

Adam, Antonis; Moutos, Thomas

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## Capital Importers Pay More for their Imports

Antonis Adam  
Thomas Moutos

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# Capital Importers Pay More for their Imports

## Abstract

We examine the effects that a country's net capital flows have on the (border) prices that a country pays for its imports of goods. Using data from 2000 to 2009 for 11 euro area countries we utilize a pricing-to-market specification to study exporters' pricing behavior to the rest of the countries in the sample, at the industry level, for 900 goods disseminated at the 4- digit Standard International Trade Classification (SITC- revision 3) level. This allows us to construct a panel dataset which contains observations across exporters, importers, industries and time, ending up with a total of 594,327 observations. We find a strong influence of the importing country's net capital inflows on the border prices of its imports of goods. This result is robust across different specifications of the underlying model, as well to different sample dis-aggregations across types of capital flows, product categories, and exporters.

JEL-Code: F320, F340, F360.

Keywords: capital flows, import prices, pricing to market, globalization, euro area.

*Antonis Adam*  
*Department of Economics*  
*University of Ioannina*  
*P.O. Box 1186*  
*Ioannina 45110*  
*Greece*  
*aadam@cc.uoi.gr*

*Thomas Moutos*  
*Athens University of Economics and*  
*Business*  
*Patission 76*  
*Athens 10434*  
*Greece*  
*tmoutos@aueb.gr*

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*I am unable to carry the goat, put the ox then upon me.*  
(Ancient Greek proverb)

## **Introduction**

The debate about the effects of financial globalization has attracted increasing attention since the onset of the recent – and still lingering – global economic and financial crisis (GEFC). But even before the crisis erupted, a considerable body of evidence was accumulating against the presumed beneficial effects of capital inflows (e.g. Prasad, Rajan, and Subramanian, 2007; Rodrik and Subramanian, 2009). A central tenet of the case against financial globalization has been that capital inflows aggravate the structural problems of distortion-ridden economies (e.g. by leading to real exchange rate appreciation).

The present paper presents evidence that there exists another (hidden) cost of capital inflows: capital importing countries pay –*ceteris paribus*– higher prices for their imports of goods. In effect, capital inflows allow domestic agents (households and firms) to operate, for as long as capital inflows last, with *softer*<sup>1</sup> budget constraints; cognizant of this, profit-maximizing foreign exporters respond by charging higher prices to agents based in countries flush with capital inflows.

The rest of the paper is organized as follows. In section 2 we discuss some relevant theoretical considerations, survey the literature, and explain why our empirical investigation is guided by the well-developed econometric specifications of the *pricing-to-market* literature which developed out of concerns relating to exporter pricing behavior when the exchange rate changes.<sup>2</sup> Of course, the presence of pricing-to-market concerns does not depend on the existence of nominal exchange rate

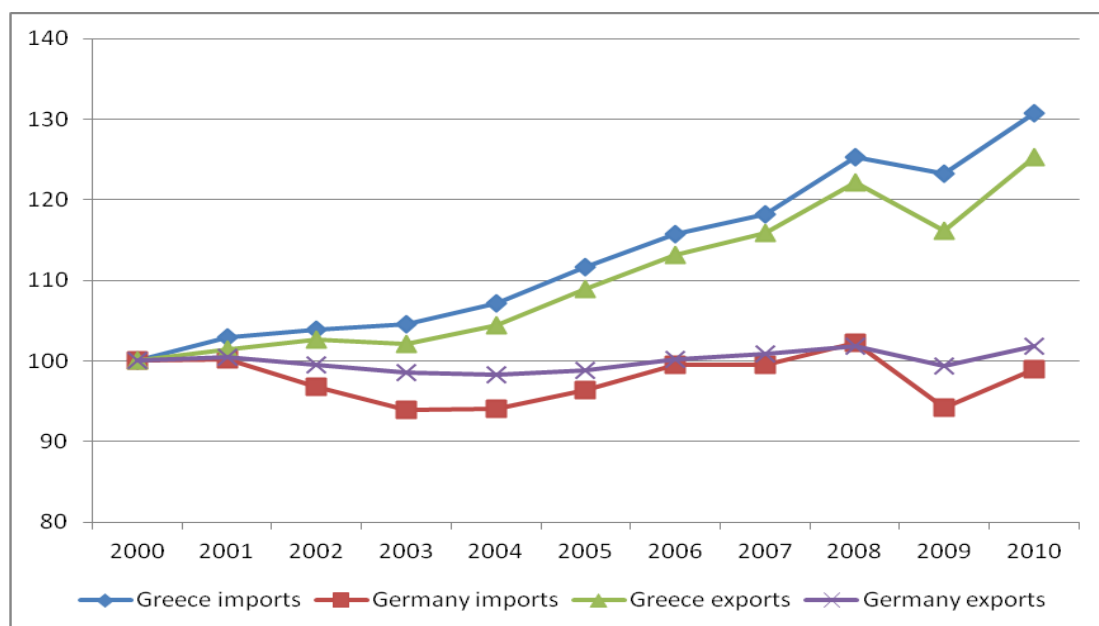
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<sup>1</sup> The term is borrowed from Kornai (1980), who discusses in detail how soft budget constraints can come into existence, and how they can affect agents' behaviour.

