THE POTENTIAL FOR ANCHORING MNMCS TO THE EURO BLOCK

TAL SADEH*

1. Introduction

In 1995 the EU launched the Barcelona Process (BP), a policy that aims at enhancing economic development, democracy and liberal values in Mediterranean non-Member Countries (MNMCs) (including Jordan and the Palestinian Authority). Euro-Mediterranean cooperation in the BP encompasses three 'baskets': economic, political and cultural. These baskets are reflected in the Euro-Mediterranean Association Agreements (EMAAs), which the EU has so far concluded in the framework of the BP with all of the MNMCs except for Libya and Syria.[1] Each EMAA consists of provisions allowing for a Free Trade Area (FTA) in industrial goods, and liberalization of trade in agricultural goods and services, capital movements, government procurement, competition policy, and protection of intellectual property rights. Each EMAA also consists of a bilateral political dialog, and cooperation on cultural and social matters.

Within the economic basket the aim of the BP is to establish by 2010 an FTA among the EU and all MNMCs, based on the EMAAs and on FTA agreements between Mediterranean countries. To this effect the EU has been pressing for liberalization of Mediterranean economies and structural adjustments. The MEDA financial assistance program has been set up, through which the EU helps in the development of infrastructure and the business communities in its partner. The EU has been urging its Mediterranean partners to join all of the WTO's multilateral agreements and commitments.[2]

[1] Negotiations with Syria are ongoing. Libya is not yet part of the Barcelona Process.
[2] See COM(2000)497 final, 6, 8.

While initial activity in the context of the BP focused on allowing duty-free trade among the Mediterranean partners, increasingly the focus is shifting to wider and more fundamental issues. These include industrial cooperation, rules of origin, customs procedures, standardization, regulatory framework for investment, harmonization of rules of origin and liberalization of services.[3] Various ministerial conferences, steering committees and working groups have been established to promote these issues. Businesses, environmental, research, and cultural networks have also been established.

The tendency to view the BP not merely as a scheme for regional trade integration but as a process of profound economic and political change among the participants follows on the same Neo-Functionalist logic on which the EU is founded. Cooperation in supposedly simple and technical issues spills over to much more fundamental issues, increasingly impinging on state sovereignty. Thus, in its recommendations to foreign ministers of participant states to the BP, the Commission of the European Communities (henceforth the Commission) called in 2002 for the gradual development of a Euro-Mediterranean internal market.[4]

In May 2004 the EU was enlarged to include eight new Members from central and eastern Europe. This enlargement redefined the EU's borders, bringing them closer to Russia and the Middle East. In 2003, in view of this enlargement, the Commission launched the European Neighborhood Policy (ENP), which is directed towards those countries neighboring the EU to its east and south that are not regarded as potential EU member states in the foreseeable future. Specifically, this Neighborhood group originally consisted of the BP countries, as well as Belarus, Moldova and the Ukraine. In 2004 Armenia, Azerbaijan and Georgia were added to the list.

In a classic demonstration of what Ernst Haas termed 'geographical spillover' the ENP aims at enhancing political stability around the

[3] See Commission of the European Communities, 2002a; and 2002b; and SEC(2002)159 final.
[4] See SEC(2002)159 final, 14.

EU, creating a 'ring of friends', by promoting democracy, pluralism, and respect for human rights and the rule of law.[5] The lack of these so far is deemed by the EU to pose an increasing threat to its own political stability. In order to achieve this, the Commission is proposing to allow the Neighborhood countries free access to the EU's Internal Market (IM), including labor mobility in the distant future.[6] According to Prodi (2002), the head of the Commission, the EU proposes 'sharing everything but institutions'. The European Economic Area (EEA) is considered as a model for EU-Neighborhood relations.[7]

Time will tell if indeed the sky is the limit in these relations. However, as this economic and political integration process spills over to ever-deeper issue areas, and as the Neighborhood countries integrate with the IM, the question of adoption of the EU's single currency will surely be raised. For the EU's ten new member states and the four candidate countries this is not a hypothetical question. By law they must eventually adopt the single currency, once a specified set of formal economic convergence criteria has been fulfilled.

However, monetary integration produced considerable economic and political pressure in the EU Member States in the 1990s, and has recently been straining European fiscal politics. It seems that fulfilling formal convergence criteria may not be sufficient as an indicator of a country's compatibility with membership in the euro block, either by formally participating in the third stage of Economic and Monetary Union (EMU) or by unilaterally adopting the euro as an anchor currency.

One such indicator suggested in the literature is potential exchange rate variation (Bayoumi and Eichengreen, 1997). High levels of potential exchange rate variation between countries with a fixed exchange rate mean that either prices would have to adjust, or some kind of market disequilibrium would persist, such as

[5] See COM(2003) 104 final.
[6] See COM(2004) 373 final.
[7] See COM(2003) 104 final, p. 15; and Prodi, 2002.

unemployment. Either way, the forced fix entails social and political adjustment costs. The higher the potential exchange rate variation, the more difficult it would be to form and maintain a currency union. The purpose of this study is to analyze the potential for exchange rate variation between the euro block and MNMCs, and to suggest ways to reduce this potential, with a view to future adoption of the euro as an anchor currency.

