MONEY LAUNDERING, CORRUPTION AND GROWTH: AN EMPIRICAL RATIONALE FOR A GLOBAL CONVERGENCE ON ANTI-MONEY LAUNDERING REGULATION

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RESUMO

Este artigo fornece evidências empíricas sobre o impacto da regulação de combate à lavagem de dinheiro sobre o crescimento. Os resultados empíricos nos levaram a confirmar uma relação positiva entre baixos níveis de corrupção e investimento e crescimento. Avaliamos o impacto de ações de combate à lavagem de dinheiro de duas formas: primeiro, se a existência dessas ações afetam a percepção de corrupção. Segundo, verificando se essas ações estão relacionadas com crescimento e com investimento. As ações resumem-se (1) considerar crime as práticas de lavagem de dinheiro oriundo de outras atividades que não apenas o tráfico de drogas, (2) a obrigação do sistema financeiro informar atividades suspeitas e (3) a existência de uma unidade de inteligência financeira.

ABSTRACT

This paper provides empirical evidence on the impact of anti-money laundering regulations on growth. The empirical results have led us to confirm a positive relation between low corruption levels and high investment and growth. We approached the impact on growth of money laundering prevention (MLP) initiatives in two ways: first, by verifying that the existence of these initiatives affects the perception of corruption. Second, by verifying that MLP variables, such as the ones we are focusing in this article – which criminalize types of money laundering activities different from those drug-related; make it an obligation to inform of suspicious financial activities; and establish a Financial Intelligence Unit (FIU) – showed to be related to growth and investment.

Palavras-chaves: Lavagem de Dinheiro, Corrupção, Crescimento, Regulação, Investimento, Instituições

Keywords: Money laundering, Corruption, Growth, Regulation, Investment, Institutions.

Área ANPEC: 5 - Crescimento, Desenvolvimento Econômico e Instituições.

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1. INTRODUCTION

Is free-riding a real problem for anti-money laundering regulation? Is it possible to implement a strict control program within a country, while the neighbor does not adopt a similar one? The common sense is that there will be a capital flight from the strict country and the intended criminality reduction will not be effective. In addition, due to technological development of the financial system, the adjective "neighbor" refers virtually to any country in world.

Corruption and money laundering are two sides of the same coin. Even though money laundering is practiced in order to clean the proceeds of several crimes, corruption is also a form of providing a free territory for money laundering. It is impossible to think about an effective money laundering control in a country where corruption exists.

There is an available plethora of economic analysis on corruption and its effects, however, this is not the main purpose of this article. There are nevertheless, results and methodologies that we will use and replicate as instruments to verify the money laundering impacts on a country's growth.

Probably one of the most popular ideas about how to avoid money laundering is focused on enforcing Offshore Financial Centers (OFC) or on non-cooperative countries. Conversely, Mitchell [2002] calls attention to the role of industrialized countries on laundering proceeds of crime. In fact, there is an avenue of opportunities to clean dirty money on larger economies than on poor countries, which have very small commercial and industrial structures. As well noted by Mitchell [2002], United States government bodies include in their money-laundering blacklists (or concern lists) the larger industrialized countries [U.S. State Department, 2000, CIA, 2006].

Within a particular territory, the financial industry is the main concern of money-laundering fighters, because money actually needs to pass through it. Currently, they act as agents in a principal-agent formulation for combating money laundering [Masciandaro, 2001]. Nevertheless, it is inside the real economy where good cleaning takes place. Quirk [1997] showed a shift in money-laundering techniques, as he noticed a reducing pressure on money demand, what made him conclude that laundering is going away from the banking system.

It is licit to expect that when cleaning is done the money is ready to get back into the formal economy, providing funds for investment or consumption [Araujo and Moreira, 2005, Masciandaro, 1999]. It is also supposed that even if the control of illegal money laundering is fully efficient, crime will still exist and, accordingly, the demand for transforming "potential purchasing power into cash" will elevate the price of cleaning services [Masciandaro, 1999, 2001].

The use of e-banking technology made money-laundering services become even more "tradable", thus these services can be imported or exported as services' home prices rise or fall. When price and demand exists, cleaning will take place wherever procedures are available.

The above-mentioned explanation leads us to this plausible political economy outcome: when larger economies adopt anti-money laundering regulations, due to highly developed institutional and enforceable frameworks, cleaning activities will move towards lax regulated countries. As a consequence, these rich countries will have a loss of the funds available for the licit economic activity, thus, having their growth reduced. It will trigger political pressure[1] from developed economies over the less stringent ones. Developed countries can materialize the political pressure in the form of shortage of financial support from the multilateral bodies[2] or from the international community, or even denying access to international financial markets[3]. As a second-best[4] result, the less developed countries will adopt the regulations, get better grades on their institutional scores, and get access to international funds and financial markets, thus raising growth rates.

