The determinants of capital inflows: Does opacity of recipient country explain the flows?

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Abstract

This paper examines the relationship between international capital flows and the opacity of recipient countries. We use Price Waterhouse Coopers (PWC) (2001) opacity index for the year 2000 and investigate its influence on three types of net international capital flows: foreign direct investment, portfolio capital and international bank lending. We find support for higher opacity leading to a reduction in capital inflows, in general. More interestingly, however, in some cases we find counterintuitive results of more capital flows when opacity relating to specific business climate increases – accounting and regulations for foreign direct investment flows, corruption and regulation for portfolio flows, and corruption and economic opacities for international lending flows. This may be because of potentially higher profit opportunities that may be present due to the greater role unofficial channels of investment practices play as these opacity indices rise. Also, we find international bank lending, in general, responded very differently from foreign direct investment and portfolio flows.

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1. Introduction

It is well accepted by both academics and government policy makers that enhanced capital flows in various forms, especially when stable, into recipient countries are highly advantageous from an economic development standpoint (Bailliu, 2000, Osei, Morrissey and Lensink, 2002). The determinants of such flows are mostly economic factors that influence the potential future returns from capital investments in the target countries. In addition to the fundamental determinants, there are potential roles for the opacity (i.e. lack of transparency) of the operating environment in influencing the decision of foreign capital investments. It seems reasonable to believe that capital flows are likely to be deterred by a country's overall degree of opacity. However, likely effects of opacity may be far from straight forward and vary depending firstly on the types of opacity of operating environments (investor protections, financial reporting, economic, etc.), and secondly on the nature of capital flows (short- vs. long- term flows, FDI vs. banking and portfolio flows).

Price Waterhouse Coopers' (PWC) opacity index is useful in this regard. Their 2001 survey of various aspects of opacity of business climates of thirty five countries produced opacity sub-indices for corruption, legal, economic, accounting/reporting, and regulation as well as aggregate opacity index. Using these disaggregated opacity measures we aim to investigate their potential heterogeneous impact on three broadly different forms of international capital flows: net Foreign Direct Investments, net international portfolio investments, and international bank net lending (Henceforth FDI, portfolio and banking flows). We argue that multinationals' (both financial and non-financial) ability to choose the mode of entry into target economies allow them to take advantage of differing aspects of opacity. That is, opacity in some aspects of business climates of capital recipient countries might actually represent profitable opportunities for those who can exploit them, leading to

an overall increase in capital inflows. For example, whereas opacity in general would discourage capital flows, opacity in accounting/reporting standards might allow multinationals to concentrate on FDI's in order to exploit existing ambiguities to maximise profit repatriation. On the other hand, other forms of capital flows might respond differently to accounting opacity. This is because ambiguous accounting/reporting requirements makes it difficult to distinguish good investment (both portfolio and loan) risk from bad leading to a lower level of financial investment flows. Opacity in corruption might increase the likelihood of multinationals receiving favourable tax treatments, loan guarantees, priority access to the country's national resources, etc. leading to more capital inflows. Especially in the case of banking flows, government payment guarantees provided to private external loans to 'crony capitalists' would certainly enhance the likelihood of international loans. On the other hand, legal opacity, which can be interpreted as a lack of enforcement of (both tangible and non-tangible) property rights, would have negative influence on the capital flows.

High levels of opacity especially in emerging economies seem likely to have precipitated into the recent series of spectacular economic and financial crises in their financial markets starting with the East Asian Crisis in 1997. Thus the study of the disaggregated influence of various aspects of opacity is important not only form the view point of international investment decision making but also from the broader perspective of ensuring the integrity of international financial system. However, there is a lack of research on this issue of the relationship between the levels of opacity of business climates and the international capital flows. The only research into the role of opacity is Gelos and Wei (2005), however, they only consider the aggregate 'O-Facor' index of the PWC in their study. We aim to address this shortfall in the literature. In this paper, we utilize the PWC's five opacity sub-indices of both emerging and developed countries and investigate the potentially heterogeneous relationships between various aspects of opacity in the business climates of

capital recipient countries and international capital flows in various forms (FDI, portfolio and banking flows).

The major findings of this paper are as follows. Firstly, the overall opacity index is negatively associated with all three types of capital flows which confirms our *a priori* expectation. Secondly, in some cases we find counterintuitive results: more capital flows when opacity increases – accounting and regulations opacities for the FDI flows; corruption and regulation opacities for the portfolio flows; and corruption and economic opacities for banking flows. This may be because of potentially higher profit opportunities that may be present due to the greater role unofficial channel of investment practices play as these opacity indices rise. Thirdly, international bank lending, in general, responded very differently from the other two forms of capital flows. We observe more net lending to countries with higher levels of corruption and economic opacity, lower GDP, a smaller stock market, lower national saving, and higher reliance on the banking sector for business credits. All of these are characteristics of emerging markets. This finding is generally consistent with the results of Wei and Wu (2001). The empirical results uncovered by our research have important implications for national and supranational policy makers and international investors as we document an interesting array of varying responses of international capital flows to different attributes of opacity of recipient countries.