The rest of the paper proceeds as follows. Section 2 describes the methodology of the study. Sections 3-6 analyze the performance and idiosyncratic determinants of respectively, national openness levels, bilateral trade ratios, business cycle correlation, national inflation levels, in 39 European and Neighborhood countries in the 1990s. Section 7 analyzes the relationship between these variables, as well as autocracy and regime maturity, and nominal exchange rate variation. Section 8 presents conclusions.

2. Methodology

According to Optimum Currency Areas (OCA) theory currency unions are efficient among major trade partners with open economies and coordinated business cycles. In addition, similar rates of inflation are needed to stabilize currency links. Some economists have used OCA theory to argue that EMU is undesirable, forcing a fix on too disparate countries and damaging EU cohesion. Evidence regarding the extent of synchronization of business cycles among the pre-2004 EU member states (henceforth EU14) is inconclusive. However, it is argued that business cycles tend to get synchronized if enough intra-industry trade is generated among the member states.

Studies of potential membership of the 2004 accession countries in the euro block have generally been less sophisticated. OCA studies of Neighborhood countries are even fewer. With a few exceptions (Bénassy-Quéré and Lahrèche-Révil, 1999; and 2000) they focus on specific criteria of specific countries such as trade relations, immigration and institutional issues.

This paper describes and analyzes economic, institutional and political idiosyncratic national variables that are hypothesized in the literature to determine the potential level of exchange rate variation. Hypotheses about the relationship among these variables are tested by using a cross-section sample consisting of all EU Member States as of 2004 bar Luxembourg, three candidate countries (Bulgaria, Romania and Turkey), twelve Neighborhood countries (Algeria, Belarus, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Syria, Ukraine and Tunisia) and Russia. Thus, there are 39 countries in the sample. National observations are based on period averages for the various variables, calculated over the sample period of 1992-98. The sample period is constrained by the availability and the relevance of pre-1992 data for 13 ex-Communist transition countries in the sample, and by the lack of post-1998 exchange rate variability among the ten sample countries that adopted the Euro.[8] Unless otherwise specified, raw data is taken from the IMF's *Direction of Trade Statistics*, and *International Financial Statistics*.

Each section in this paper focuses on a specific determinant of exchange rate variation according to OCA theory, and on the idiosyncratic variables with which it is associated. Hypotheses are tested by dividing up the sample countries into relevant sub-groups and comparing the average performance of each sub-group in terms of the tested variable.

3. Openness

The more open an economy is to international trade and investments, the less potent is its exchange rate as a policy tool. In an open economy a government has little incentive to manipulate exchange rates, which mostly lead to nominal rather than real shocks, and little to lose from adopting a foreign currency. However, this greater sensitivity to external shocks says nothing on their likelihood, which can increase if openness leads to greater industrial specialization, or decrease if enough economies of scale are generated. Also, market forces may increase daily and weekly

[8] An eleventh sample country - Greece - joined the euro block in 2001.

exchange rate variation in an open economy, but not necessarily quarterly or annual variation. Thus, it is hypothesized that openness is negatively associated with exchange rate variation.

Small economies are likely to be more open than large economies because trade barriers are more damaging to consumption in small economies (Alesina and Barro, 2002). Small economies often also rely on a stable currency to attract foreign investment. However, Arab economies tend to be less open to the global economy than European economies for social and political reasons.

Table 1 presents size and openness data for the sample countries. GDP data in Table 1 is provided in 1996 PPP US dollar terms, calculated as a period average.[9] The smallest economy in the sample was Malta's (3 billion dollars), and the largest was Germany's (1,711 billion dollars). The Ukraine was roughly the size of an average sample country (273 billion dollars). Openness is the ratio of exports and imports of goods and services to GDP, again averaged over the sample period and shown in percent points.[10] Malta was the most open economy in the sample in 1992-98, its exports and imports totaling on average almost twice as much as its GDP, while Lebanon had the lowest openness ratio - 34.6 percent. Ukraine's openness ratio was closest to the sample's average.

The bottom rows in Table 1 show that the 19 smaller economies in the sample had an average size of 47 billion dollars and an openness ratio of 100.4 percent. The 20 bigger economies had an average size of 489 billion dollars and an openness ratio of 64.9 percent. Thus, size determines openness as expected.

The average size was 273 and 83 billion dollars respectively for the entire sample and the eight Arab countries. The average openness level was respectively 82.2 and 64.9 percent. Thus, in spite of

[9] Based on the RGDPL series in Heston, Summers and Aten (2002), multiplied by population.

[10] Data on exports and imports of goods and services and on GDP is based on the national accounts section of IFS. However, Lebanon's figure is based on *World Bank Atlas* data.

being more than three times smaller than the average sample country Arab economies were more isolated (see bottom rows).

