0.6133		0.5003	
R-squared: overall	0.2185		0.1597		0.1677	
Hausman Test			Chi ² (7) = 55.36 Probability > chi ² = 0.000			

Notes: *, ** and *** indicate significant respectively at the 10%, 5% and 1% level. The Hausman test is for fixed versus random effects model (H_0 : random effects model appropriate). Model 3 using instrumental variables where lagged net capital flows, lagged capital control index, the lagged current balance and the government balance are used as instruments.

M2/GDP) appears to affect capital flows negatively; that is, as the level of financial development rises, so there is a tendency for countries to experience net capital outflows. This is perhaps not surprising – with financial development comes an increasing sophistication on the part of investors which is likely to lead to their seeking to diversify their portfolios by investing abroad. In the initial period after liberalisation this can cause significant outflows until a new equilibrium with a higher proportion of assets held abroad is reached.¹⁵ Capital controls help to support net inflows or reduce net outflows reflecting the fact that most controls in this group of countries were directed at outflows. Whilst domestic and foreign interest rates have the expected signs, they are not significant. Finally, the impact of the exchange rate regime is insignificant. This is in contrast with the findings for the new EU members where currency boards or some form of pegged arrangement increased capital inflows. This does not suggest, however, that the exchange rate regime is irrelevant. Rather it is merely a reflection of a lack of variation in the regime variable – the sample here is heavily biased in favour of country-years where some form of exchange rate peg was in operation.

The results tend to support the view that macroeconomic fundamentals are important determinants of net capital flows. This is consistent with the 'new' optimum currency area literature which emphasises the importance of supporting policies when some form of pegged exchange rate regime is being followed (Tavlas 1993). Interestingly, there is little effect from contagion either from the South East Asian crisis or the Russian crisis of the late 1990s. This contrasts strongly with the result for the new EU member states (Gibson and Tsakalotos 2004) or the southern European EU member states (excluding Ireland) (Gibson and Tsakalotos 2005). It probably reflects the fact that, until recently, interest in the countries as a group from

longer period, it was found that capital controls were associated with lower absolute levels of capital flows. In the case of the new EU members, attempts to control for the existence of capital controls through the use of a 0/1 dummy failed. This suggests that it is more appropriate to construct an index which reflects differing degrees of control over capital movements as is done in this paper.

¹⁵ The M2/GDP ratio exhibits quite a lot of variability over time hence multicollinearity with the fixed effects is not considered to be an issue. We note, however, that – in line with our expectations – for some countries there is considerable negative correlation between the financial development proxy and the capital controls intensity index. Nevertheless, we do not consider this to be a serious drawback for our estimation results given that both variables turn out to be significant.

the international capital markets has been limited. By contrast, the southern European EU member states and, in turn, the new member states were important destinations for emerging market investment. The experience of these latter two groups of countries probably has much more to say about the likely future experience of the Mediterranean countries; we cannot assume, that is, that contagion is not something that will affect these countries in the future.

One potential criticism of the estimation technique used is that it does not control for the possible endogeneity of growth and the index of capital controls. Net capital inflows could increase growth and may also provoke a response by the authorities that takes the form of tightening or loosening controls on capital movements. In model 3 we re-estimate model 2 using panel instrumental variables techniques. The results are qualitatively similar to those of model 2, although the significance of the coefficients falls somewhat.

Finally, we consider two sensitivity tests. First, we proceed to re-estimate model 2, dropping a different country each time. Given the small sample available in this study, the results are fairly robust to this test as table 6 shows. Two observations are worth noting. When Egypt is dropped, growth and inflation become insignificant; when Jordan is dropped, the effect of capital controls turns negative, although it is not significantly different from zero. These two results do, however, highlight the importance of using not only the time series variation in the data to identify the determinants of capital flows but also the cross-sectional variation.

Second, table 7 explores the symmetry of the results by considering whether the determinants of net capital flows differ according to whether there is a net inflow (positive net capital flow) or a net outflow (negative net capital flow). To this end, we construct two dummy variables taking, respectively, a value of 1 when there is a net inflow or a net outflow. The results suggest that the direction of the effect of any one explanatory variable is the same irrespective of whether the country is experiencing a net inflow or outflow. Thus, an increase in the rate of growth of broad money reduces net inflows when they are positive and when they are negative (equivalent in the latter case to an increase in outflows).¹⁶

¹⁶ The only exception to this is the case of the dummy for an exchange rate peg (not reported). While not significant, a peg both increases net inflows and net outflows as would be expected.