The rest of the paper is organized as follows. We present in the next section the literature review and further motivations of the study. In section 3, data and the modeling issues are discussed. We then turn to the discussions of the estimation results in section 4. Finally, the important results are summarized and conclusions are drawn in section 5.

2. Literature review and further motivations

There have been recent examples in South East Asia where opacity in the form of 'crony capitalism' (corruption) was argued to be one of the responsible factors for the financial crisis and a subsequent reversal of recipient capital flows in 1997, where there was often a blur between what was considered to be private and public by government officials (Krugman, 1998). The empirical evidence on the relationship between corruption and the level of foreign direct investment remains in its infancy and is a relatively new line of thought merits further investigations. The relationship is not necessarily straight-forward either as to the effect of the degree of opacity plays in relation to the choice of entry mode by multinational enterprises. For instance, a high level of corruption may necessitate the establishment of a joint venture partner to help a multinational navigate through the host country bureaucracy, but may also mean that in order to maintain proprietary control over intellectual property, the establishment of a wholly owned subsidiary is preferred or an alternative equity governance mechanism put in place. Wei (2000), Smarzynska and Wei (2000), and Wei and Wu (2001) find a negative association between corruption and FDI flows. Smarzynska and Wei (2000) also find that corruption affects the mode of entry by a multinational enterprise. They suggest that less transparent regimes often encourage the multinational entry strategy to be exercised through a joint venture with a local partner in order to navigate through the complex local bureaucracy. However, they also find that corruption can decrease the effective protection of investor's intangible assets (legal opacity), which then reduces the reliance upon a local joint venture partner. Whilst the multinational entry mode research literature is well established and contains a fast growing body of studies, there is only a recently emerging literature on the impact of corruption on foreign direct investment entry. In a parallel vein to Smarzynska and Wei (2000), Henisz (2000) examined the effect of political hazards on FDI market entry mode for US based multinational firms, positing that political hazards vary for different types

of multinationals based upon the interactions that joint venturers have with the host country governments. His key finding centers on the importance of multinationals' mode of entry. He finds that 'unexpected' corruption has no effect upon FDI flows.

In a related paper, Smarzynska (2004) examines the role that intellectual property rights (IPR) play in attracting FDI. Using a database of multinationals undertaking FDI in Eastern Europe and the former Soviet Union, she finds that a weak protection of IPR deters foreign investors in technology sensitive sectors. Supportive of these results, McCalman (2004) suggests that as a country strengthens IPR, firms will move their governance structures away from equity based institutions such as FDI and joint ventures and move towards licensing arrangements. His analysis of the behavior of Hollywood studios in 40 countries reveals that although moderate IPR is associated with a high degree of licensing, both high and low standards of IPR encourage more integrated governance structures. We thus expect that corruption is more likely to affect the mode of entry of FDI into a country and that property rights in the form of a reduction in legal opacity is more important than opacity driven by corruption since multinationals' core competencies revolve around protecting their proprietary knowledge (Dunning, 1992).

Thus, corruption may be viewed as a positive force from the perspective of international investors as they may create low correlations between national markets by increasing market imperfections and segmentations, and thus enhance diversification benefits (Divecha, Drach and Stefek, 1992). Market segmentation created by corruption may assist international diversification benefits but a reduction in legal opacity (i.e. regarding the maintenance of repatriation of capital by international investors, i.e. shareholder protection, to the home country) is possibly more important to international investors in terms of capital and dividend repatriation. However, it must be remembered that regulations as market imperfections are major drivers of FDI activities since multinationals can take advantage of

host country opportunities. Thus regulatory opacity could also be seen as an opportunity rather than a threat especially when considered in conjunction with real options (i.e. higher volatility, perhaps brought about by a generally higher level of opacity will lead to greater value of those real options). Hence opacity is likely to have an uneven effect upon capital flows, and thus the need to disaggregate the effects of opacity into sub-components.

As for portfolio investment flows, Gelos and Wei (2005) examine the effects of country transparency upon international portfolio investments. They find evidence that international funds systematically invest less in less transparent (more opaque) countries. In addition, they find that herding among funds tends to be more pronounced in less transparent countries. However, they only utilize the aggregate 'O-Factor' of the PWC's opacity index, thus missing out on some important disaggregated results of the relationships.

International bank lending behavior has also received attention. Wei and Wu (2001) find that bilateral lending from 13 lender countries tend to be less sensitive to the level of corruption of the borrower countries (83 in the sample) than FDI flows. Moreover, they find that the countries with a higher level of corruption tend to rely more heavily on international bank loans and are thus less dependent upon FDI in their composition of international capital inflows. A repeated history of bailouts of major banks in their international lending activities may have created the environment of moral hazard where bank lending would increase with the level of opacity.