Table 1: GDP and Openness Ratios

	GDP	Openness
Lebanon	17	34.6
Greece	132	42.5
Italy	1,158	42.7
Turkey	425	43.9
France	1,165	45.0
Spain	609	47.5
Poland	282	48.5
Germany	1,711	49.9
Algeria	146	50.3
Egypt	234	50.5
Libya	23	51.7
Morocco	104	51.7
United Kingdom	1,146	54.5
Romania	101	59.8
Russia	1,109	60.8
Portugal	134	61.8
Finland	98	64.4
Denmark	123	66.4
Hungary	90	67.8
Syria	62	68.2
Sweden	181	71.1
Israel	99	75.4
Austria	170	79.3
Ukraine	274	81.3
Tunisia	54	89.4
Cyprus	7	99.2
Bulgaria	52	99.6
Netherlands	325	100.2
Czech Republic	132	111.9
Lithuania	21	113.3
Latvia	16	114.2
Slovenia	25	114.8

Jordan	24	122.9
Belarus	65	125.6
Slovakia	52	129.4
Ireland	64	134.9
Belgium	212	137.3
Estonia	11	151.1
Malta	3	192.2
Small economies	47	100.4
Large economies	489	64.9
All	273	82.2
EU14	516	71.3
Arab	83	64.9
All other	163	99.3

4. Trade

The more countries trade with each other, the greater the benefit from removing the exchange rate volatility trade barrier.[11] In addition, according to the endogenous OCA theory their business cycles would be more correlated as well. Thus, the more the partners trade relative to the size of their economies the lower exchange rate variation is expected to be. According to standard Gravity models trade is hypothesized to be more developed among high-income countries, among partners to Free Trade Areas (FTAs), but to decline with distance, which is a natural trade barrier (Frankel and Rose, 2002).

Table 2 reports the relevant 1992-98 data between the group of countries making up the euro block as of 2001 and the 28 sample countries that are not members of the euro block today. TRADE is the period average of each country's trade ratio with the euro block, in percent.[12] The countries for which trade with the euro block in

[11] The 'New Theory of Optimum Currency Areas' argued that fixing a weak currency to a strong currency also benefits the credibility of disinflation policies (Tavlas, 1993). However, this argument is relevant only for a transition period, and only for the weak currency.

[12] The trade ratio is the sum of exports and imports with the euro block divided by the country's GDP. Bilateral trade data in current US dollars is based on the

the 1990s was the least significant were Belarus and Ukraine (5.06 percent), and the country for which that trade was the most significant was Malta (90.84 percent). INCOME is per capita GDP, in 1996 PPP US dollar terms, calculated as a period average.[13] The poorest countries in Table 2 are Egypt, Jordan, Syria and Morocco (3,600-3,800 dollars per capita), and the richest is Denmark (23,549 dollars per capita). DISTANCE is the distance in kilometers between Brussels and the capital of each country. The most distant countries in Table 2 are Egypt, Israel, Jordan, Lebanon and Syria (3,100-3,400 kilometers), and the closest is the UK (312 kilometers).

Table 2: Trade determinants

	TRADE	INCOME	DISTANCE	FTA(92-94)
Morocco	21.94	3,630	2,077	0.00
Egypt	8.14	3,660	3,213	0.50
Jordan	16.04	3,682	3,330	0.00
Syria	20.34	3,800	3,226	0.50
Romania	23.41	4,466	1,776	0.04
Lebanon	20.65	4,716	3,145	0.00
Algeria	26.36	4,720	1,569	0.50
Ukraine	5.06	5,536	1,839	0.00
Tunisia	51.70	5,664	1,629	0.00
Bulgaria	32.71	6,179	1,680	0.02
Latvia	28.62	6,219	1,464	0.00
Turkey	13.78	6,309	2,516	1.00
Libya	29.22	6,376	2,123	0.00
Belarus	5.06	6,463	1,607	0.00
Lithuania	30.31	6,648	1,440	0.00
Poland	24.42	7,325	1,152	0.13
Estonia	55.52	7,552	1,584	0.00
Russia	10.02	7,622	2,255	0.00

IMF's *Direction of Trade Statistics*. GDP data in nominal US dollars is based on *IFS* national accounts and exchange rates.

[13] Based on the RGDPL series in Heston, Summers and Aten (2002). In Libya's case it is based on the World Bank Atlas' GNP per capita series, by atlas method.

Hungary	45.54	8,760	1,128	0.13
Slovakia	39.85	9,684	960	0.00
Slovenia	65.69	12,755	960	0.00
Czech Republic	45.71	12,836	696	0.00
Malta	90.84	13,105	1,704	0.50
Cyprus	23.97	14,660	2,088	0.55
Israel	17.30	15,758	3,301	1.00
United Kingdom	21.31	19,580	312	1.00
Sweden	24.52	20,569	1,272	1.00
Denmark	24.28	23,549	768	1.00
Low income	21.65	5,101	2,228	0.18
High income	37.09	12,886	1,401	0.38

FTA(92-94) is an index scoring 1 for countries which had during 1992-1994 a fully operational FTA with the euro block within the meaning of Article XXIV of GATT, 0 for countries with no operational FTA at all, and any value between 0 and 1 for partially operational FTAs. For each country FTA(92-94) is the average of each of the three years' score.[14] The focus on the 1992-1994 period is designed to reduce the possibility for simultaneity between this variable and TRADE, which is calculated over the entire sample period. The most integrated countries with the euro block in Table 2 are Denmark, Israel, Sweden, Turkey and the UK (an index score of 1), and the least integrated are nine transition economies and five Arab countries (an index score of 0).