<sup>2</sup> Krugman (1987) coined the term "pricing-to-market" to describe the phenomenon of exchange rate induced price discrimination in international markets.

changes. As an illustration, consider Figure 1 which displays the aggregate border price indices for the imports and exports of goods of two euro area countries, Germany and Greece. We choose these two countries as representative of the capital exporting group (Germany) and of the capital importing group (Greece). What Figure 1 reveals is that the evolution of import prices in each country is strongly connected with its export prices, but not with each other.<sup>3</sup> We regard this as behavior consistent with the pricing-to-market hypothesis, since the importing country's export prices are a good proxy for domestic price/cost developments to which foreign exporters respond when setting their prices.<sup>4</sup>

Figure 1: Evolution of price indices for imports and exports of goods, 2000=100



Source: Ameco Database, European Commission (accessed on November 24, 2011)

<sup>3</sup> We note that, as far as aggregate data are concerned, this is not a feature pertaining only to Germany and Greece, but holds for the other euro area countries as well. It is also worth noting that during the period examined the terms of trade improved for Germany and deteriorated for Greece.

<sup>4</sup> The high correlation between import and export prices for each country could possibly be explained on the basis of intra-industry trade. This may indeed be a plausible explanation for Germany and France whose (international) trade pattern is mainly intra-industry; it is a less plausible explanation for Greece and Portugal whose international trade is more of the inter-industry type (see, e.g. Adam and Moutos, 2008). Moreover, if indeed intra-industry trade were responsible for the high correlation between import and export prices in each country, we would expect high correlation between the import price indices across countries.

In section 3 we undertake a detailed econometric analysis of the issue by examining the export pricing behavior of 11 euro area countries.<sup>5</sup> Using annual data from 2000 to 2009, we try to explain exporters' pricing behavior to the rest of the countries in the sample, at the industry level, for 900 goods disseminated at the 4- digit Standard International Trade Classification (SITC- revision 3) level. Thus our econometric analysis builds on a panel dataset which contains observations across exporters, importers, industries and time, ending up with a total of 594,327 observations. This allows us to explore the fact that each exporting country's producers sell each good to different national markets<sup>6</sup>, but also to be able to derive the aggregate effect of a country's capital inflows on the prices it pays for its imports. We find that import prices are positively related to the level of net capital inflows of the importing country. This result is robust across different specifications of the underlying model, which involve the addition of a host of control variables like the importing country's per-capita GDP, consumption taxes, interest rate, and price developments, as well as each exporter's (average) price developments across all destinations.

Section 4 presents a series of robustness checks. We first split net capital inflows into their debt and non-debt (FDI) components and find that both components are significant determinants of exporters' price discrimination across countries. We then examine the underlying relationship across different product categories. Following Rauch (1999), we classify the SITC industries into three different groups: industries with homogeneous products, industries with reference prices and industries with

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<sup>5</sup> Euro-11 consists of Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal and Spain. These 11 countries plus Luxembourg were the initial members of the euro area when the euro was physically introduced.

<sup>6</sup> Kreinin (1977), Knetter (1989), and Marston (1990) are early papers which exploited the idea that each exporter sells in many countries in order to empirically gauge the effect of exchange rates changes on the pricing of exports to different destinations. Other investigations (e.g. Feenstra, 1989) focused on differences in the prices charged by exporters to foreign markets versus the prices charged in their home country.

differentiated products. We find that the positive association between import prices and net capital inflows is more pronounced in industries with differentiated products. This finding matches well with our theoretical priors that profit-maximizing exporters with some market power will wish to exploit the opportunity afforded to them by the increase in spending capacity of agents residing in capital importing countries. Then we examine separately the pricing behavior of the 4 biggest euro area exporters (Germany, France, Italy and Spain) and find that the influence of capital inflows still holds with each country's exporters charging higher prices to capital importing countries; we find that this also holds for the exports of 2 non- EU countries, i.e. Japan and USA, to euro area countries. Section 5 provides some concluding remarks and discusses some implications of our findings, while in the Appendix we present some properties of the data used.

## **2. Conceptual Underpinnings**

Financial globalization has been usually thought to be fundamentally beneficial to all countries (and especially to emerging market economies). According to Dell' Ariccia et al. (2008) and Mishkin (2009), these benefits arise since financial globalization weakens the power of entrenched special-interest groups, eases financing constraints for productive investment projects, fosters the diversification of investment risk, promotes intertemporal trade, and encourages support for institutional reforms which contribute to the development of efficient financial markets.

However, following the Latin American and Asian crises of the 1990s, many economists have voiced concerns about the presumed benefits of unfettered capital flows (e.g. Bhagwati, 1998; Furman and Stiglitz, 1998; Rodrik and Velasco, 2000; Stiglitz, 2004; Prasad, Rajan, and Subramanian, 2007; Rodrik and Subramanian,

2009).<sup>7</sup> These papers not only provide theoretical arguments as to why in second-best environments international financial integration may be harmful, but, after surveying the cross-country evidence conclude that (i) the growth benefits of capital-account openness is inconclusive and lacks robustness, (ii) consumption volatility actually rose (relative to output volatility) in emerging market economies during the current era of financial globalization, and (iii) countries that grow more rapidly are those that rely less and not more on foreign capital.