3. Data and modelling strategies

PWC have recently carried out a survey on opacity of various business climates of thirty five countries (both developed and emerging) for the year 2000 which resulted in their opacity indices shown in Table 1. These indices have allowed an interesting avenue of enquiry to emerge in determining the potential of disaggregated impacts of these indices in five

categories (corruption, legal, economic, accounting/financial reporting, and regulation) upon international capital flows. Each index ranges from zero to 100 (the higher is the index the more opaque is the underlying environment). Opacity which is the converse of transparency is the degree of lack of clarity of decision-making in a country's decision-making processes. PWC define opacity as the lack of clear, accurate, formal, easily discernible, and widely accepted practices in the broad arena where business, finance and government meet.

PWC (2001) state:

> "The potential for opacity exists in five principal areas (no country is likely to earn a perfect score). There may be *corruption* in government bureaucracy that allows bribery or favouritism. The *laws* governing contracts or property rights may be unclear, conflicting, or incomplete. *Economic* policies—fiscal, monetary, and tax-related—may be vague or change unpredictably. *Accounting* standards may be weak, inconsistent or unenforced, thus making it difficult to obtain accurate financial data. Business *regulations* may be unclear, inconsistent, or irregularly applied. Together, these create the acronym CLEAR (Corruption, Legal, Economic, Accounting, Regulatory). A high degree of opacity in any of these areas will raise the cost of doing business and curtail the availability of investment capital" p.6.

For a full overview of how data is collected refer to PWC (2001). The lower the opacity score, the less opaque (i.e. more transparent) is the decision-making. These opacity indices are used in the models below to explain the pattern of international capital flows in various countries. The overall opacity index, O-factor, ranges from the minimum of 29 for Singapore to 87 for China, and the average opacity across the thirty five countries is 59.53. As for the sub-indices, the lowest score is 13 for the corruption subindex for Singapore and the highest is 100 for legal and regulation opacity for China.

Three different forms of international capital inflows to countries that we consider are: net foreign direct investments (FDI flows), net portfolio investments (portfolio flows) and net lending (Banking flows) by the international banks that are reporting to the Bank for International Settlements (BIS). The FDI flows are the sum of equity capital, reinvestment of

earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows into the reporting economy. The portfolio flows consist of bond issues purchased by foreign investors and net flows of non-debt-creating portfolio equity flows (the sum of country funds, depository receipts, and direct purchases of shares by foreign investors). The banking flows are the difference between the lending by the BIS reporting banks to individual countries and deposits from these countries to the BIS reporting banks.

The FDI and portfolio flows data was obtained from the World Bank while the banking flows data was extracted from the BIS's international banking statistics. All three capital flows are for the year 2000 and are measured in USD billions[1].

We investigate the usefulness of the individual components of the opacity index as well as the overall index as possible determinants of the three types of the international capital flows for the year 2000 for the countries in the sample. Model 1 below examines the impact of the overall opacity index, whereas model 2 investigates the roles of individual indices. Both models are cross sectional regressions for the year 2000 for the thirty five countries in the survey sample[2].

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[1] We chose to use capital flows in levels rather than in ratios for a number of reasons. First, we wish to have more direct interpretation of the coefficients associated with the opacity indices. That is, we wish to measure the impacts of opacity indices in monetary terms to show a more direct policy implication (e.g. a 100 USD million fall as a result of one point rise in the index, etc.). Second, we aim to find the individual influence of the opacity on three separate capital flows rather than on ratios between two different flows (such as Wei and Wu, 2001, who examine the ratio of loan to FDI). Third, other researchers also examined capital flows in levels (e.g. Wei, 2000) and so direct comparison of the results is more meaningful if we adopt similar variable definitions.

[2] In order to improve the degrees of freedom of estimation, we experimented with a panel estimation by including data for 1998 and 1999 in addition to 2000. Although PWC's opacity index was only for 2000, we

Model 1:

$$y_{ij} = \text{constant} + c1 \cdot OI_j + c2 \cdot IICR_j + c3 \cdot GDP_j + c4 \cdot SMCap_j + c5 \cdot CRank_j + \varepsilon_j \qquad (1)$$

$$\text{for FDI flows add} \qquad c6 \cdot TopTaxRate_j + c7 \cdot RscExport_j$$

$$\text{for Banking flows add} \qquad c8 \cdot GNatSaving_j + c9 \cdot BankCredit_j$$

where

y_{ij} =	The three measures (subscript i) of net capital inflows into individual countries in 2000, FDI, portfolio, and banking flows to country j. They are measured in USD billions.	
OI_j =	The aggregate opacity index ranging from 0 (least opaque) to 100 (most opaque) for the year 2000.	
$IICR_j$ =	Institutional investors' credit rating in 2000, ranging from 0 (the least creditworthy) to 100 (most creditworthy).	
GDP_j =	The gross GDP of country j for 2000 measured in the USD billions	
$SMCap_j$ =	The stock market capitalization of country j in 2000 measured in the USD billions.	
$CRank_j$ =	Current competitiveness index ranking provided by World Economic Forum in their report 'The Global Competitiveness Report 2000'.	
$TopTaxRate_j$ =	Top corporate tax rate, in %.	
$RscExport_j$ =	Proportion of resource (ores and metals) export, in %.	
$GNatSaving_j$ =	Proportion of gross national saving to GDP, in %.	
$BankCredit_j$ =	Domestic credit provided by banking sector, in % or GDP	