The average trade ratio was 27.80 and 31.66 percent respectively for the 14 poorer countries among the 28 non-euro countries and the 14 richer countries (see bottom rows). Thus, as expected, rich countries are found to trade more than poor ones with the euro

[14] Based on regional trade agreements notified to the WTO. An FTA is defined as fully operational once its transition period for removing tariffs is over. Partial scores are derived assuming a linear rate of tariff reductions from the date of entry into force of the agreement to the end of the transition period.

block. The bottom rows in Table 2 also reveal that the great traders with the euro block were indeed on average closer in distance to it, and more integrated with it in terms of trade agreements.

5. Business Cycles

The less correlated the business cycle is among the partners, the lesser the need to resort to exchange rate adjustments, and the greater the exchange rate variation is hypothesized to be. According to the endogenous OCA theory business cycles tend to get more correlated if enough intra-industry trade develops between the partners. On the other hand, inter-industry trade tends to make business cycles less correlated (De Grauwe and Aksoy, 1999; and Frankel and Rose). Thus, it is hypothesized that TRADE could be respectively either negatively or positively associated with business cycle correlation. Since intra-industry trade is mostly driven by economies of scale it is likelier among rich countries than between rich and poor countries.

Table 3: Determinants of business cycle correlation

	CYCLE	INCOME GAP	TRADE
Algeria	1.50	13,737	26.36
Belarus	4.86	11,994	5.06
Bulgaria	5.65	12,278	32.71
Cyprus	4.48	3,798	23.97
Czech Republic	1.34	5,621	45.71
Denmark	1.07	5,092	24.28
Egypt	0.94	14,798	8.14
Estonia	2.08	10,905	55.52
Hungary	0.95	9,697	45.54
Israel	1.17	2,699	17.30
Jordan	1.29	14,775	16.04
Latvia	2.30	12,238	28.62
Lebanon	1.47	13,741	20.65
Libya	2.34	12,082	29.22
Lithuania	2.02	11,809	30.31

Malta	2.26	5,352	90.84
Morocco	3.97	14,827	21.94
Poland	1.63	11,132	24.42
Romania	2.93	13,991	23.41
Russia	4.92	10,836	10.02
Slovakia	1.31	8,773	39.85
Slovenia	1.97	5,702	65.69
Sweden	1.03	2,111	24.52
Syria	1.51	14,657	20.34
Tunisia	1.54	12,793	51.70
Turkey	2.97	12,148	13.78
Ukraine	8.98	12,921	5.06
United Kingdom	1.26	1,123	21.31
High income	1.96	6,761	37.09
Low income	3.02	13,356	21.65
High trade	1.99	9,588	42.22
Low trade	2.99	10,529	16.52

Table 3 reports the relevant 1992-98 data for the sample countries that are not members of the euro block. The proxy for business cycle correlation between each pair of countries - CYCLE - is calculated as the standard deviation of the difference in annual PPP GDP growth rates during the sample period in the two countries (Bayoumi and Eichengreen, 1997). Thus, CYCLE is expressed in percent of growth rate. The higher CYCLE is the less correlated the business cycle is among the partners. Surprisingly, the most macro-economically correlated country with the euro block was Egypt (CYCLE value of 0.94), and the least correlated was the Ukraine (CYCLE value of 8.98). INCOMEGAP is the absolute difference in INCOME between the euro block and each country. High INCOMEGAP values indicate rich country-poor country dyads.

The bottom rows in Table 3 show that the 14 richer economies among the 28 non-euro ones had an average income gap of 6,761 dollars per capita, and an average CYCLE value of 1.96 percent. The 14 poorer economies had an average income gap of 13,356 dollars per capita, and an average CYCLE value of 3.02 percent.

Thus, as expected rich-poor dyads are associated with less business cycle correlation.

In addition, the 14 economies with the highest TRADE values (42.22 percent on average) had an average CYCLE value of 1.99 percent. The 14 economies with the lowest TRADE values (16.52 percent on average) had an average CYCLE value of 2.99 percent. Thus, as expected greater trade is associated with more correlated business cycles.

6. Inflation

The higher the inflation gap between the partners the greater the exchange rate variation is hypothesized to be. Inflation is associated with independent central banks (Cukierman, Webb and Neyapti, 1992), but the transition shock among the sample's ex-Communist countries should be controlled for. The process of decontrol of domestic prices produced sizeable non-monetary jumps in the rate of inflation for many transition economies as prices of domestic goods were allowed to adjust towards market values (Cukierman, Miller and Neyapti, 2002). Thus, transition countries are expected to feature higher levels of inflation for a given level of central bank independence.