The present paper contributes to the debate about the desirability of unfettered international financial integration by examining *empirically* a hitherto unexamined issue: the influence of capital inflows on the (border) prices a country pays for its imports. To our knowledge, Basu and Morita (2007) is the only paper that has modeled the *theoretical* link between capital inflows (or, more precisely, the availability of credit at better terms) and the prices paid by a country for its imports of goods. They argue that a lowering of the interest rate charged on the foreign loans received by a country's agents will result in a rise in the price charged by the exporters of these goods to the country's importers.

The essence of their argument is as follows. Suppose that a domestic agent has to borrow funds in order to acquire goods from abroad. If  $p$  is the price charged by the exporter, and  $i$  stands for the interest rate on the borrowed funds, then the effective price paid by the importer is  $(1+i)p$ . Assume now that the domestic agent is able to obtain funds at a lower interest rate. From the point of view of the exporting firm –

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<sup>7</sup> The rise in domestic absorption (i.e. the sum of consumption, investment, and government spending in national income accounting) above domestic production, which net capital inflows facilitate, has been associated in the literature with a host of problems for the capital importing countries. (In what follows we will use the terms “net capital inflows” and “capital imports” interchangeably.) Of particular importance for the present study is that (net) capital inflows generate higher demand for both tradables and nontradables, which induce a real appreciation through a rise in the absolute (and relative) price of the nontradables, and higher domestic inflation (Calvo, Reinhart, and Leiderman, 1996).



which is assumed to possess some market power, this reduction in the interest rate is equivalent to an outward shift of the demand curve, thus making it advantageous for the exporter to charge a higher price  $p$ .<sup>8</sup>

A similar argument applies if a higher volume of credit from abroad (at the same, or lower, interest rate) becomes available to domestic agents. Cognizant of this increase in credit availability, foreign exporters will use any market power they may have in order to increase –*ceteris paribus*– the price charged to domestic importers.<sup>9</sup> Given that our empirical investigation is aimed at explaining differences in the border prices charged by exporters, and not in the importing country's consumer prices, it bears mentioning that the qualitative effects of a rise in domestic (i.e. the importing country's) agents' spending power on border prices is independent of whether foreign exporters sell their goods directly to domestic consumers (or, firms) or through middlemen (e.g. retailers). In the latter case, the foreign exporter takes into account shifts in the demand curve faced by retailers, and adjusts the border price accordingly (see, e.g. Tirole, 1988).

The link between foreign lending, or foreign aid, as an export promotion policy at the bilateral level has been discussed widely in the context of trade relations between industrialized and developing countries. Developing countries usually receive export credits from industrialized countries with the explicit requirement that they use them to buy goods from the latter (Fleisig and Hill, 1984; Eaton, 1989; Basu and Morita,

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<sup>8</sup> Basu and Morita (2007) are concerned with the effects that credit availability at better terms has on domestic welfare; they demonstrate that it is possible to lead to a fall in domestic welfare.

<sup>9</sup> An alternative interpretation for the rise of prices rests on the expansion of credit availability that capital inflows engender, especially through credit card debt. According to George Loewenstein "...credit cards effectively anesthetize the pain of paying...you swipe the card and it doesn't feel like you're giving anything up to make the purchase, unlike paying cash where you have to hand over bills" (quoted at <http://www.cmu.edu/homepage/practical/2007/winter/spending-til-it-hurts.shtml>). This implies that sellers would be able to raise prices as the "pain of paying" is smaller if credit cards are used (see, Prelec and Simester, 2001; Knutson et al., 2007).

2007). This issue has also been linked with the phenomenon of “loan pushing”<sup>10</sup>, most evident in the years preceding the 1982 debt crisis, when multinational banks practically forced money on the less-developed countries (Kindleberger, 1989; Basu, 1991). Although we do not wish to tie our argument to loan pushing *across* countries, there is some anecdotal evidence that domestic banks in some countries (e.g. Greece) were into the loan pushing business vis-à-vis domestic households and firms.<sup>11</sup> In any case, even if there was no inter-country (or intra-country) loan pushing, and previously credit-constrained agents simply took advantage of greater credit availability, it is not inconceivable that foreign exporters would indeed take into account in their pricing decisions the “augmentation” of spending power by domestic residents which borrowing from abroad entails.

Foreign exporters are also likely to take into account a number of other factors when deciding how to differentiate prices according to destination. The voluminous literature on *pricing-to-market* (Krugman, 1987) behaviour by exporters has made clear that, in addition to the bilateral exchange rate, any other variable which may affect either the demand curve perceived by the exporter in a particular market (country) or the exporter’s costs would affect its pricing decision (see, Goldberg and Knetter, 1997, for a review of this literature). Given our focus on the pricing of

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<sup>10</sup> Loan pushing has been defined by Basu (1991, p.24) as a situation in which “...banks try to supply more credit to borrowing countries than the latter would voluntarily take at the prevailing interest rate”. Basu mentions two noteworthy cases of loan pushing (originating from Winkler, 1933, and Gwyne, 1983). The first case involves a Bavarian hamlet in the 1920s, which was seeking to borrow \$125,000 from U.S. lenders; in the end, the mayor of the hamlet was persuaded by the lenders that he should borrow \$3,000,000. The second involves the case of exports-promoting loans, in which the employee of a medium-sized Midwestern bank pushed loans to the Philippines in order to please a U.S. client who was a manufacturer of earth-moving machines and who knew that the Philippines would use these loans to buy these machines.