In general, we expect c1 to be negative as this indicates an overall drop in net capital flows in response to a rise in the overall opacity index. This would be intuitive and also consistent with the common finding of the literature. However, there might be a possibility of differing sensitivity amongst the three measures of capital flows. For example, longer term capital flows such as FDI may be more sensitive to opacity than the other two as the degree of uncertainty the investors face in this form would be greater since portfolio investment can quickly reverse. In addition, international banks may enjoy an implicit and/or explicit protection against default by overseas borrowers through loan guarantees or deposit insurance, and this might contribute to bank flows potentially being less sensitive to opacity. Certainly

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used the same data for the two earlier years to overcome the lack of opacity data for 1998 and 1999. The panel estimation results are largely similar to the cross section results for 2000 that are reported here. However, the diagnostics of the panel estimations are less than ideal and the assumption of constant opacity indices across the three year period may not be warranted. Thus, we chose to report only the cross section results in this paper.

this behaviour was exhibited prior to the Asian Financial Crisis of 1997 which was encouraged by moral hazard on behalf of both lenders and borrowers.

In addition to the overall opacity index, we use controlling variables that are common to all three forms of capital inflows as well as some that are specific to each to account for other determinants of capital inflows. This will allow the influence of the opacity to be isolated in the estimated opacity coefficient. They relate to general business and economic environments that would have significant influence in all cases. Firstly, we use the Institutional Investors' credit rating for each country to help account for country risk. To the extent that the country risk might already have some measure of opacity embedded[3], a significant relationship found between the opacity index and the capital flows after controlling for the country risk, suggests that the opacity index also captures other dimensions of risk. Secondly, the possible size effect of the capital flows to individual countries is measured by the two size related variables: the GDP and the stock market capitalization variable for each country. We envisage that these market size variables might have differing influences on various forms of capital flows. For example, portfolio flows may be attracted more to countries with sizable stock markets whereas banking flows may be directed more to those that have greater roles for the banking sector in corporate finance[4]. Finally, we control for general business climates for each country by using the current competitiveness index ranking provided by World Economic Forum in their *The Global Competitiveness Report 2000*[5].

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[3] For example, Albuquerque (2003) uses country risk ratings as a proxy for the extent of a country's borrowing constraints in international markets.

[4] We also experimented with the common control variables in alternative forms (e.g. GDP per capita) and found qualitative similar results.

[5] We appreciate an anonymous referee for suggesting this index as a common control variable.

In addition to these variables, we include additional control variables that are specific to FDI and banking flows[6]. For the FDI flows we use i) top corporate tax rate, and ii) proportion of resource (ores and minerals) exports. We expect that the corporate tax rate would matter as a determinant since many multinational corporations actively seek countries for their regional production base that offer tax advantages, so we expect a negative influence of tax rate to FDI flows. Indeed, Wei and Wu (2001) report a negative association between the FDI flows and corporate tax rates. In some cases, FDI flows are directed to those countries that are exporters of natural resources. To the extent that these resources are inputs to industrial productions, countries with a substantial secondary export industry would invest in those countries with the necessary resources in an attempt to secure a steady stream of supplies. This suggests a positive relationship between FDI inflows and resource exports.

For banking flows, we consider i) gross national savings as a proportion of GDP, and ii) total domestic credit provided by banks as a proportion of GDP. We envisage that those countries with sufficient internally generated loanable funds have less need to resort to borrowing from international banks. On the other hand, those countries that have bank dominated financial sectors would be seen as presenting profitable opportunities for multinational banks as they would have a price advantage compared to domestic banks especially in emerging countries. This would lead to higher net lending from multinational banks to those countries. Thus, we expect the banking flows to individual countries to be

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[6] We experimented with various additional control variables for the portfolio flows (e.g. real interest rate and interest rate spreads over LIBOR and difference between lending and borrowing rates) and found them statistically insignificant (mostly with very high p-values suggesting no explanatory powers). As for the FDI and banking flows, the additional control variables that were tried but not reported here due to lack of significance include market openness (e.g. total trade per GDP, external balance per GDP), and industrial value added per GDP for the FDI, and interest rate spreads for the bank flows.

negatively correlated with gross national savings and positively correlated with the size of the banking sector.

In addition to the overall opacity index, we investigate the disaggregated impact of the opacity sub-indices. Model 2 below includes each of the five sub-indices as explanatory variables to explain the capital inflows. We use the same control variables as in model 1 above.