The empirical results have led us to the outcome described in the last paragraph. We first confirmed Mauro's [1995] results on the existence of a positive relation between low corruption levels and investment and growth. We then addressed the impact of money laundering prevention initiatives on growth. We did it in two ways: first, by verifying that the perception of corruption is affected by the existence of money laundering prevention initiatives, such as the ones we are focusing in this article – which criminalize other types of money laundering activity different from drug-related ones; make it an obligation to inform of suspicious financial activities; and establish a Financial Intelligence Unit (FIU). Second, by confirming that the impact of some of the mentioned variables (called here money laundering prevention - MLP) showed to be related to growth and investment but when we applied a multivariate regression, the banks obligation to inform suspicious activities was negatively related to growth (significant at 10%). This is a very insightful

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[1] Refer to Helleiner [2000] for a deeper analysis.

[2] Kaufmann, Kraay, and Mastruzzi [2005], p 2.

[3] Quoting Helleiner [2000]: "Some limited action along these lines has, in fact, already been taken in the money laundering case. As part of its effort to encourage financial institutions to know the identity of their customers, the FATF pressed the electronic messaging system SWIFT to broadcast a message on July 30, 1992 to all its users asking them to include the names and addresses of all senders and receivers of electronic messages who were not financial institutions. This was an important move since SWIFT is a central body in the 'plumbing' of the international financial system, transmitting instructions for a very large portion of the financial transactions that move through cleaning houses such as Fedwire and CHIPS. Initiatives of this kind may signal the first step along a potential route of transforming CHIPS, Fedwire and SWIFT into 'closed-circuit systems' that can be used only by those willing to adopt certain responsibilities vis-a-vis the regulation of money laundering. Such a move would be very effective in controlling money laundering around the world."

[4] A first-best result for the less developed countries would be let crime happen on bigger economies, laundry the criminal proceedings fostering local economy and continue participating of the international financial system and receiving foreign aid and funds.

result, showing the effect of effective money laundering on growth. We can suppose that when the anti-money laundering regulation requires banks to inform suspicious transactions, there could be a "dirty money run" from the economy. This result confirms the political economy outcome described before, as the implementation of anti-money laundering regulation reduces growth from countries where the regulation is in place.

This paper is organized as follows: Section two provides an overview of Money Laundering and some of its economics. Section three assesses the empirical effects of money-laundering control regulation on growth, the relationship between two different corruption ratings, and the impact on growth of having an anti-money laundering regulation. The fourth and last section presents the conclusion.

2. MONEY LAUNDERING

Almost all crime-for-profit uses money-laundering techniques to make the financial fruits of the crime enjoyable. After the transgression, it is necessary to reinsert the proceeds illegally earned back into the formal economy. Besides, "dirty money" is of little use to criminals, because it leaves a trail of incriminating evidence [U.S. Department of The Treasury, 1999].

Therefore, money laundering can be defined as the use of commercial and financial operations aimed at inserting (or legalizing) into the formal economy money illicitly earned.

The United Nation's International Money Laundering Information Network (IMOLIN) gives a good example of a three-stage process where money is laundered "that requires: firstly, moving the funds from direct association with the crime; secondly, disguising the trail to foil pursuit; and, thirdly, making the money available to the criminal once again with its occupational and geographic origins hidden from view" [United Nations, 2006][5].

Although the above-mentioned has been well-known for a long time, for some reason, nothing was done about it, until global pressure on narcotics control made it inevitable to impose restrictions on financial activity of criminals, in order to reduce that specific type of crime.

Fortunately it was not reasonable to publicly justify the application of money laundering crime penalties only to narcotics-related crimes, even though some countries still keep doing so.

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[5] U.S. Department of State [2000] qualifies the Netherlands, UK and US as of primary concern relative to money laundering, while disclaiming that the last two are big economies. The CIA's World Factbook [2006] classifies UK and US as money-laundering centers (no disclaimer) and the Netherlands as a country with a "large financial sector vulnerable to money laundering".

The first step globally taken towards the criminalization of money laundering activities came from The United Nations Conference for the Adoption of a Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (Vienna Convention) held in Neue Hofburg, Vienna, from November 25 to December 20, 1988. Article 3 of the Vienna Convention established that "each Party shall adopt such measures as may be necessary to establish as criminal offences under its domestic law" the use or possession of assets earned from drug crimes (among other provisions).

From the Vienna Convention came guidelines for implementing the framework to prevent money laundering, including all control/cooperation bodies, like the Financial Action Task Force (FATF)[6], United Nations Office on Drugs and Crime, etc.