<sup>11</sup> In a typical instance a bank employee would inform a client that his deposit account had been “augmented” with so many thousands euros which were a loan offer that the client had never requested. Moreover, the client would have to go through some minor hassle (e.g. visit to the local branch) if he wanted to opt out of this arrangement.

bilateral trade flows between Eurozone countries, in what follows we concentrate our discussion on the influence of factors other than the exchange rate.<sup>12</sup>

A key aspect of the pricing-to-market literature relies on the fact that exporters engage in multiple transactions, i.e. they sell in different (national) markets. For exporters to be able to price-to-market, markets must be geographically segmented.<sup>13</sup> The standard theoretical framework assumes that imperfectly competitive producers sell their output in many segmented destination markets, and set the export price for each destination as a function of the common marginal cost and a destination-specific markup (e.g. Knetter, 1989; Marston, 1990). Studying the exporter's pricing decisions within this framework it becomes obvious that both each exporter's cost developments as well as developments which affect the shape and position of each importer's (domestic) demand curve, will affect its pricing decision across markets. To accommodate these concerns we include in our empirical specification controls for the potential influence of demand and cost developments on the border prices of exporters to different destinations.

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<sup>12</sup> Although euro notes and coins were physically introduced on January 1, 2002, eleven of the twelve participating countries had fixed the exchange rates of their currencies from January 1, 1999. Greece, which formally joined the currency area on January 1, 2001, had its conversion rate to the euro fixed on June 19, 2000. The rate at which this conversion of the Greek drachma to the euro would take place was pre-announced on January 15, 2000, when the central rate around which drachma could fluctuate was set at 340.75 drachmas per euro. The actual drachma/euro exchange rate moved smoothly from 331 drachmas per euro in January 2001 to the fixed rate by the end of November 2001.

<sup>13</sup> But is the assumption of market segmentation across borders a good approximation of reality? Many studies indeed find that the costs imposed by international boundaries on the flow of goods across countries are substantial and markets are segmented (e.g. Engel and Rogers, 1996; Verboven, 1996; Parsley and Wei, 2001). Yet, other studies (e.g. Goldberg and Verboven, 2001 and 2006) find substantial increases through time in market integration for automobiles across five national markets (Belgium, France, Italy, Germany, and the United Kingdom). Nevertheless, it remains an open question whether these findings would also apply for countries in the European periphery or for goods whose expenditure shares are not a substantial part of household budgets.

### 3. Empirics

#### 3.1 Data and Empirical Methodology

The data we use are annual bilateral import and export unit values from 2000 to 2009, at the 4- digit SITC 3 level, constructed using import and export quantity and value data taken from OECD's International Trade by Commodity Statistics.<sup>14</sup> The country sample consists of 11 euro area countries, i.e.  $i,j=$  Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal and Spain. Given that the total number of the 4- digit SITC 3 industries is 990, our total sample ends up with 594,327 observations. We estimate the following equation:

$$p_{ijzt}^{imports} = b_1 p_{izt}^w + b_2 p_{jzt}^w + \gamma_4 Market\_Share_{ijzt} + \gamma_1 Net\_capital\_flows_{it} + \gamma_2 income_{it} + \gamma_3 Tax\_consumption_{it} + \gamma_4 Interest\_rate_{it} + \mu_i + \lambda_j + \kappa_t + \xi_z + u_{ijzt} \quad (1)$$

In equation (1), which is modeled along the lines of the pricing-to-market literature,

$p_{ijzt}^{imports}$  is the log of the (border) unit value of imports of country  $i$  from country  $j$ , of product  $z$  at time  $t$ , and  $Net\_capital\_flows_{it}$  is the net capital flows as a share of GDP of country  $i$  at  $t$ , which are our main variables of interest.

To account for the influence of various demand and supply factors which could affect the pricing decision of exporters, equation (1) includes the following variables:  $p_{izt}^w$  is the log of the unit value of exports of (the importing) country  $i$  to the rest of the world of product  $z$  at time  $t$ . This variable is included as a proxy for the price that the importing country's producers charge for their home sales,<sup>15</sup> and it is meant to capture shifts in the demand faced by exporters due to price competition by the importing

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<sup>14</sup> Data downloaded from OECD's iLibrary at <http://www.oecd-ilibrary.org/>

<sup>15</sup> We use export prices since there are no data available for producer prices at this level of disaggregation.