Model 2:

$$y_{ij} = \text{constant} + c11 \cdot OC_j + c12 \cdot OL_j + c13 \cdot OE_j + c14 \cdot OA_j + c15 \cdot OR_j \qquad (2)$$
$$+ c2 \cdot IICR_j + c3 \cdot GDP_j + c4 \cdot SMCap_j + \varepsilon_j$$

for FDI flows add $\qquad c6 \cdot TopTaxRate_j + c7 \cdot RscExport_j$

for Banking flows add $\qquad c8 \cdot GNatSaving_j + c9 \cdot BankCredit_j$

Where

$OC_j =$	Corrupt practices subindex
$OL_j =$	Legal and judicial opacity (including shareholder rights) subindex
$OE_j =$	Economic/policy opacity subindex
$OA_j =$	Accounting/corporate governance opacity subindex
$OR_j =$	Uncertainty/arbitrariness on business regulation subindex

Although, intuition suggests a negative relationship between capital flows and the opacity sub-indices, the literature reports multinational corporations' ability to trade-off various modes of entry depending on the nature of business climates in the target countries. That is, depending on the three types of the capital inflows considered (FDI, portfolio and banking) and the disaggregated business conditions, the coefficients for the various opacity sub-indices may have either a positive or a negative sign. This represents the possibility of the higher opacity in some conditions representing opportunity rather than a hindrance for a particular form of capital flow.

4. Results of Investigations

4.1. Overall opacity index

Table 2 reports the cross section estimation results for the aggregate opacity index shown in equation (1)[7]. A negative coefficient is observed in all three cases which suggests a fall in all forms of net capital flows in response to a higher overall opacity index. However, it is significant only for the portfolio flows. The more opaque the economy of an individual country the less capital inflows it receives in the form of international portfolio investments. It shows that a one point rise in the overall opacity index is associated with 952 USD million drop in the portfolio inflow[8]. Our results thus confirm the findings of Gelos and Wei (2005) who use the same PWC opacity data.

The controlling variables, in general, are found to have significant explanatory powers. The common control variables are significant in all cases except for the competitiveness ranking for the FDI. The country risk, proxied by the institutional investor's credit rating index shows a negative and significant relationship in the cases of the FDI and portfolio flows. This implies, contrary to intuition, that capital flows in these two forms are directed towards the countries with lower credit ratings. However, using a risk sharing modelling approach for FDI flows, Albuquerque (2003) suggests that imperfect enforcement of

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[7] We also estimated the three capital flow models jointly via Seemingly Unrelated Regression (SUR) approach. The qualitative results are consistent with the OLS results we report in this paper and there is no evidence of significant efficiency gain of SUR over OLS estimations.

[8] We modified model 1 by separating the opacity index into lower and higher halves of the OI variables. That is, OI is split into two variables, high OI and low OI countries, and then used in (1) separately. We found that in addition to the portfolio flows, FDI responds to the opacity index. In both cases, higher opacity countries tend to have negative capital flows whereas lower opacity countries are associated with higher capital inflows. This is a clear evidence of opacity, overall, as a deterrent for international capital inflows. Interested readers may obtain more information from the authors upon request.

contracts leads to endogenous financing (in the form of local debt financing) which makes it more difficult to expropriate FDI relative to other flows, which translates to a lower sensitivity to changes in a country's financing constraint. Indeed, he finds that countries with lower sovereign ratings are the ones most likely to attract FDI flows. Our findings thus support his theoretical conjecture, in relation to the FDI flows. It is important to note that the significant opacity index after controlling for the country risk suggests that the opacity index captures additional measures of country risk that is not contained in the country risk index. With regard to the portfolio flows, our result of a negative relationship between credit rating and portfolio capital flows may be due to the fact that credit rating is a major driver of market segmentation. Market segmentation tends to give rise to lower correlations which will motivate international portfolio capital flows on the basis of superior diversification benefits which is well documented in the research literature (Divecha, Drach and Stefek, 1992). In the case of the banking flows, however, we found significant positive relationship indicating more lending flows to countries with higher credit ratings. This is evidence of banks' conservative approach to their lending policies. They showed tendency to withdraw from emerging markets and redirect their lending to advanced market borrowers in times of turbulence in emerging market economies. Total claims of international banks on emerging market borrowers were reduced by USD 221.8 billion for the period 1998-2000. However, their total claim on developed market borrowers were increased by USD 2,112.5 b (1,114.1 b in 2000)[9].

The positive coefficient for the GDP and the stock market capitalization in the cases of the FDI and portfolio flows comes as no surprise as this implies movements of funds to countries with sizable economies. Interestingly, however, the opposite response is observed

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[9] The international banking figures are obtained from Bank for International Settlement's quarterly review, June 2001.

for the banking flows. Apparently, the countries with a smaller economy and a smaller stock markets represented more opportunities for international banks. This might be due to the fact that the relative importance of banking sector is determined by the stage of development of non-banking sector in the financial markets. That is, those countries with a sizable stock market are the ones that FDI and portfolio investors find attractive, whereas international banks may find those without such non-bank market developments attractive as these are more reliant on bank credit, and so they represent more captive customers. This is shown by the positive influence of total bank credit provided as a determinant of banking flows.

Finally, the general business climate proxied by the current competitive ranking index is positive for the FDI and portfolio flows, but is significant only for the latter. Interestingly, we observe a significantly negative coefficient for the banking flows. One explanation is that as the competitiveness index improves, portfolio flows increase and this crowds out the banking flows.