2.1 - SOME MONEY-LAUNDERING ECONOMICS

Obviously, it is almost impossible to measure the total amount of money laundered within any country. There is a widely known estimate, attributed to the IMF, of the global amount of cleaned dirty money: US$500 billion (approximately 2% of World's GDP). However, Quirk [1997] blames it on the October 18th, 1994 edition of the Financial Times. He goes further saying: "the basis for the estimate was not given". Money laundering impacts nevertheless, are more measurable than its figures.

Although Quirk [1997] concludes that money laundering "threatens economic and financial systems in many countries, and the financial community should strongly support anti-laundering efforts", having given no evidence for such statement, he empirically observed a shift in the use of money directly as a means of exchange (reducing the pressure on money demand), moving laundering away from the banking system.

Masciandaro [1999] developed a theoretical model showing how money laundering can be seen as a multiplier of criminal activities, by transforming potential purchasing power into effective, and providing criminals with laundered money to reinvest on their illegal activities. He also derived an inverse relationship between the degree of diffusion of money laundering activities and the effectiveness of anti-money laundering regulation in a given economy.

Araujo and Moreira [2005] present a basic growth model. Their results are: (i) the effectiveness of anti-money laundering regulations positively affects consumption, (ii) there exist equilibrium solutions where legal and illegal activities coexist, and (iii) when the steady state results of two economies in a Sidrausky framework, the proportion between

[6] The Financial Action Task Force on Money Laundering is an inter-governmental body whose purpose is the development and promotion of policies to combat money laundering.

consumption and the capital stock is the same, but the level of consumption and capital stock is greater in a legal economy.

From a principal-agent perspective, Masciandaro and Filotto [2001] name financial institutions as agents of regulators to fight money laundering. They assert a regulation economics statement that "any form of regulation tends to alter the structure of the incentives, and thus the conduct, of the (financial) intermediaries." Then, they explore the real incentives through which regulation will succeed.

3. EMPIRICAL EVIDENCE

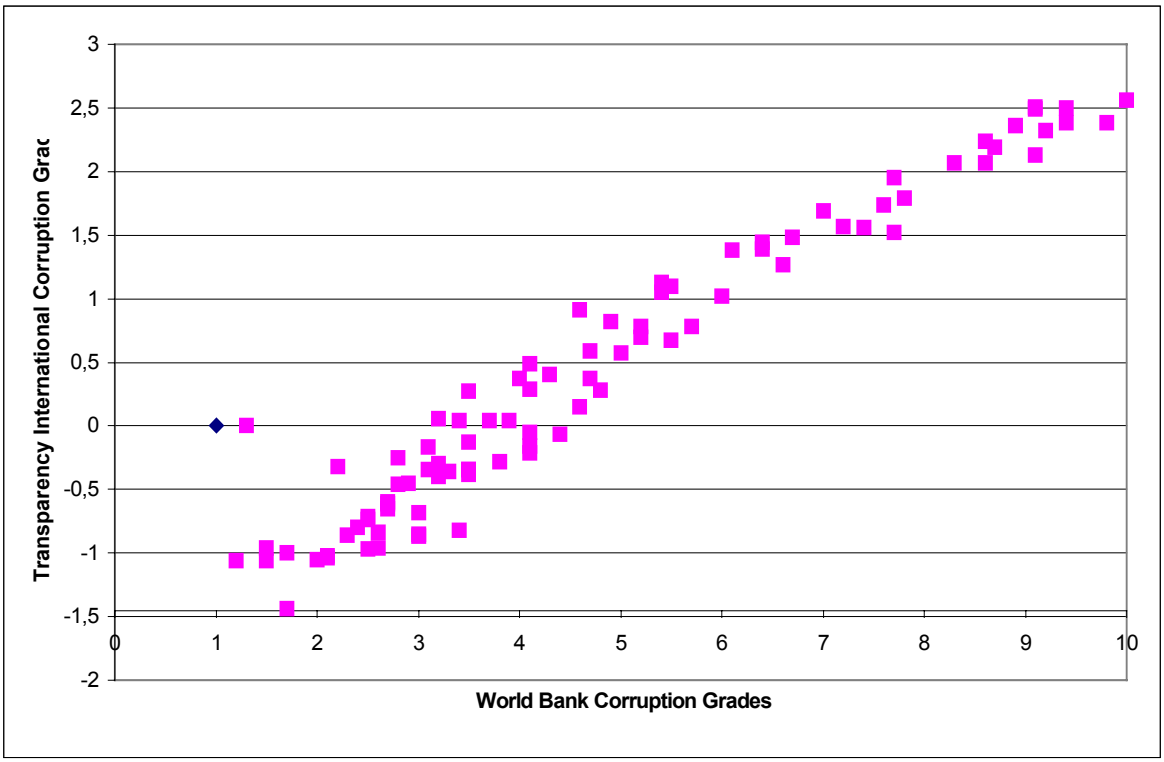
Corruption indexes have become a very fruitful source of research [Mauro, 1995, 1997, Leite and Weidmann, 1999, Alesina and Weder, 2002, Damania, Fredriksson and Muthukumara, 2003]. We had two providers of such indexes to choose: World Bank's Governance Indicators and Transparency International's Corruption Perception Index (CPI). Briefly describing, we could say that those indexes are mainly formed from several sources[7] reflecting as Kaufman, Kraay and Mastruzzi [2005] say "the perceptions of a very diverse group of respondents."