Table 4 reports the relevant 1992-98 data for the sample countries. CPI is the period average of the average annual rate of consumer price inflation for each country. The most inflationary country in the sample was Belarus with an average annual inflation rate of 426.3 percent, and the lowest inflation persisted in Finland - 1.4. CBI is an index of the independence granted by law to the central bank, such that a value of zero corresponds to complete control of the bank by the government, and a value of one represents total independence of the bank from the government.[15] Index values for each country and each year are calculated based on analysis of the

[15] Generally, a central bank receives a high index value when its CEO and monetary policy making are independent from the government, when price stability is its overriding policy goal, and when it is prohibited from extending credit to the government.

legal text that applied. CBI is the period average for each country. The most independent central bank was unsurprisingly the German Bundesbank with a CBI score of 0.89, and the least independent bank was Syria's, with zero independence.[16]

However, central bank laws affect policy only to the extent that the rule of law is respected. Thus, LAW is an index of the rule of law in general in each country, based on Freedom House's index of civil liberties.[17] A score of 7 indicates complete lack of rule of law and a score of 1 indicates the highest level of rule of law. The rule of law was prominent during 1992-98 in seven of the 14 EU member states as of 1995 (hence forth EU14), Cyprus and Malta, but was least respected in Libya and Syria.

Table 4: Determinants of inflation

	CPI	CBI	LAW
Algeria	19.6	0.36	6
Austria	2.4	0.75	1
Belarus	426.3	0.54	5
Belgium	2.0	0.63	1
Bulgaria	129.8	0.60	2
Cyprus	3.9	0.53	1
Czech Republic	9.4	0.73	2
Denmark	1.9	0.64	1
Egypt	9.3	0.49	6
Estonia	32.1	0.65	2
Finland	1.4	0.55	1
France	1.7	0.71	2
Germany	2.6	0.83	2
Greece	9.7	0.72	3
Hungary	21.2	0.67	2
Ireland	2.1	0.68	1

[16] Syria's central bank's law was unobtainable, but this figure is assumed to be fairly reasonable in light of Syria's regime set-up.

[17] The rule of law criterion forms only part of the civil liberties index, but is unavailable separately. The index is available at: http://www.freedomhouse.org/research/freeworld/2003/countries.htm.

Israel	10.1	0.39	3
Italy	3.8	0.54	2
Jordan	3.7	0.25	4
Latvia	48.9	0.42	2
Lebanon	24.0	0.40	5
Libya	5.6	0.29	7
Lithuania	61.1	0.45	3
Malta	3.1	0.50	1
Morocco	4.1	0.19	5
Netherlands	2.4	0.65	1
Poland	26.7	0.52	2
Portugal	4.7	0.66	1
Romania	112.4	0.31	3
Russia	120.8	0.33	4
Slovakia	10.6	0.62	4
Slovenia	29.0	0.63	2
Spain	3.9	0.75	2
Sweden	1.8	0.49	1
Syria	8.0	0.00	7
Tunisia	4.5	0.35	5
Turkey	82.6	0.46	5
Ukraine	240.3	0.42	4
United Kingdom	2.9	0.54	2
Transition	97.6	0.53	2.8
Non-transition	8.5	0.51	2.9
Transition and low CBI	148.1	0.43	3.2
Transition and high CBI	38.7	0.65	2.3
Non-Transition and low CBI	13.9	0.36	4.3
Non-Transition and high CBI	3.2	0.67	1.6

The bottom rows in Table 4 show that transition economies, with roughly the same average CBI and rule of law scores as non-transition sample countries, had much higher rates of inflation

(97.6 percent compared with 8.5 percent). The next rows split the transition economies and the non-transition economies, each into two groups of low and high CBI countries separated by the median CBI score. Low CBI transition economies and High CBI transition economies had respectively on average an annual inflation rate of 148.1 and 38.7 percent and a CBI score of 0.43 and 0.65. Low CBI non-transition economies and High CBI non-transition economies had respectively on average an annual inflation rate of 13.9 and 3.2 percent and a CBI score of 0.36 and 0.67. This supports the hypothesis that independent central banks make for lower inflation. Similarly greater rule of law (reflected in lower LAW values) is shown to be associated with lower rates of inflation.

7. Exchange Rate Variation

Two more variables that affect exchange rate variation are added to the analysis in this section – autocracy and regime maturity. The sample features great heterogeneity in political regimes. While the Western and Central European countries are democratic, Eastern European and Southern Mediterranean countries have a greater tendency towards autocracy. Democracy exposes policy makers to pressures from interest groups and engages them in redistributive policies (Alesina and Drazen, 1991; and Haggard and Kaufman, 1992). On the other hand autocratic rulers are better insulated from distributive demands of the citizenry (Leblang, 1999). Thus, it is hypothesized that democratic countries are associated with greater exchange rate variation than autocracies.

The sample is similarly heterogeneous in the maturity of its regimes. While the transition countries in the sample are mostly young democracies a few years old, regimes in Western Europe and the Southern Mediterranean are decades old. Regimes, both democratic and autocratic, take time to institutionalize. Young democracies lack institutionalized parties, which enjoy greater discipline among their representatives in parliament, and the support of a large core of loyal voters. Autocracies also take time to tighten their control of power bases in the economy and society. Thus, rapid turnover and short office terms are expected to characterize governments in young political regimes.