country's producers.  $p_{jzt}^w$  is the log of unit value of exports of country  $j$  to the rest of the world of product  $z$  at time  $t$ . This variable is included as a proxy for exporter costs (see, e.g. Goldberg and Knetter, 1997), and is meant to capture supply-side influences on exporter prices.  $Market\_share_{ijzt}$  stands for imports of country  $i$  from country  $j$  of product  $z$  divided by total imports of  $i$  of product  $z$ , and is included to control for the possible influence of dynamic demand-side effects arising from the fact that the demand curves exporters' expect to face in the future, depend on current market shares due to consumer allegiance effects (Froot and Klemperer, 1989).<sup>16</sup> An alternative rationale for including this variable has been given by Feenstra et al. (1996), who have shown how market shares affect pricing decisions in response to demand disturbances.<sup>17</sup>  $Income_{it}$  is the log of GDP per capita of country  $i$  at  $t$ , and controls for any increases in the quality (and hence, price) of imported goods as a result of higher incomes in the importing country.  $Consumption\_tax_{it}$ , is the share of revenue from indirect taxes as a share of GDP of country  $i$  at  $t$ , and controls for possible changes in prices due to changes in the wedge between producer and consumer prices that changes in (the importing country's) taxes engender.  $Interest\_rate_{it}$  is the real interest rate, measured by the real rate on long term (10-year) government bonds and controls for the interest rate effects on prices as in Basu and Morita (2007). Finally  $\mu_i$ ,  $\lambda_j$ ,  $\kappa_b$ ,  $\xi_z$  are the importer, exporter, time and industry fixed effects. Data on  $Net\_capital\_flows$ ,  $Interest\_rate$  and  $income$  are taken from IMF's IFS database, whereas data for  $Consumption\_tax$  are taken from the Ameco database.

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<sup>16</sup> Due to lack of data on total domestic (i.e. the importing country's) expenditure on each product, this variable is used as an imperfect proxy for the market share that each country's exports represent in the importing country's market.

<sup>17</sup> Gaulier et al. (1998), in their study of export-pricing behavior at the product level for a large number of countries, found that market share is a significant determinant of pricing across markets.

### 3.2 Main Results

Results for equation (1) are given in Table 1. To allow the reader to appraise the robustness of our results, columns (1) to (4) present the estimated coefficients by introducing extra explanatory variables, beyond the ones always appearing in pricing-to-market equations, one at a time.

	(1)	(2)	(3)	(4)	(5)
p(importer)	0.685** (32.675)	0.685** (32.657)	0.685** (32.686)	0.685** (32.678)	0.684** (32.646)
p(exporter)	0.100** (13.143)	0.100** (13.037)	0.100** (13.051)	0.100** (13.050)	0.100** (13.050)
Market Share		-0.361** (-7.214)	-0.361** (-7.217)	-0.361** (-7.220)	-0.361** (-7.208)
GDP per capita			0.765** (8.186)	0.694** (7.486)	0.627** (6.622)
Consumption Tax				-1.991** (-4.535)	-2.568** (-5.623)
Net capital flows	1.065** (11.431)	1.063** (11.412)	0.899** (9.792)	0.905** (9.831)	0.841** (9.124)
Interest Rate					-1.443** (-5.236)
R-squared	0.408	0.409	0.409	0.409	0.409
obs	594327	594327	594327	594327	594327
industries	990	990	990	990	990
F-test	348.2459	354.3051	345.6615	335.716	331.077
F-year effects	30.16	35.92	36.13	29.84	29.00
F-importer effects	67.75	68.80	69.87	70.47	65.00
F-exporter effects	90.28	109.67	90.31	90.28	90.24

Clustered t-statistics in the parenthesis. \*, \*\* denotes statistical significance at the 5% and 1% level of statistical significance respectively

The strong statistical and economic significance of net capital flows on the prices charged by exporters to each destination (importing country) is evident across all specifications. The estimated coefficients for the net capital inflows variable decline

slightly as the importing country's GDP per capita is added in the estimating equation, and the same holds true for the influence of indirect taxes. The independent influence of these two variables on exporters' pricing is consistent with theoretical priors; a higher GDP per capita for the importing country raises the price charged by exporters, and a higher burden of indirect taxes in the importing country lowers the (border) prices charged by exporters. The influence of GDP per capita can be attributed not only to changes in the position or elasticity of the demand curve, but also to exporters' decision to differentiate the quality of their products across destinations.<sup>18</sup>

The estimated influence of net capital flows is considerable. According to the estimated coefficient in column (4), a rise in a country's (net) capital inflows by 5 percentage points of GDP results in about 4.5 percent rise in the prices the country pays for its imports. For a small country whose imports of goods are 30 percent of its GDP,<sup>19</sup> the annual cost in terms of income transferred to the rest of the world is equal to 1.35 percent of GDP.<sup>20</sup> This is a very large<sup>21</sup> extra burden - beyond the interest payments the country must make in order to service its foreign debt - which lasts for as long as the country maintains that level of capital inflows. Any assessment of the net impact of capital flows on domestic welfare must take into account this extra cost of capital inflows.

As the reader can verify the variable capturing the exporters' cost conditions (approximated by exporters' average price of their exports of product  $z$  to all

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<sup>18</sup> For evidence documenting that higher-quality items are sold in higher-income countries see, e.g. Schott (2004), and Hallak (2008).

<sup>19</sup> If we assume that the same coefficient would apply for services imports, and the total imports of goods and services amounts to 40 percent of GDP, then the annual transfer which the importing country makes to the rest of the world rises to 1.8 percent of GDP.