Our decision to use World Bank's Governance Indicators in lieu of Transparency International's CPI was, first, because of the size of their databases. World Bank's database is larger, comprising 209 countries, while CPI's encompasses only 90. Second, CPI uses World Bank's Governance Indicators as a source for its estimate.

As a matter of verification, we compared World Bank (WB) assessment of corruption against that of Transparency International (TI) CPI, to check if it was possible to use WB's larger dataset. The result was a 97.82 correlation. A picture of this high correlation is shown in Graph 3.1. TI data ranges from 1.2 to 10 (higher governance), while WB lowest grade is –1.44 and its highest is 2.56. From now on, all reference this text makes on corruption assessment will come from WB Governance Indicators.

[7] See Kaufman, Kraay and Mastruzzi [2005] p.50 and 51 for a complete list of providers.

Graph 3.1- World Bank vs. Transparency International Grades for Corruption



Source: Kaufmann, Kraay and Mastruzzi [2003] and **Transparecy International [2000]**

Money laundering prevention (MLP) variables were obtained from a U.S. Department of State [2000] (again a survey on drug control), the International Narcotics Control Strategy Report (INCSR), which provided a static cross-country list of "dummy" variables that we used to represent the country's willing of controlling money laundering as of 2000.

Variable CRIME takes the value one, if the country criminalizes money-laundering activities connected to crimes other than drug-related ones. We assume here that if a country is willing to fight against corruption it is necessary to criminalize beyond drug money laundering.

There is also an important measure to be taken on money laundering control activities that is to report suspicious transactions. Variable INFORMAR takes value one when financial institutions are obligated to inform of suspicious transactions. This variable has a very important meaning because it discloses any kind of suspicious financial transaction, not only drug-related ones. Even if it is not a crime subject to second or first generation anti-money laundering law, this obligation exposes criminals and makes them vulnerable to enforcement bodies.

UNIDADE is the last variable from the MLP list. This variable takes value one if the country has a Financial Intelligence Unit (FIU). The implementation of a FIU is also an important measure for a country that is really fighting money laundering.

As a starting point, we verified the relationship between money laundering prevention (MLP) variables and corruption. The results are displayed in Table 3.1 below:

Table 3.1 - Correlation between corruption and MLP variables

	CRIME	LOWCORRUP	UNIDADE	INFORMAR
CRIME	1.000000			
LOWCORRUP	0.500517	1.000000		
UNIDADE	0.500242	0.620725	1.000000	
INFORMAR	0.531081	0.496742	0.576022	1.000000

As one can readily observe from Table 3.1, corruption is positively correlated with MLP variables. Notice that there is correlation among MLP variables as well.

We estimated the following equation on MLP variables and LOWCORRUP. Results are as follows:

$$LOWCORRUP = -0.51 + 0.47\ CRIME + 0.34\ INFORMAR + 0.69\ UNIDADE + \varepsilon \quad (1)$$

$R^2 = 0.37$. All variables are significant at 6%. Refer to footnote[8] for t-statistic and p-value of all variables. The results are robust for White's heterocedasticity test. Here, we used MLP variables as a proxy for anti-corruption regulation to empirically verify Barroso's [2000] model of corruption.

Going further, one may suppose that corruption and anti-money laundering regulation should be jointly determined. The rationale for that is that a good institutional framework will favor prevention of money laundering and also, the combat to cleaning dirty money would lead to a reduction and corruption. Following this idea, we performed a Hausman test of simultaneity between LOWCORRUP and all MPL variables individually. The test confirmed our suspicion that they should be simultaneously determined.

In order to verify the results of simultaneity determination, a two-stage least squares estimation of the following three systems was applied, and the results[9] are reported bellow:

$$LOWCORRUP = C_1 + C_2.CRIME + C_3.\ PERCAPTA2000 \quad (2.1)$$

$$CRIME = C_4 + C_5.LOWCORRUP + C_6.OPEN \quad (2.2)$$

[8] t-satatistic, p-value of each regressor: Constant (-5.19,0.00), CRIME (2.81, 0.01), INFORMAR (1.91, 0.06), UNIDADE (3.85, 0.00), regression's results are upon request, labeled as Regression A.