Short office terms are simultaneous with corruption. Young political regimes (as well as regimes that are about to collapse) also tend to be more corrupt than mature regimes, because office tenure is expected to be short. In highly autocratic regimes corruption may not affect the stability of the regime, but in democratic as well as mildly autocratic regimes corrupt members of cabinet are at some point forced to step down, and thus corruption reinforces the instability of the regime.

Unstable regimes are less likely to fix exchange rates, because sustaining a fixed exchange rate may require politically difficult adjustments (Frieden, Ghezzi and Stein, 2001) and is incompatible with redistribution policies as explained above. Decision-makers with short horizons in office would be more opportunistic and less inclined to follow policies that are painful or unpopular in the short-term. Finally, the political uncertainty that unstable governments in young regimes project is reflected in risky financial markets and currency speculation. A long list of studies supports this argument for industrial as well as developing countries, and over a variety of sample periods.[18] Thus, it is hypothesized that young regimes are associated with high exchange rate volatility.

Table 5: Determinants of exchange rate variation

	SDE	OPENNESS	TRADE	CYCLE	CPI	POLITY	DURABLE
Slovakia	1.46	129.4	39.85	1.31	10.6	6.9	2.45
Czech Rep.	1.64	111.9	45.71	1.34	9.4	10.0	5.14
Estonia	1.72	151.1	55.52	2.08	32.1	6.0	4.00
Tunisia	1.96	42.7	51.70	1.54	4.5	-3.3	8.00
Cyprus	2.09	99.2	23.97	4.48	3.9	10.0	21.00

[18] Bernhard and Leblang, 2002; Edwards, 1996; Freeman, Hays and Stix, 2000; Keefer and Stasavage, 2002; Klein and Marion, 1997; Leblang and Bernhard, 2000; and Simmons, 1994.

Morocco	2.89	23.6	21.94	3.97	4.1	-6.9	30.00
Malta	3.29	192.2	90.84	2.26	3.1	10.0	21.00
Denmark	4.01	66.4	24.28	1.07	1.9	10.0	49.00
Sweden	5.67	71.1	24.52	1.03	1.8	10.0	78.00
Jordan	7.23	49.1	16.04	1.29	3.7	-2.0	6.00
Egypt	7.81	22.2	8.14	0.94	9.3	-3.0	43.00
Lithuania	7.93	113.3	30.31	2.02	61.1	10.0	4.00
Syria	8.23	30.4	20.34	1.51	8.0	-9.0	32.00
Libya	8.40	27.1	29.22	2.34	5.6	-7.0	44.00
Israel	8.63	31.2	17.30	1.17	10.1	9.0	47.00
UK	9.08	54.5	21.31	1.26	2.9	10.0	115.00
Latvia	9.41	114.2	28.62	2.30	48.9	8.0	4.00
Lebanon	11.99	34.6	20.65	1.47	24.0	-9.0	32.00
Slovenia	15.91	114.8	65.69	1.97	29.0	10.0	4.00
Poland	24.04	48.5	24.42	1.63	26.7	8.6	4.00
Belarus	28.97	59.0	5.06	4.86	426.3	0.0	1.29
Hungary	29.04	67.8	45.54	0.95	21.2	10.0	5.00
Algeria	30.03	25.6	26.36	1.50	19.6	-4.7	1.29
Russia	35.60	33.6	10.02	4.92	120.8	4.3	2.14
Ukraine	36.62	37.2	5.06	8.98	240.3	6.4	4.00
Romania	76.09	59.8	23.41	2.93	112.4	6.3	2.43
Turkey	87.05	20.0	13.78	2.97	82.6	7.9	12.00
Bulgaria	107.77	99.6	32.71	5.65	129.8	8.0	5.00
Low SDE	4.60	80.7	34.46	1.9	11.4	3.0	24.83
High SDE	36.44	57.2	24.28	3.0	92.5	5.3	17.08

Table 5 reports 1992-98 data for the sample countries regarding exchange rate variation and its determinants. SDE is the standard deviation of annual exchange rates over the sample period between each country and a synthetic basket of the euro block countries as of 2001, divided by its average for the sample period. Thus, SDE is expressed for each country in terms of percent deviation from its sample period's average exchange rate. The most stable currency against the synthetic euro block in 1992-98 was the Slovak currency with an SDE value of 1.46, and the least stable currency was the Bulgarian currency - 107.77.

POLITY is an index of institutionalized democracy, ranging from 10 for completely democratic regimes to-10 for completely authoritarian regimes.[19] Cyprus, the Czech Republic, Denmark, Hungary, Lithuania, Malta and Slovenia, Sweden and the United Kingdom scored 10 during the entire sample period. Syria was the most autocratic sample country with a score of -9. DURATION is each country's period average of the number of years since the most recent regime change.[20] The oldest regime was the UK (115 years in 1995), and the youngest were Algeria and Belarus (1.3 years), which underwent two regime changes each during the sample period.

The two bottom rows in Table 5 divide the 28 non-euro sample countries into the 14 with the lowest SDE values and the 14 with the highest SDE values. As hypothesized these rows show that higher exchange rate variation is associated with reduced openness, lower bilateral trade, lower business cycle correlation, higher inflation, greater democracy, and younger regimes.