<sup>20</sup> A full welfare analysis for the country receiving net capital inflows should also take into account the fact that import prices and the volume of imports are jointly determined.

<sup>21</sup> To appreciate how large is this extra burden (albeit temporary), we note that the Latin American countries could not manage to transfer more than 4 percent of their GDP abroad during the 1980s for more than a few years (before defaulting).

destinations – we term this variable “world price (exporter)”) has a significant influence on pricing to different destinations. The estimated coefficients are robust to different specifications and imply that a 10 percent rise in the price of a product  $z$  that a country’s exporters charge, on average, to all destinations, influences, on average, by about 1 percent the price charged to a particular destination. The influence of the importing country’s price developments is considerably higher; a rise by 10 percent in the price of product  $z$  that the importing country’s exporters charge for their exports to all destinations, increases by about 7 percent the price the importing country pays for its imports of good  $z$  (from all destinations).<sup>22</sup> We also find that the larger is the share of a country’s exporters in the imports of product  $z$ , the lower will be the price charged to the importing country. This may well be due to consumer-allegiance effects (Froot and Klemperer, 1989), but it may also simply be the result that larger market shares are associated with lower prices.

As argued in the previous section, the prices that a country pays for its imports may be influenced by the interest rates prevailing in the country and by the interest rates it pays for its loans.<sup>23</sup> To account for this possibility, in column 5 we include in the estimated equation the real interest rate – approximated by the real return on 10 year government bonds. In accordance with theoretical priors (i.e. Basu and Morita, 2007) we find that (the importing country’s) real interest rates have a negative influence on the prices a country pays for its imports. Moreover, we find that including this

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<sup>22</sup> For similar reasons, the evolution of the importing country’s consumer price index could also exert an influence on the pricing behavior of exporters. Including this variable among the set of explanatory variables did not produce any discernible change in our results.

<sup>23</sup> With respect to the possible interdependence between interest rates and capital flows we note that the correlation coefficient between the real interest rate and net capital flows is very low (-0.26). Moreover, when we introduce the real interest rate in the equation there is no significant change in the rest of the coefficients. Therefore it appears that there is no multicollinearity problem due to the inclusion of this variable.



variable does not affect significantly the magnitude by which capital flows are estimated to affect import prices.

#### **4. Robustness to Disaggregation**

In this section the sample used previously is disaggregated – first, by types of capital flows and product categories, and second, by considering individual exporting countries.

##### **4.1 Disaggregating Between Types of Capital Flows and Product Categories**

Following the East Asian and Latin American crises of the 1980s and 1990s, the literature has differentiated between debt and non-debt capital flows. Among non-debt capital inflows, foreign direct investment (FDI) has been singled out as particularly resilient during *sudden stops* in capital inflows (Calvo and Reinhart, 1999). Hausmann and Fernández-Arias (2001) noted that although debt flows to developing countries have been reversed (from inflows to outflows) during crises, FDI flows have been remarkably stable –and even increased in some cases. This has been attributed to the fact that FDI is “...bolted down and cannot leave so easily at the first sign of trouble”. From the present paper’s perspective, FDI inflows do not directly contribute to the *spending* power of domestic residents; instead, they may help to alleviate the country’s technological and capacity constraints, thereby increasing the price, and, more importantly for our purposes, non-price competition that foreign exporters face when selling to the domestic country.

To examine the, possibly, differential effects of FDI and non-FDI capital flows, we split in column 1 of Table 2 capital flows into these two constituents. We find that both types of capital flows have significant influence on the prices charged by

exporters, and that the estimated coefficients are similar in size to the ones obtained in

Table 1.

Table 2: Dep. Variable log of price of imports for each product category					
	(1)	(2)	(3)	(4)	(5)
		FDI and Foreign Debt	Differentia Organized Exchange	Reference Goods	Difference in prices
p(importer)	0.684** (32.649)	0.785** (40.319)	0.454** (4.388)	0.281** (6.009)	0.630*** (36.479)
p(exporter)	0.100** (13.052)	0.070** (9.203)	0.078* (2.967)	0.284** (11.940)	
Market Share	-0.360** (-7.198)	-0.129 (-1.950)	-0.615** (-7.476)	-0.618** (-5.841)	-0.332*** (-5.959)
GDP per capita	0.701** (7.201)	0.502** (3.408)	-0.015 (-0.064)	0.362* (2.987)	0.841*** (8.420)
Consumption Tax	-2.046** (-4.434)	-3.333** (-4.697)	-0.872 (-0.566)	-1.750** (-3.008)	-2.743*** (-5.782)
Net capital flows		0.721** (4.762)	0.271 (1.360)	0.393* (2.842)	1.209*** (11.783)
Interest Rate	-1.175** (-4.226)	-1.481** (-3.570)	-3.237** (-3.573)	-1.671** (-4.816)	-1.402*** (-5.104)
FDI(% GDP)	0.978** (10.063)				
Non-FDI flows (%GDP)	0.815** (8.837)				
R-squared	0.409	0.547	0.219	0.195	0.231
obs	594327	297821	43901	169432	594327
industries	990	500	86	260	990
F-test	322.3948	259.5366	89.23062	114.6365	130.5801
F-year effects	31.43	12.80	7.48	21.78	50.79
F- importer effects	64.96	40.62	7.25	21.41	68.52
F-exporter effects	90.24	63.22	6.71	15.72	58.91