[9] Complete regressions' results are available upon request, labeled as Regression A-1, A-2 and A-3

Table 3.2- MPL -CRIME - Dependent LOWCORRUP

	Coefficient	Std. Error	**t** - statistics	Probability
C_1	-0.845433	0.176719	-4.784065	0.0000
C_2	1.192466	0.381525	3.125526	0.0021
C_3	5.56E-05	1.10E-05	5.050729	0.0000
R^2		0.619953	$LOWCORRUP_{ave}$	0.302688
R^2 adjusted		0.611508	$LOWCORRUP_{\sigma}$	1.068361
SEReg		0.665900	SQRes	39.90809
Durbin-Watson		2.397392		

Table 3.3- MPL -CRIME - Dependent CRIME

C_4	0.420015	0.083648	5.021196	0.0000
C_5	0.292919	0.049035	5.973611	0.0000
C_6	0.001034	0.000936	1.104596	0.2708
R^2		0.307128	$CRIME_{ave}$	0.591398
R^2 adjusted		0.291730	$CRIME_{\sigma}$	0.494240
SEReg		0.415946	SQRes	15.57100
Durbin-Watson		2.193977		

$$LOWCORRUP = C_1 + C_2.INFORMAR + C_3.\ PERCAPTA2000 \quad (3.1)$$

$$INFORMAR = C_4 + C_5.LOWCORRUP + C_6.OPEN \quad (3.2)$$

Table 3.4- MPL -INFORMAR - Dependent LOWCORRUP

	Coefficient	Std. Error	**t** - statistics	Probability
C_1	-1.040370	0.280858	-3.704251	0.0003
C_2	1.619030	0.621745	2.604009	0.0100
C_3	4.84E-05	1.56E-05	3.095229	0.0023
R^2		0.424842	$LOWCORRUP_{ave}$	0.302688
R^2 adjusted		0.412061	$LOWCORRUP_{\sigma}$	1.068361
SEReg		0.819189	SQRes	60.39641
Durbin-Watson		1.878605		

Table 3.5- MPL -INFORMAR - Dependent INFORMAR

C_4	0.535574	0.087902	6.092850	0.0000
C_5	0.286242	0.051529	5.554964	0.0000
C_6	-0.000385	0.000983	-0.391619	0.6958
R^2		0.234870	$INFORMAR_{ave}$	0.591398
R^2 adjusted		0.217867	$INFORMAR_{\sigma}$	0.494240
SEReg		0.437097	SQRes	17.19487
Durbin-Watson		1.950958		

$$LOWCORRUP = C_1 + C_2.UNIDADE + C_3.\ PERCAPTA2000 \qquad (4.1)$$

$$UNIDADE = C_4 + C_5.LOWCORRUP + C_6.OPEN \qquad (4.2)$$

Table 3.6- MPL -UNIDADE - Dependent LOWCORRUP

	Coefficient	Std. Error	**t** - statistics	Probability
C_1	-1.155085	1.055149	-1.094713	0.2748
C_2	4.229569	5.965923	0.708955	0.4791
C_3	-2.51E-05	0.000159	-0.158623	0.8741
R^2		-1.655178	$LOWCORRUP_{ave}$	0.179217
R^2 adjusted		-1.702592	$LOWCORRUP_{\sigma}$	1.022643
SEReg		1.681180	SQRes	316.5531
Durbin-Watson		1.899229		

Table 3.7- MPL -UNIDADE - Dependent UNIDADE

C_4	0.290283	0.079151	3.667469	0.0003
C_5	0.300774	0.044412	6.772293	0.0000
C_6	0.000142	0.000820	0.173132	0.8627
R^2		0.312177	$UNIDADE_{ve}$	0.356522
R^2 adjusted		0.299894	$UNIDADE_{\sigma}$	0.481068
SEReg		0.402521	SQRes	18.14657
Durbin-Watson		1.908263		

Notice that the implementation of a money-laundering control program increases the perception of less corruption. In the same direction, a less corrupt country is more willing to implement a anti-money laundering regulation (except for the variable UNIDADE, that was not significant when controlled by other factors). In fact as "a very diverse group of respondents" [**Kaufmann,** Kraay and Mastruzzi, 2003] set the grades on corruption, the implementation of anti-money laundering regulation can demonstrate a country's commitment to fight against crime, which probably generates a positive feeling on survey respondents.

3.1 - INVESTMENT AND MONEY LAUNDERING

The first step was to assess the impact of money laundering prevention variables on investment. We used a procedure similar to Mauro's [1995]. Mauro [1995] himself followed Barro's [1990], and Levine and Renelt's [1991] specifications to assess investment and growth responses to corruption.

Mauro [1995] asserted that he adopted "two types of specification that have become standard in the cross-country growth literature. The first one is that which Levine and Renelt [1991][10] use as the basis for their analysis of "robustness" of growth regressions. The second one is that adopted by Barro [1990][11]. The rationale for the LR and B specifications is that a number of variables may affect the expected value and the variance of the marginal product of capital, thereby affecting the propensity to invest in the economy. These include initial per capita GDP; the educational level of the labor force, which may be a complement to physical capital in production processes; distortions, which may divert resources to less productive investment projects; and political uncertainty."