For the additional control variables employed for the FDI flows, neither contributed to explaining the flows. On the other hand the two additional variables for the banking flows, are both significant. As expected, we find significant evidence that banking flows are directed to countries with lower national saving levels and underdeveloped financial markets.

In general, the banking flows responded in a very different way to the FDI and portfolio flows. There tended to be higher levels of international bank loans to countries with lower GDP (although insignificant), lower stock market capitalization, lower national savings, and disproportionately larger banking sector. These are common characteristics shared by emerging economies. This suggests that banks are more equipped to bear risks due to their perceived enhanced credit risk analysis capabilities compared to individual (or institutional) investors of the portfolio flows and FDI flows. Indeed, smaller and less credit worthy

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borrowers traditionally face less comparative disadvantage with international bank loans. Alternatively, the repeated history of bank bail outs by national governments and international bodies created the environment of moral hazard in international bank lending resulting in less sensitivity of banking flows to the economic conditions of the borrower countries.

4.2 Disaggregated opacity indices

Table 3 shows the results of the estimations of equation (2) where individual influences of the components of the PWC opacity index are shown, for each category of capital flows[10]. Except for the now significant additional control variables for the FDI flows, the coefficients of other control variables are largely unchanged[11].

A significant negative co-efficient is found for corruption and economic opacity components for the FDI flows, and this corroborates the findings of Wei (2000) and Wei and Wu (2001). A one point rise in the corruption and economic opacities, led to 1.41 and 0.998 USD billion fall in the FDI inflows. However, there is a positive relationship shown for accounting and regulatory opacities. A one point rise is associated with 0.36 and 1.36 USD billion extra inflows. We argue that these opacities may allow the multinational corporation

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[10] We also partitioned the opacity sample into upper and lower halves and re-estimated model 2. The results are largely consistent with what we report in Table 3.

[11] Since we have limited observations (thirty five) available for the models, the robustness of the estimation results of the disaggregated opacity index needs to be conducted. We formed a panel data covering the period 1999-2001 effectively tripling the number of observations and conducted a panel estimation of models 1 and 2 assuming the opacity index is constant over the three year period. We found the panel estimation results are qualitatively the same as what we report in this paper. Thus, the results showing in Tables 2 and 3 are robust despite limited data availability. Gelos and Wei (2005) also utilize the same data set and arrive at meaningful results.

through FDI to implement transfer pricing policies to exploit differences in taxation regimes for its overseas subsidiaries and affiliates. In addition, FDI is motivated by market imperfections such as increased regulatory opacity. For example if there is high opacity relating to customs declarations and duties then an FDI entry mode may be more appealing than an export orientated strategy. In many respects this result runs in a parallel vein to the argument proposed by Smarzynska (2004) that the general level of corruption affects the mode of entry rather than the level of FDI. Consistent with *a priori* expectations, we find the FDI flows were directed toward countries with lower top marginal corporate tax rates, and this confirms the finding of Wei (2000). In addition, countries with significant resource exports attracted the FDI flows.

In relation to the portfolio flows, a significant negative co-efficient is reported for legal, economic and accounting/reporting opacities. Legal opacity discourages portfolio flows as this reflects poor property and shareholder rights which may affect the repatriation of portfolio capital. This is consistent with the results reported in the recent corporate governance literature. The economic opacity represents macroeconomic instability, and as the opacity rises international investors' profitable opportunities would suffer leading to an overall decline in portfolio capital flows. Accounting opacity prevents efficient risk assessments and this apparently had a negative influence on the portfolio flows. Interestingly, however, there is evidence of more portfolio flows in response to more opacity in corruption and regulations. A one point rise these indices led to 0.58 and 1.14 USD billion inflows, respectively. Corruption and regulatory opacities are likely to be more influential in contributing to low correlations between capital markets that international investors desire for diversification benefits. This is because high opacities in these aspects represent imperfections that encourage market segmentation.

The international bank lending was responsive to all five aspects of the opacity index. Similar to the portfolio flows, corruption index is associated with higher banking flows (one point increase in the index raising the flows by 1.73 USD billion) which is supportive of Wei and Wu (2001) who report poor public governance was associated with high loan to FDI ratios. This counterintuitive result might be because the higher is the level of corruption the higher is the likelihood of corporate borrowers' obtaining their governments' payment guarantees on their international bank financing through 'crony capitalist' connections. The positive relationship with the economic opacity (with smaller magnitude compared to that of corruption but still a sizeable 1.05 USD billion) may also be interpreted in the same light. The legal, accounting and regulatory opacities show negative influence on the banking flows. One explanation of this result could be that high legal, accounting and regulatory opacity may proxy for a lower level of loan guarantees which would lead to lower net lending. Also, opaque accounting and regulation standards render standard risk analysis based on ambiguous data less trustworthy, if not completely unusable, and this discourages financial flows.