8. Conclusions

Most MNMCs are either relatively large (such as Egypt and Turkey) or have some social and political tendency for economic isolation, such as the Arab countries. In spite of being more than three times smaller than the average sample country, Arab economies were in the 1990s significantly more isolated. Thus, potential for openness in the region, which Section 3 shows to

[19] Based on the POLITY variable in the Polity IV Project database, run by the Center for International Development and Conflict Management, University of Maryland. The POLITY value for each country in each year is based on coded data reflecting the degrees of openness and competitiveness of political participation and executive recruitment, and the extent of constraints on the exercise of power by the executive. This study calculates for each country an average of the POLITY score for the 1992-1998 period. Polity IV data is unavailable for Lebanon and Malta, which were therefore assumed to have identical scores to respectively, Syria and Cyprus. The Polity IV Project database is available at: http://www.cidcm.umd.edu/inscr/polity/index.htm.

[20] Based on the DURABLE variable in the Polity IV Project database. Regime change is defined as a change of at least three points in the POLITY score over a period of three years or less.

depend to a great degree on size is low. The exceptions are the small economies of Cyprus and Malta.

Compared with European countries, MNMCs also have a relatively low potential for trade with the euro block. To begin with, they are relatively poor. While average per capita GDP in 1992-98 among pre-2004 EU Member States and transition economies was respectively 19,052 and 7,850 US dollars, average per capita GDP among MNMCs and, more specifically, among Arab countries was respectively 7,173 and 4,531 US dollars. In addition, MNMCs are distant from the EU's economic hubs. While transition economies are on average 1,426 kilometers away from Brussels, MNMCs are 2,493 kilometers away. Low income and long distances are powerful idiosyncrasies that inhibit trade as is shown in Section 4.

The low potential for trade between MNMCs and the euro block translates into a potential for weak business cycle correlation, as was shown in Section 5. This tendency is enhanced by a potential for inter-industry trade rather than intra-industry trade between the poor MNMCs and the rich euro block. Inter-industry trade increases the probability of asymmetric shocks occurring between the trade partners. Cyprus, Israel and Malta were outliers among MNMCs in 1992-98 in terms of their potential for both trade and business cycle correlation with the euro block, because their per capita GDP levels were within the 13,000-16,000 US dollars range. However, Israel is among the most distant sample countries, 3,300 kilometers from Brussels.

As Section 6 shows, once the hyperinflation among transition economies is controlled for it is clear that Central Bank Independence (CBI) and a strong rule of law help reduce inflation. It is found that MNMCs have a potential for relatively high inflation due to the low degree of independence granted by law to their central banks, and to their weak state of rule of law. The average Central Bank Independence (CBI) index, ranging from 0 for no independence to 1 for full independence, was in 1992-98 0.35 among MNMCs, compared with 0.53 for transition economies and 0.68 for member states of the euro block. The average rule of law index, ranging from 7 for no rule of law to 1 for complete rule

of law, was in 1992-98 4.53 among MNMCs, compared with 2.80 for transition economies and 1.59 for member states of the euro block. Again, Cyprus and Malta stand out as exceptions, with CBI index levels of respectively 0.53 and 0.50, and rule of law index levels of 1.

Section 7 supports the hypotheses that that higher exchange rate variation is associated with reduced openness, lower bilateral trade, lower business cycle correlation, higher inflation, greater democracy, and younger regimes. Thus, the weak performance of MNMCs in the idiosyncratic variables analyzed above spells a high potential for exchange rate variation. This in turn means that any attempt to peg to the euro block would be very costly to society in these countries.

In a naive sense the findings in Section 7 suggest that MNMCs do have two factors reducing the potential for exchange rate variation - autocracy and maturity. MNMCs scored on average -0.7 on the POLITY scale in 1992-98, and had an average regime maturity of 24.8 years, compared with 6.3 and 19.0 respectively for the other countries. However, advocating autocracy for the sake of a currency link is morally problematic. Similarly, promoting political conservatism and avoiding changes in regimes merely to achieve a lower potential for exchange rate variation is for most people an unacceptable set of priorities.

Rather, the main lesson to be learned from these findings, which is also well documented in the case of Latin American countries, is that any process of democratization in MNMCs is likely to enhance exchange rate variation. The reason for this is that in the wake of democratization governments would be hard-pressed to use the exchange rate as a redistributive instrument for the benefit of previously disenfranchised sectors. Democratization produces young regimes with unstable governments and policies in their early years. In addition, foreign exchange market agents would enjoy greater freedom to act on their expectations. Thus, any progress in the process of democratization in MNMCs, on which the EU is so keen, would further complicate anchoring these countries to the euro block.

Can anything be done to improve the MNMCs potential for anchoring to the euro block? Improving the rule of law, making central banks legally independent, concluding and swiftly implementing free trade agreements with the EU, and adopting the internal market's legislation could greatly improve the compatibility of MNMCs with the euro block.

Arguably, an analysis of costs has only partial predictive power regarding the sustainability of a currency peg. The fact that countries such as Estonia, Bulgaria and Lithuania maintain currency boards in spite of their not insignificant potential for exchange rate variation shows that they are willing to bear the burden of the peg. However, the monetary and exchange policy of these countries was based on the expectation of EU membership. The lack of such a prospect for MNMCs can be expected to further weaken their resolve to sustain a peg to the euro block.