Clustered t-statistics in the parenthesis. \*,\*\* denotes statistical significance at the 5% and 1% level of statistical significance respectively

Perhaps surprisingly, the size of the coefficient on FDI flows is larger than the one on non-FDI flows. A possible explanation for this finding is that FDI flows are accompanied by increased intra-firm transactions between different parts of

multinational corporations, intent on minimizing their overall tax burden by engaging in tax shifting across tax jurisdictions through transfer pricing.

In columns 2, 3, and 4 we split the SITC industries into three different groups, i.e., industries with homogeneous products, industries with reference prices and industries with differentiated products. This is done in order to ascertain whether differences in the mode of market organization influences the way capital flows affect exporters' pricing across destinations. The a-priori expectation is that for differentiated products prices do not signal relative scarcity, and according to Rauch (1999), this "uninformativeness of prices prevents 'globally scanning' traders from substituting for organized exchanges in matching international buyers and sellers". We would thus expect the influence of capital flows on pricing to be more pronounced for differentiated products.

This is indeed what we find. The estimated coefficient on capital flows is largest (and statistically significant) in the case of differentiated products, statistically significant in the case of reference goods, and statistically insignificant in the case of goods whose trading is subject to organized exchange. It would indeed be surprising if we found that capital inflows had a significant influence on the prices charged by exporters for goods traded in organized exchanges (e.g. primary commodities). Nevertheless, we do not wish to overemphasize this point since the classification of each SITC industry into one of the three groups is, for at least some industries, to some extent arbitrary (see, Rausch, 1999, for more details).<sup>24</sup>

Finally in column 5, we re- estimate our main equation, using this time the deviation of the price charged to each importer from the world price of the exporter ( i.e.

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<sup>24</sup> Column 3 also reveals that neither GDP-per-capita nor consumption taxes have any effect on the prices charged by exporters across locations.

$p_{ijzt}^{imports} - p_{jzt}^w$ ) as the dependent variable. This is equivalent to assuming that the coefficient of the log of the world price of the exporter is equal to one. Once again the results do not change significantly from the baseline equation, and net capital flows retain their strong (statistical and economic) impact on import prices.

## 4.2 Results for Individual Countries

In Table 3, we present the results from estimating equation (1) by considering the exports of only one country (across time, commodities, and importing countries) for the four largest economies of the euro area (Germany, France, Italy, Spain), as well as for the United States and Japan. We note that for the last two countries we do not need to explicitly account for changes in the exchange rate since all the importing countries in our sample have the euro as their currency and we have only a single exporter whose currency's movements vis-à-vis the euro are captured by the time fixed effects.

With the exception of the average price charged by exporters, capital flows is the only variable which exerts a (statistically, and economically) significant influence on the prices charged by exporters for all countries examined. We note that unlike the results shown in Tables 1 and 2, in Table 3 we find that GDP-per-capita may not be a statistically significant variable even though capital flows is (i.e. in the cases of Italy and US). A change in an importer's GDP-per-capita may switch demand away from a country's exporters, since it may be associated with a shift by consumers towards a price-quality combination which is not the exporting country's forte.<sup>25</sup> In contrast, changes in the importing country's spending power due to capital flows may affect symmetrically all exporters. This can result if consumers perceive capital-flows

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<sup>25</sup> It is also possible that changes in GDP-per-capita are associated with changes in income inequality, thus producing shifts in product demand across quality segments – see, e.g. Adam, Katsimi, and Moutos (2012) for a theoretical and empirical investigation of this argument.

induced changes in spending power to be of a temporary nature (i.e., they do not affect their permanent income), and thus making them more cautious about engaging in changes in the quality of goods consumed.

Table 3: Dep. Variable log of price of imports for each product category. Pricing behavior of specific countries

	(1)	(2)	(3)	(4)	(5)	(6)
	Exporter	Exporter	Exporter	Exporter	Exporter	Exporter
	Germany	France	Italy	Spain	Japan	USA
p(importer)	0.665** (32.293)	0.664** (26.487)	0.641** (23.069)	0.674** (31.990)	0.744** (32.409)	0.706** (39.023)
p(exporter)	0.186** (11.619)	0.060** (4.091)	0.040 (1.305)	0.152** (11.888)	0.036* (2.287)	-0.015* (-2.459)
Market Share	-0.024 (-0.331)	-0.229* (-2.407)	-0.059 (-0.682)	0.140 (1.403)	0.291 (1.340)	-0.085 (-0.692)
GDP per capita	0.860** (6.394)	1.032** (6.628)	0.346 (1.830)	0.661** (4.033)	2.350** (8.197)	0.138 (0.630)
Consumption Tax	-4.024** (-5.554)	-2.288** (-3.000)	-1.251 (-1.591)	-2.136* (-2.129)	-0.114** (-9.076)	-0.073** (-7.039)
Net capital flows	1.366** (8.799)	0.614** (4.163)	0.894** (6.015)	1.076** (6.366)	4.093** (15.654)	2.626** (11.935)
Interest Rate	-0.638 (-1.609)	-0.170 (-0.349)	-0.819 (-1.705)	-1.232* (-2.468)	0.026** (3.533)	0.008 (1.474)
R-squared	0.509	0.430	0.426	0.488	0.456	0.475
obs	72576	65644	63093	60008	38517	53317
industries	986	983	878	985	932	984
F-test	264.3438	136.1326	117.2509	254.3375	95.06172	134.539
F-year effects	10.37	9.82	15.18	12.47	35.40	15.01
F-importer effects	35.25	36.50	35.57	54.24	52.50	57.38