5. Conclusions

The purpose of this paper is to examine the impact recipient country opacity has upon international capital flows. This is a new angle for the research literature to take as it is only recently that management consultancies such as Price Waterhouse Coopers have started producing opacity indices, possibly in response to the a number of economic and financial crises that have occurred in global financial markets. In particular, we focus on foreign direct investment, portfolio capital flows and international bank lending. In general, higher levels of opacity are associated with lower capital flows, consistent with some other exploratory studies.

When considering the PWC sub-indices upon capital flows we find very interesting relationships. We find significantly lower capital flows in response to opacities in corruption and economy for the FDI flows; economy and accounting opacities for the portfolio flows; and legal, accounting and regulatory opacities for the banking flows. More interestingly, however, we find a significant increase in capital flows associated with higher accounting and regulatory opacities for the FDI flows; corruption and regulatory opacities for the portfolio flows; and corruption and economic opacities for the banking flows. This supports the view that various forms of market imperfections significantly distort the international allocation of these forms of capital flows. We argue that the potential for higher profit opportunities that may be present due to the greater role unofficial channels of investment practices play as these opacity indices rise.

We considered a variety of variables to control for the other influences of the capital flows. Both the FDI and portfolios flows were directed to countries with higher credit risk, higher GDP, sizeable stock market, and a higher business competitiveness ranking. Interestingly, international bank lending flows responded exactly opposite to these characteristics. Thus, we report a trade-off between the FDI and portfolio capital flows with the banking flows, and this reflects less comparative disadvantage emerging countries have in international loans compared to the other forms of financing. In addition, we find the FDI responded to countries with a lower corporate tax rate and significant resource export sector. Banking flows were also stimulated in countries with lower national savings and a larger banking sector.

The empirical results uncovered by this research have important implications for national and supranational policy makers as well as international investors. We showed that some aspects of opacity measures of business climates discourage international capital flows, while others have a positive influence. Thus, multinational corporations may exploit their

abilities in choosing the optimal mode of entry to target economies, and it is not entirely clear whether this is to the benefit or at the expense of the capital recipient countries. Thus, future research could concentrate on this important research question.

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Table 1-PCW's OPACITY Index for the year 2000

Country	C	L	E	A	R	O-Factor
Argentina	56	63	68	49	67	61
Brazil	53	59	68	63	62	61
Chile	30	32	52	28	36	36
China	62	100	87	86	100	87
Colombia	48	66	77	55	55	60
Czech Republic	57	97	62	77	62	71
Ecuador	60	72	78	68	62	68
Egypt	33	52	73	68	64	58
Greece	49	51	76	49	62	57
Guatemala	59	49	80	71	66	65
Hong Kong	25	55	49	53	42	45
Hungary	37	48	53	65	47	50
India	55	68	59	79	58	64
Indonesia	70	86	82	68	69	75
Israel	18	61	70	62	51	53
Italy	28	57	73	26	56	48
Japan	22	72	72	81	53	60
Kenya	60	72	78	72	63	69
Lithuania	46	50	71	59	66	58
Mexico	42	58	57	29	52	48
Pakistan	48	66	81	62	54	62
Peru	46	58	65	61	57	58
Poland	56	61	77	55	72	64
Romania	61	68	77	78	73	71
Russia	78	84	90	81	84	84
Singapore	13	32	42	38	23	29
South Africa	45	53	68	82	50	60
South Korea	48	79	76	90	73	73
Taiwan	45	70	71	56	61	61
Thailand	55	65	70	78	66	67
Turkey	51	72	87	80	81	74
UK	15	40	53	45	38	38
Uruguay	44	56	61	56	49	53
USA	25	37	42	25	48	36
Venezuela	53	68	80	50	67	63
Mean	45.29	62.03	68.97	61.62	59.47	59.53
Std Error	15.90	16.02	12.38	17.84	14.50	13.16
Minimum	13	32	42	25	23	29
Maximum	78	100	90	90	100	87

Note: These are from the PWC Exhibit 2 and based on average survey responses for the five types of opacity (0-least opaque, 100-most opaque). Using the simple averages derived from aggregating the survey responses, we derive the O-Factor by adjusting the scores so that larger scores reflect more opacity, while smaller scores reflect more transparency.

PWC specifically assessed the effects of corruption upon the cost of capital and argued that politically connected lending will tend to crowd out market determined lending.

Legal opacity addressed shareholder protection, the predictability of the judicial system, the enforcement of laws, regulation and property rights.

Economic opacity addressed the predictability of government policy relating to fiscal, monetary and foreign exchange policies.

Accounting opacity addressed disclosure standards and access to information about publicly traded companies.