Variable INVGDPM is the 1991-2000 average of total investment as a fraction of Gross Domestic Product (GDP) (Heston, Summers, and Bettina [2002]). We regressed investment against all MLP variables (remember that our assessment for MLP is that of year 2000).

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[10] Levine and Renelt [1991] addressed the question of how much confidence one should have in the conclusions of cross-county growth regressions. They added explanatory variables that have been identified as important by the empirical growth literature aiming to examine the strength of the statistical relationship between the variables and growth. In order to be considered robust the previously claimed relationship, the variable of interest should remain significant when further variables are included. Levine and Renelt [1991] set a model for testing the significance in which a group of variables was held fixed, a claimed explanatory variable was introducended, then a set of supplementary variables were added to the model. The procedure that was followed by Mauro [1995] was to chose the group of fixed variables elected by Levine and Renelt to be held fixed. Namely: the investment share of GDP, the initial level of GDP per capita, the initial secondary school enrollment rate (as a proxy for human capital), and the average annual rate of population growth.

[11] In order to assess the hypothesis of convergence predicted by neoclassical growth models with diminishing returns to capital, Barro [1990] used a set of variables that encompasses initial level of per capita GDP, school enrolment rates (as a proxy for human capital) private investment to GDP, government consumption as a fraction of GDP, political stability measures (proxied by figures on revolutions, coups, and political assassinations), a proxy for price distortions (purchasing-power parity).

Table 3.1 - Investment and Money Laundering Prevention Variables Alone

Dependent Variable: INVGDPM
Method: Least Squares – 99 observations

Regr. #	Constant	Coefficient	MLP	R^2/Adj.R^2	
1	11.70875 (10.98/0.00)	7.473520	CRIME	0.225935 0.217955	
2	11.94248 (11.23/0,00)	7.193767 (5.09/0,00)	INFORMAR	0.210561 0.202423	
3	13.99321 (15.40/0.00)	5.877317 (3.79/0.00)	UNIDADE	0.128991 0.120012	
4	10.93342 (9.95/0,00)	4.821080 (2,66/0,01) 4.070476 (2.25/0.03)	CRIME INFORMAR	0.264891 0.249576	
5	11.42407 (10.74/0.00)	6.184973 (3.98/0.00) 2.989131 (1.85/0.07)	CRIME UNIDADE	0.252584 0.237012	
6	11.89101 (11.20/0.00)	5.940999 (3.40/0.00) 2.213253 (1.21/0.23)	INFORMAR UNIDADE	0.222468 0.206269	
7	10.93218 (9.94/0,00)	4.634404 (2.55/0.01) 3.210345 (1.60/0.11) 1.733243 (0.97/0.33)	CRIME INFORMAR UNIDADE	0.272111 0.249125	

t-stat/p-value are reported in parenthesis. Complete results available upon request to the authors.

Given the results from Table 3.1 above, we can observe the impact of criminalizing money laundering, and of imposing to financial entities the obligation of informing authorities of their clients' suspicious behavior (regression #4). Variable UNIDADE seems to have less influence on investment, especially when controlled by INFORMAR and CRIME.

We now turn to the investigation of investment behavior when controlled by a variety of other determinants of investment.

Gross Domestic Product per capita in 1991 was gathered from Heston, Summers, and Bettina [2002] and named GDPPC91. Primary and Secondary education data was obtained from World Bank at http://www1.worldbank.org/education/edstats/, a dataset developed and maintained by the Education Group of its Human Development Network (HDNED). We used an average (1991-2000) percentage of gross enrollment in primary (EDUPRIM) and secondary (EDUSECM) education as a fraction of total students at the corresponding grade age.

The average (1991-2000) government spending (GOVGDPM) as a percentage of GDP was also sourced by Heston, Summers, and Bettina [2002], as well as variable CRESPOP that represents population growth (average 1991-2000), and PPP91 is the purchasing-power parity value for the investment deflator.

In order to control for political stability as specified by Barro [1991], variable ESTABPOL was obtained from Kaufmann, Kraay and Mastruzzi [2003].