Clustered t-statistics in the parenthesis. \*,\*\* denotes statistical significance at the 5% and 1% level of statistical significance respectively

The strongest influence of (the importing country's) capital flows is on Japanese exporters and the lowest on French exporters. A possible explanation for this difference is that the share of differentiated goods' exports in total Japanese exports is

the highest in our sample, whereas the corresponding measure for French exports is the lowest (Japan: 76 percent, France: 50 percent).<sup>26</sup>

## **5. Conclusion**

Krugman's (1987) defense of free trade in light of the modern developments in trade theory was not based on theoretical, but rather, on pragmatic arguments: "This is not the argument that free trade is optimal because markets are efficient. Instead it is a sadder but wiser argument for free trade as a rule of thumb in a world whose politics are as imperfect as its markets." Similarly, and following the accumulating evidence against the presumed beneficial effects of capital account liberalization, one may be tempted to conclude that although capital account liberalization has not delivered (yet?) the expected benefits, it is better than the financial repression which characterized many middle-income countries.

The present paper does not aim at resolving this debate. Instead, its modest aim is to contribute to this debate by drawing attention to another cost of net capital inflows, i.e. that in addition to the direct cost of income transfers abroad which a negative net investment position implies, there exists also an indirect (but, substantial) cost of capital inflows. This is due to the higher prices that capital importing countries get charged for their imports of goods. Our estimations indicate that a country that increases its capital imports by 5 percentage points of GDP for 10 consecutive years, and its imports of goods are, on average, 30 percent of GDP during this period, the cumulative cost of the higher import prices will be about 13.5 percent of GDP. Despite the temporary nature of this cost, it may be of particular relevance for the

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<sup>26</sup> The correlation coefficient between the coefficient on capital flows and the share of differentiated goods (according to the Rausch specification) in total exports of each country is 0.7.

cost-benefit calculations of financial globalization since the empirical evidence has not uncovered even small positive effects of capital imports on GDP growth rates.

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## Appendix

Table A: Summary Statistics

	Description	Mean	Std. Dev.	Data source
p(imports- dep. Variable)	Log of border unit value of imports for each product category	2.07	2.28	OECD, International Trade by Commodity Statistics, authors, calculations
p(importer)	Log of unit value of world exports of the importer	1.86	2.25	OECD, International Trade by Commodity Statistics, authors, calculations
p(exporter)	Log of unit value of world exports of the exporter Imports of each product from the exporter divided by total imports of the corresponding product category	1.88	2.32	OECD, International Trade by Commodity Statistics, authors, calculations
Market Share GDP per capita	Log of real GDP per capita	0.07	0.13	International Financial Statistics, IMF
Consumption Tax	Taxes linked to imports and production as a share of GDP	0.13	0.01	AMECO database
Net capital flows	Capital Transfers and acquisition or disposal of total assets as a % of GDP	0.01	0.06	Balance of Payments Statistics, IMF
Interest Rate	Interest rate on 10year government bonds (nominal minus inflation)	0.02	0.01	International Financial Statistics, IMF
FDI(% GDP)	Net Direct Investment as a % of GDP	0.05	0.07	Balance of Payments Statistics,
Non-FDI flows (%GDP)	Net capital flows- FDI	-0.03	0.09	Balance of Payments Statistics, IMF

Number of observations=594327; Number of SITC3 4-digit Industries=990

Table B: Correlation Matrix

	p(imports-dep. Variable)	p(importer)	p(exporter)	Market Share	GDP per capita	Consumption Tax	Net capital flows	Interest Rate	Non-FDI flows (%GDP)	FDI(% GDP)
p(imports-dep. Variable)	1.00									
p(importer)	0.86	1.00								
p(exporter)	0.71	0.73	1.00							
Market Share	-0.08	-0.05	-0.04	1.00						
GDP per capita	0.04	0.10	0.00	-0.08	1.00					
Consumption Tax	-0.03	-0.01	-0.02	0.04	0.14	1.00				
Net capital flows	-0.01	-0.06	0.01	0.05	-0.71	-0.11	1.00			
Interest Rate	-0.01	0.01	0.00	0.00	0.14	0.05	-0.26	1.00		
Non-FDI flows (%GDP)	-0.02	-0.05	0.01	0.04	-0.60	0.02	0.68	-0.09	1.00	
FDI(% GDP)	0.02	0.02	0.00	-0.01	0.22	-0.12	-0.10	-0.09	-0.79	1.00