References

Alesina, Alberto and Allan Drazen (1991), 'Why are Stabilizations Delayed?', *American Economic Review*, 81, 1170-89.

Alesina, Alberto and Robert J. Barro (2002), 'Currency Unions', *Quarterly Journal of Economics*, 117, 2, 409-36.

Bayoumi, Tamim and Barry Eichengreen (1997), 'Ever Closer to Heaven? An Optimum-Currency-Area Index for European Countries', *European Economic Review*, 41, 3-5, 761-70.

Bernhard, William and David Leblang (2002), 'Democratic Processes, Political Risk and Foreign Exchange Markets', *American Journal of Political Science*, 46, 2, 316-33.

Bénassy-Quéré, Agnés and Amina Lahrèche-Révil (1999), 'The euro as a Reference Currency for Eastern and Southern Neighbors of the European Union', *Revue Economique*, 50, 6, 1185-201.

Bénassy-Quéré, Agnés and Amina Lahrèche-Révil (2000), 'The Euro as a Monetary Anchor in the CEECs', *Open Economies Review*, 11, 4, 303-21.

Commission of the European Communities (2002a): 'Conclusions of the Presidency - Euro-Mediterranean Ministerial Conference on Trade - Toledo, 19 March 2002', Euromed Report, 38.

Commission of the European Communities (2002b): 'Vth Euro-Mediterranean Conference of Ministers of Foreign Affairs - Valencia Action Plan', Euromed Report, 42.Cukierman, Alex (1992), *Central Bank Strategy, Credibility, and Independence: Theory and Evidence* (London: The MIT Press).

Cukierman, Alex, Geoffrey P. Miller and Bilin Neyapti (2002), 'Central Bank Reform, Liberalization and Inflation in Transition Economies - An International Perspective', *Journal of Monetary Economics*, 49, 2, 237-64.

Cukierman, Alex, Steven B. Webb and Bilin Neyapti (1992), 'Measuring the Independence of Central Banks and Its Effect on Policy Outcomes', *The World Bank Economic Review*, 6, 3, 353-98.

De Grauwe, Paul, and Yunus Aksoy (1999), 'Are Central European Countries Part of the European Optimum Currency Areas?', in Paul De Grauwe and Vladimir Lavrač (eds.), *Inclusion of Central European Countries in the European Monetary Union* (Boston: Kluwer), 13-36.

Edwards, Sebastian (1996), 'The Determinants of the Choice of between Fixed and Flexible Exchange Rate Regimes', NBER working paper 5756.

Frankel, Jeffrey A. and Andrew K. Rose (1998), 'The Endogeneity of the Optimum Currency Area Criteria', *Economic Journal*, 108, 449, 1009-25.

Frankel, Jeffrey A. and Andrew K. Rose (2002), 'An Estimate of the Effect of Common Currencies on Trade and Income', *The Quarterly Journal of Economics*, 117, 2, 437-66.

Freeman, John R., Jude C. Hays and Helmut Stix (2000), 'Democracy and the Markets: The Case of Exchange Rates', *American Journal of Political Science*, 44, 3, 449-68.

Frieden, Jeffry A., Piero Ghezzi and Ernesto Stein (2001), 'Politics and Exchange Rates: A Cross-Country Approach to Latin America', in Jeffry A. Frieden and Ernesto Stein (eds.), *The Currency Game: Exchange Rate Politics in Latin America* (Baltimore: Johns Hopkins University Press).

Haggard, Stephen and R. Kaufman (1992), 'The Political Economy of Inflation and Stabilization in Middle-Income Countries', in Stephen Haggard and R. Kaufman (eds.), *The Politics of Economic Adjustment* (Princeton: Princeton University Press).

Heston, Alan, Robert Summers and Bettina Aten (2002), *Penn World Table Version 6.1*, Center for International Comparisons at the University of Pennsylvania (CICUP).

Keefer, Philip and David Stasavage (2002), 'Checks and Balances, Private Information, and the Credibility of Monetary Commitments', *International Organization*, 56, 4, 751-74.

Klein, Michael W. and Nancy P. Marion (1997), 'Explaining the Duration of Exchange Rate Pegs', *Journal of Development Economics*, 54, 2, 387-404.

Leblang, David (1999), 'Democratic Political Institutions and Exchange rate Commitments in the Developing World', *International Studies Quarterly*, 43, 4, 599-620.

Leblang, David and William Bernhard (2000), 'The Politics of Speculative Attacks in Industrial Democracies', *International Organization*, 54, 2, 291-324.

Prodi, Romano (2002), *A Wider Europe - A proximity Policy as the Key to Stability*, speech delivered at the Sixth ECSA-World Conference, Brussels, 5-6 December 2002.

Simmons, Beth A. (1994), *Who Adjusts? Domestic Sources of Foreign Economic Policy during the Inter-war Years, 1924-1939* (Princeton: Princeton University Press).

Tavlas, George S. (1993), 'The 'New' Theory of Optimum Currency Areas', *The World Economy*, 16, 6, 663-85.