Table 3.2 - Investment and Money Laundering Prevention plus other Variables

Dependent Variable: INVGDPM
Method: Least Squares

Regr. # / Variable	8	9	9-A	10*	11*	11-A*
Constant	7,17 (2.34/0.02)	6.811490 (2.23/0.03)	6.828476 (2.26/0.03)			
GDP per capita in 1991	0.000519 (3.73/0,00)	0.000473 (3.31/0,00)	0.000474 (3.29/0,00)			
Secondary education (average 1991-2000)	0.064258 (1.82/0.07)	0.066240 (1.93/0.06)	0.066846 (1.89/0.06)	0.089331 (3.01/0.00)	0.093000 (3.33/0.00)	0.090412 (3.03/0.00)
Population growth	0.027305 (0.31/0.76)	0.028285 (0.32/0.75)	0.027366 (0.31/0.76)			
Government spending as a fraction of total GDP (average 1991-2000)				-0.023047 (-0.28/0.77)	-0.003796 (-0.04/0.96)	-0.004879 (-0.06/0.95)
Primary education (average 1991-2000)				0.093297 (3.52/0.00)	0.085415 (3.01/0.00)	0.086007 (3.00/0.00)
PPP91				0.003127 (1.40/0.16)	0.002963 (1.32/0.19)	0.002942 (1.30/0.20)
Political stability				2.123771 (2.28/0.03)	2.008717 (2.12/0.04)	1.991162 (2.08/0.04)
CRIME	0.787154 (0.51/0.61)		-0.144027 (-0.08/0.93)	1.089439 (0.66/0.51)		0.482865 (0.26/0.80)
INFORMAR		1.796488 (1.32/0.18)	1.853637 (1.21/0.23)		1.501213 (0.91/0.36)	1.270448 (0.68/0.50)
Number of Observations	97	97	97	93	93	93
R2/Adj.R2	0.515939 0.494892	0.523642 0.502931	0.523679 0.497507	0.487822 0.458387	0.490140 0.460838	0.490532 0.454988
F-statistic/Prob. F-stat.	24.51464 0.000000	25.28302 0.000000	20.00952 0.000000			

t-stat/p-value are reported in parenthesis. Complete results available upon request to the authors. *The constant was excluded from regressions #10 to #11-A given it was not significant here and in Mauro's [1995] article.

Table 3.2 shows that MLP variables are not significant to investment. Results from regressions are similar to Mauro's [1995], but there, when corruption was used as an independent variable, it was significant. Given that we used political stability (ESTABPOL) to represent a social environment variable, and it was really significant, we can suppose that the propensity to invest in an economy is more closely connected with the overall social environment than to specific behavior laws.

Table 3.3 - Investment and Primary Concern on Money-Laundering

Dependent Variable: INVGDPM Method: Least Squares					
Variable Regression #	Constant	EDUSECM	CRESPOP	GDPPC91	US_PRIMARY
12	5.504054 (4.28/0.00)	0.080829 (2.55/0.01)	0.060693 (0.57/0.57)	0.000419 (3.30/0.00)	3.195131 (2.52/0.01)

White heteroskedasticity-consistent standard errors and covariance. Number of observations: 97; R2/Adj.R2: 0.547/0.528; t-stat/p-value are reported in parenthesis. Complete results available upon request to the authors.

To confirm this finding we used Mitchell's [2002] compilation of the year 2000 list of money-laundering primary concern countries published by US Department of State. As we can see from Table 3.3, being of "primary concern" on money-laundering has a positive effect on investment, confirming that countries that have a higher investment proportion of GDP are perceived as more vulnerable to money-laundering, as the later classification is attributed subjectively by the US Department of State.

3.2 - MONEY LAUNDERING AND GROWTH

The next step is to examine the impacts of money laundering prevention variables on growth. The average (1991-2000) GDP per capita (GDPPC2000) was sourced by Heston, Summers, and Bettina [2002]. We first regressed growth as a dependent variable, and corruption as an independent variable, and found the same as Mauro [1995]:

$$GDPPC2000 = 1.63 + 0.60\ LOWCORRUP + \varepsilon \qquad (2)$$

We then controlled for other variables that affect growth, as the ones mentioned before and the results were as follows:

Table 3.1 - Growth and Corruption

Dependent Variable: GDPPC2000
Method: Least Squares - Regression #13

Constant	Corrupcao	Primary education (average 1991-2000)	Secondary education (average 1991-2000)	GDP per capita in 1991	Population growth (average 1991-2000)	Government spending as a fraction of total GDP (average 1991-2000)	Openness of the economy
3.133389	1.021280	0.004606	-0.008603	-0.000147	-0.091539	0.007051	0.009297
(2.34/0.02)	(2.63/0.01)	(0.37/0.71)	(-0.64/0.52)	(-2.29/0.02)	(-2.74/0.01)	(0.32/0.75)	(2.02/0.03)

White heteroskedasticity-consistent standard errors and covariance. t-stat/p-value are reported in parenthesis. 95 observations included. R^2 = 0.266785, R^2 adj. = 0.207790. F-statistic 4.522206 (prob. 0.000244). Complete results available upon request to the authors.

Low corruption affects[12] growth positively, confirming Mauro's [1995] findings. But the question is: how money-laundering prevention could influence growth? We found that INFORMAR has an effect on growth while the other MLP were not significant (see Table 3.2).