TABLE 6

THE EFFECT OF DROPPING INDIVIDUAL COUNTRIES

Country dropped	Observations	Growth	Lagged growth	Lagged inflation	Government balance	Financial intermediation	Change in money supply	Capital controls index
None - results of model 2	64	0.26*	0.26*	-0.24*	0.54*	-0.18*	-0.25*	0.016*
Egypt	52	0.05	0.03	0.09	0.71*	-0.08	-0.19*	0.017*
Israel	53	0.28*	0.30*	-0.25*	0.59*	-0.20*	-0.23*	0.016*
Jordan	53	0.02	0.18*	-0.13	0.40*	-0.32*	-0.10	-0.009
Morocco	52	0.50*	0.27*	-0.32*	0.25	-0.10	-0.25*	0.019*
Syria	55	0.30*	0.26*	-0.31*	0.45*	-0.21*	-0.33*	0.017*
Tunisia	55	0.27*	0.26*	-0.25*	0.51*	-0.18*	-0.26*	0.016*

Note: * indicates significant at least at the 10% level.

TABLE 7

DISTINGUISHING NET INFLOWS FROM NET OUTFLOWS

Variable	Dummy	Model 4	
		Coefficient	Standard error
Growth	in	0.247	0.163
	out	0.046	0.777
Lagged growth	in	0.094	0.598
	out	0.176	0.211
Lagged inflation	in	-0.026	0.915
	out	-0.166	0.142
Lagged government balance	in	0.471	0.151
	out	0.566 **	0.022
Financial intermediation	in	-0.067	0.353
	out	-0.113 *	0.065
Broad money growth	in	-0.258 **	0.019
	out	-0.193 *	0.072
Capital control index	in	0.008	0.171
	out	0.010 *	0.065
Constant		0.053	0.371
Fixed effects		F(5, 44) = 3.52 [probability > F = 0.009]	
Number of observations		64	
Overall significance of the model (F-test)		F(14,44) = 9.19 [probability > F = 0.000]	
R-squared: within		0.7452	
R-squared: overall		0.4752	

Notes: * and ** indicate significant respectively at the 10% and 5% level. 'In' and 'out' refer to the effect of the explanatory variable where there are net inflows and outflows, respectively.

Whilst the direction of the effect of any particular explanatory variable does not change, an interesting result is that the magnitude and significance of the results often can. Thus growth tends to increase net flows when they are inflows; an increase in growth when there are outflows has no significant effect. Similarly changes in inflation tend to have a larger impact on net flows when there are net outflows rather than net inflows.¹⁷

¹⁷ We also redefined the dependent variable as a binary variable and ran two logit regressions. The first examines the case of 'large' net capital outflows (where 'large' is

5. Concluding remarks

This paper has examined some of the issues surrounding capital account liberalisation in Mediterranean countries. A short review of the benefits of liberalisation suggests that those countries that have not yet liberalised have a lot to gain from a policy of liberalising, mainly in terms of reducing risk and uncertainty and helping to de-link domestic investment decisions from the availability of domestic finance.

Such a conclusion, however, does not mean that a policy of liberalisation will be problem-free. The experience of southern European countries (now euro area members) as well as of the new EU member states (some of whom are now or soon to be euro area members) with non-FDI private net capital flows suggests that net flows (both net inflows and outflows) increase significantly following liberalisation. This can have consequences for macroeconomic management especially where the exchange rate is pegged to some degree (as is largely the case here). Experience in the Mediterranean countries with such capital flows over the 1990s and into the current decade confirms the results of other studies that sound macroeconomic policies are important for avoiding excessive net capital flows, whether they be inflows or outflows. However, whilst until now contagion has not featured greatly in their experience, experience with liberalisation in other regions suggests that this is unlikely to continue. Countries should therefore be prepared to deal with the challenges that might emerge during and after liberalisation.

defined, for each country, relative to the mean net capital flow minus half a standard deviation of net capital flows) compared to all other net flows; the second the case of 'large' net inflows (defined relative to the mean net capital flow plus half a standard deviation of net capital flows). The results (available on request from the authors) are consistent with the above findings, although they are only weakly significant. Thus higher inflation and a more developed financial system increases the probability of a large net outflow while increased intensity of controls on capital movements decrease the probability of a large net outflow. Higher growth and government surpluses increase the probability of large net inflows as does a rise in the intensity of the capital control index (probably reflecting the fact that most controls are on outflows). Increased financial development reduces the probability of a large net inflow.