Regulatory opacity was identified about the presence or absence of clearly established rules for changing and/or consistently applying regulatory rules and procedures. [PWC, 2001, p 8]

Table 2 – Impact of aggregate opacity on international capital flows in 2000

$$y_{ij} = \text{constant} + c1 \cdot OI_j + c2 \cdot IICR_j + c3 \cdot GDP_j + c4 \cdot SMCap_j + c5 \cdot CRank_j + \varepsilon_j$$

for FDI flows add $\qquad c6 \cdot TopTaxRate_j + c7 \cdot RscExport_j$

for Banking flows add $\qquad c8 \cdot GNatSaving_j + c9 \cdot BankCredit_j$

where y_{ij} is the three measures of capital inflows into individual countries, FDI, portfolio inflows, and net lending of BIS reporting banks to country j. They are measured in USD billions; OI_j is the aggregate opacity index ranging from 0 (least opaque) to 100 (most opaque); $IICR_j$ is institutional investors credit rating, ranging from 0 (the least creditworthy) to 100 (most creditworthy); GDP_j is the gross GDP of country j measured in the USD billions; and $SMCap_j$ is the stock market capitalization of country j measured in the USD billions; $CRank_j$ is current competitiveness index ranking provided by The Global Competitiveness Report 2000; $TopTaxRate_j$ is top corporate tax rate, in %; $RscExport_j$ is proportion of resource (ores and metals) export, in %; $GNatSaving_j$ is proportion of gross national saving to GDP, in %; and $BankCredit_j$ is domestic credit provided by banking sector, in % of GDP.

Variable (Coeff)	FDI	PORT	NETLENDING
Constant	76.221 ***	154.831 ***	45.505
	{0.0040}	{0.0000}	{0.1644}
OI (c1)	-0.1186	-0.9521 ***	-0.1983
	{0.5307}	{0.0000}	{0.1470}
IICR (c2)	-1.0538 ***	-2.4814 ***	0.6427 **
	{0.0065}	{0.0000}	{0.0209}
GDP (c3)	0.0277 ***	0.0302 ***	-0.0041 **
	{0.0000}	{0.0000}	{0.0239}
SMCAP (c4)	0.2391 ***	0.5368 ***	-0.5333 ***
	{0.0000}	{0.0000}	{0.0000}
CRank (c5)	0.0004	1.1598 ***	-1.0087 ***
	{0.9973}	{0.0003}	{0.0000}
TopTaxRate (c6)	-0.2218		
	{0.3490}		
RscExport (c7)	-0.0621		
	{0.5863}		
GNatSaving (c8)			-1.3969 ***
			{0.0000}
BankCredit (c9)			0.2484 **
			{0.0447}
Adj R^2	0.923442	0.708743	0.649944
DW	1.980848	1.422277	2.666796

***,**,* are significance at 1, 5, and 10 percent, respectively
Numbers in curly braces are p-values generated from Newey-West
adjusted standard errors

Table 3 – Impact of individual aspects of opacity on international capital flows in 2000

$$y_{ij} = constant + c11 \cdot OC_j + c12 \cdot OL_j + c13 \cdot OE_j + c14 \cdot OA_j + c15 \cdot OR_j$$
$$+ c2 \cdot IICR_j + c3 \cdot GDP_j + c4 \cdot SMCap_j + \varepsilon_j$$

for FDI flows add $\qquad c6 \cdot TopTaxRate_j + c7 \cdot RscExport_j$

for Banking flows add $\qquad c8 \cdot GNatSaving_j + c9 \cdot BankCredit_j$

Where OC_j is the corrupt practices subindex; OL_j is the legal and judicial opacity (including shareholder rights) subindex; OE_j is the economic/policy opacity subindex; OA_j is the accounting/corporate governance opacity subindex OR_j is the opacity and uncertainty/arbitrariness on business regulation subindex. The control variables used are same as in Table 2.

Variable (Coeff)	FDI	PORT	NETLENDING
Constant	181.176 ***	244.972 ***	-26.023
	{0.0000}	{0.0000}	{0.2986}
OC (c11)	-1.4151 ***	0.5779 **	1.7295 ***
	{0.0000}	{0.0149}	{0.0000}
OL (c12)	0.0704	-0.9955 **	-0.2258 *
	{0.5550}	{0.0168}	{0.0841}
OE (c13)	-0.9980 ***	-1.9923 ***	1.0461 ***
	{0.0000}	{0.0000}	{0.0000}
OA (c14)	0.3591 ***	-0.2664 **	-0.9211 ***
	{0.0000}	{0.0486}	{0.0008}
OR (c15)	1.3590 ***	1.4536 ***	-1.3961 ***
	{0.0000}	{0.0003}	{0.0001}
IICR (c2)	-2.0838 ***	-2.7857 ***	1.3905 ***
	{0.0000}	{0.0000}	{0.0000}
GDP (c3)	0.0294 ***	0.0322 ***	-0.0028 **
	{0.0000}	{0.0000}	{0.0229}
SMCap (c4)	0.0542 *	0.4475 ***	-0.5819 ***
	{0.0659}	{0.0000}	{0.0000}
CRank (c5)	0.0681	0.6240 ***	-1.2473 ***
	{0.5313}	{0.0034}	{0.0000}
TopTaxRate (c6)	-0.2053 **		
	{0.0237}		
RscExport (c7)	0.4252 ***		
	{0.0000}		
GNatSaving (c8)			-1.2744 ***
			{0.0000}
BankCredit (c9)			0.5424 ***
			{0.0001}
Adj R^2	0.9311	0.7252	0.7866
DW	1.8630	1.6157	1.9461