APPENDIX

The capital controls intensity index

The difficulties related to the appropriate measurement of the extent and intensity of capital controls, particularly in the context of a cross-country study, have been well documented in the literature (see for example Eichengreen *et al.* 1998 and Eichengreen 2001). Broadly classified the approaches proposed fall under two categories. One class of capital controls measures is based on the information appearing in the *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER) published annually by the IMF. These measures vary in scope and sophistication and range from a simple binary variable indicating the existence of capital controls as reported in the AREAER, to disaggregated measures based on the AREAER 13-subcategory classification of capital controls in its post 1997 editions (and extending this classification backwards; see Miniane 2004) and measures based on principle components analysis of the AREAER binary variables (Chinn and Ito 2002). However such indices often fail to capture the intensity of the capital controls in place as, due to their inherently binary nature, they attribute the same importance to all controls. Moreover, they are, in effect, *de jure* measures as the AREAER does not normally provide information on the enforceability of capital controls.

The other class of measures proposed in the literature is designed to address this issue by using proxies of a country's capital account openness as *de facto* indices. Such proxies include onshore-offshore interest rate differentials (see Dooley 1996 for a survey of such indices), the ratio of total market capitalization of equities that are available for purchase by foreign investors over total market capitalization (Edison and Warnock 2003) and the ratio of a country's portfolio and direct investment assets and liabilities over GDP (Lane and Milesi-Ferretti 2001). Unfortunately the data required to construct such *de facto* indices is often not available.

In view of the data availability limitations for the countries in our sample, which do not permit the construction of a proxy-based *de facto* measure, and in order to capture the intensity and not merely the extent of capital controls, we constructed a capital controls intensity index, using the information reported in the AREAER. The difference between this measure and existing indices based on the AREAER is that we assess the severity of each capital control reported rather than treating it in a binary fashion (existence/non-existence). In this sense, the index constructed is most closely related to that in Quinn (1997).

The index constructed captures mainly the information contained in the "Capital" section ("Capital Transactions" section for the editions from 1997 onwards) of the AREAER text for each country. Recognising, however, the role that a multiple exchange rate system or a requirement to repatriate and/or surrender export proceeds can play in restricting capital flows, we also considered these aspects when constructing the index. To the extent possible, from the information provided by the AREAER (particularly before the 1997 edition), we considered restrictions on both outgoing and incoming capital flows.

A detailed typology of capital controls in the countries of our sample and corresponding scores cannot be compiled due to the variability in the types of controls employed across countries and the fact that the way the restrictions are reported in the AREAER changed considerably from the 1997 edition onwards. In this respect it should be noted that our methodology involves the exercise of judgment.¹

However the degree of subjectivity involved is moderated by the use of a scoring hierarchy for the intensity of the restriction in place with respect to each type of transaction, as follows (from stricter to less strict):

- transaction not allowed,
- transaction allowed but approval required,
- transaction allowed under conditions,
- transaction allowed but reporting required,
- no restrictions.

In any case, the residual subjectivity should not severely affect our results as long as consistency across time and countries is maintained. In order to ensure this, we follow an incremental approach when compiling the index and use the following sequence. We start with one country (Israel) and assign scores for all the years in our sample, in an incremental fashion, starting from 2003 and going back. A zero score is deemed to denote that no restrictions were in place, while the score increases with the intensity and extent of the controls. For the first year in the sample (1990), we compare the capital controls status of each country in our cross-section with that of Israel and assign a score accordingly. Based on the 1990 result for each country, we assign a score value for each year in the sample in an incremental way. As a final step, we check the cross-country consistency of the scores for the final year in the sample (2003).

¹ This diverges from the approach in Quinn (1997), where a simple coding rule was devised and followed for the construction of the index.

REFERENCES

- ALESSANDRINI S. and L. RESMINI (2001), "FDI in the Mediterranean region: a comparison with CEE experience", *FEMISE Research Programme Report*; http://www.femise.org/PDF/S_Alessandrini_0101.pdf.
- BÄCKER A. (2005), "The development of trade and Foreign Direct Investment under the influence of the Barcelona process – An initial assessment", paper presented at the conference "Middle East and North African Economies – Past Perspectives and Future Challenges", Brussels, 2-4 June.
- BEGG D., L. HALPERN and C. WYPLOSZ (1999), *Monetary and Exchange Rate Policies, EMU and Central and Eastern Europe*, Forum Report of the Economic Policy Initiative, no. 5, CEPR and EASTWEST Institute.
- BOUKLIA-HASSANE R. and N. ZATLA (2000), "L'IDE dans le bassin mediterraneen: ses determinants et son effet sur la croissance economique", *FEMISE Research Programme Report*; http://www.femise.org/PDF/Hassane_b_0401.pdf.
- CHINN M. and H. ITO (2002), "Capital account liberalization, institutions and financial development: cross country evidence", *NBER Working Paper*, no. 8967.
- COHEN B. (1993), "The Triad and the Unholy Trinity: lessons for the Pacific region", in R. Higgott, R. Leaver and J. Ravenhill eds, *Pacific Economic Relations in the 1990s: Conflict or Cooperation?*, Allen and Unwin and Boulder, Sydney and Lynne Rienner, pp. 133-58.
- COHEN B. (1998), *The Geography of Money*, Cornell University Press, Ithaca and New York.
- CUDDINGTON J.T. (1986), "Capital flight", *Princeton Studies in International Finance*, no. 58.
- DOOLEY M. (1996), "A survey of literature on controls of international capital transactions", *IMF Staff Papers*, vol. 43, no. 4, pp. 639-87.
- EDISON H. and F. WARNOCK (2003), "A simple measure of the intensity of capital controls", *Journal of Empirical Finance*, vol. 10, no. 1/2, pp. 81-103.
- EICHENGREEN B. (2001), "Capital account liberalization: what do cross-country studies tell us?", *The World Bank Economic Review*, vol. 15, no. 3, pp. 341-65.
- EICHENGREEN B. and C. WYPLOSZ (1993), "The unstable EMS", *Brookings Papers on Economic Activity*, no. 1, pp. 51-143.
- EICHENGREEN B., A.K. ROSE and C. WYPLOSZ (1995), "Exchange market mayhem: the antecedents and aftermath of speculative attacks", *Economic Policy*, vol. 21, pp. 249-312.
- EICHENGREEN B., A.K. ROSE and C. WYPLOSZ (1996), "Contagious currency crises", *CEPR Discussion Paper*, no. 1453.
- EICHENGREEN B. *et al.* (1998), "Capital account liberalization: theoretical and practical aspects", *IMF Occasional Paper*, no. 172.
- FELDSTEIN M. and C. HORIOKA (1980), "Domestic saving and international capital flows", *The Economic Journal*, vol. 90, no. 358, pp. 314-29.
- GIBSON H.D. (2003), "Realignment probabilities and reputation effects in the EMS", *Oxford Economic Papers*, vol. 55, no. 2, pp. 315-54.

- GIBSON H.D. and E. TSAKALOTOS (2004), "Capital flows and speculative attacks in EU member states", *Economics of Transition*, vol. 12, no. 3, pp. 559-86.
- GIBSON H.D. and E. TSAKALOTOS (2005), "EU enlargement, ERM II and lessons from the southern European countries", *South-Eastern Europe Journal of Economics*, vol. 3, no. 1, pp. 41-78.
- GRILLI V. and G.M. MILESI-FERRETTI (1995), "Economic effects and structural determinants of capital controls", *IMF Staff Papers*, vol. 42, no. 3, pp. 517-51.
- JAUMOTTE F. (2004), "Foreign Direct Investment and regional trade agreements: the market size effect revisited", *IMF Working Paper*, no. 04/206.
- JOHNSTON, R.B. and N. TAMIRISA (1998), "Why do countries use capital controls?", *IMF Working Paper*, no. 98/181.
- LANE P. and G. MILESI-FERRETTI (2001), "The external wealth of nations: measures of foreign assets and liabilities for industrial and developing countries", *Journal of International Economics*, vol. 55, no. 2, pp. 263-94.
- LAURETI L. and P. POSTIGLIONE (2005), "The effects of capital inflows on the economic growth in the Med Area", *Journal of Policy Modeling*, vol. 27, no. 7, pp. 839-51.
- MINIANE J. (2004), "A new set of measures on capital account restrictions", *IMF Staff Papers*, vol. 51, no. 2, pp. 276-308.
- NSOULI S.M. and M. RACHED (1998), "Capital account liberalization in the southern Mediterranean region", *IMF Working Paper*, no. 98/11.
- OBSTFELD M., J. SHAMBAUGH and A. TAYLOR (2004), "The Trilemma in history: trade-offs among exchange rates, monetary policies, and capital mobility", *NBER Working Paper*, no. 10396.
- PETRI P. (1997), "The case of missing foreign investment in the Southern Mediterranean", *OECD Working Paper*, no. 128.
- QUINN D. (1997), "The correlates of change in international financial regulation", *American Political Science Review*, vol. 91, no. 3, pp. 531-51.
- SEKKAT K. and M.-A. VEGANZONES-VAROUDAKIS (2004), "Trade and foreign exchange liberalization, investment climate and FDI in the MENA countries", *DULBEA Working Paper*, no. 05-06.RS.
- TAVLAS G.S. (1993), "The 'new' currency of optimum currency areas", *World Economy*, vol. 16, no. 6, pp. 663-85.
- TAVLAS G.S. (2003), "The economics of exchange rate regimes: a review essay", *World Economy*, vol. 26, August, pp. 1215-46.