Table 3.2 - Growth and Obligation to Inform

Dependent Variable: GDPPC2000
Method: Least Squares - Regression #14

Constant	Informar	Primary education (average 1991-2000)	Secondary education (average 1991-2000)	GDP per capita in 1991	Population growth (average 1991-2000)	Governmen t spending as a fraction of total GDP (average 1991-2000)	Openness of the economy	Political stability
2.208807	-1.078316	0.010023	0.005367	-9.80E-05	-0.062759	-0.021439	0.008494	0.824248
(1.69/0.10)	(-1.84/0.06)	(0.76/0.45)	(0.43/0.66)	(-1.61/0.11)	(-1.59/0.11)	(-0.70/0.48)	(2.05/0.04)	(2.51/0.01)

White heteroskedasticity-consistent standard errors and covariance. t-stat/p-value are reported in parenthesis. 91 observations included. R^2 = 0.266156, R^2 adj. = 0.194562. F-statistic 3.72 (prob. 0.000944). Complete results available upon request to the authors.

The result obtained in the estimation displayed at Table 3.2, although the low adjustment (R^2 adjusted = 19.46%), presents a good global significance test (F). Since heteroskedastic could be important across countries, we performed a White's test to confirm it and used a White's heteroskedastic-consistent covariance matrix. The resulting standard errors differed a little from those obtained from the OLS, but population growth became not significant.

As was said before, INFORMAR is negatively related to growth (significant at 10%). This is a very insightful result, showing the effect of effective money laundering on

[12] Results from equation (2) above: Constant (7.78/0.00), LOWCORRUP (3.14/0.00) (t-stat/p-value). Regression results can be found in Appendix 1 labeled "B".

growth. We can suppose that when the anti-money laundering regulation requires banks to inform suspicious transactions, there could be a "dirty money run" from the economy. This result confirms the political economy outcome described ahead, once the implementation of anti-money laundering regulation reduces growth from countries where the regulation is in place.

We finally performed a correlation univariate regression on growth and MLP variables splitting the sample in two: Latin America and Africa (first) and OCDE high-income countries (second). The findings were as follows: the first group showed a positive relation (at 10%) between CRIME and growth. The second group showed a different result as the relation turned to be negative (at 6%).

Table 3.3 - Growth & Criminalizing - differences between poor and rich countries

Dependent Variable: GDPPC2000
Method: Least Squares

Variable / Regression	Constant	CRIME	Number of Observations	R2/Adj.R2
C	1.356489 (4.28/0.00)	0.800572 (1.91/0.06)	98	0.0365/0.0264
C-1	0.773380 (1.74/0.09)	1.109801 (1.69/0.10)	48	0.0586/0.0381
C-2	4.913000 (3.69/0.00)	-2.748273 (-2.02/0.06)	23	0.1622/0.1228

t-stat/p-value are reported in parenthesis. Complete results available upon request to the authors.

Although the results seem to be very appealing, they were not robust to a multivariate regression, as this situation does not hold when controlling for other variables that affect growth.

A kind of common sense expectation is that the improvement of legal frameworks for fighting money laundering will also produce an improvement in the institutions. This development is positively considered because "societies with economic institutions that facilitate and encourage factor accumulation, innovation and the efficient allocation of resources will prosper" [Acemoglu, Johnson and Robinson, 2004].

The statement above can be seen as a sort of self-fulfilling prophecy, as World Bank states that "reformers in many governments, as well as civil society and investors, increasingly view governance as key for development and the investment climate" [Kaufmann, Kraay and Mastruzzi 2003][13].

[13] Kaufmann, Kraay and Mastruzzi [2003] state that: "For example, the International Development Association (the highly concessional loan window of the World Bank) relies heavily on the World Bank's Country Policy and Institutional Assessment, one of the ingredients in our aggregate governance indicators. The U.S. government's Millennium Challenge Account bases country eligibility in part on five of our governance indicators." Alesina and Weder [2002], however, do not support this statement once they found no evidence that corrupt governments receive less foreign aid.

Contrarily from this statement, there was the negative relation between making it an obligation for banks to inform suspicious activities (INFORMAR) and growth, reported in the second column of Table 3.2. A possible explanation for this case is the fact that, in line with anecdotal evidence [Mitchell, 2002] that indicates that larger countries are more vulnerable to money laundering than poor economies, when larger economies adopt anti-money laundering regulations, due to their highly developed institutional and enforceable framework, cleaning activities will shift to lax regulated countries. As a consequence, the richer ones will suffer a loss of the funds available for the licit economic activity, thus reducing growth.

It will trigger political pressure from developed economies [Helleiner, 2000] over the less stringent ones. Developed countries can materialize the political pressure in the form of shortage of financial support from the multilateral bodies [Kaufmann, Kraay, and Mastruzzi, 2005] or from the international community, or even by denying access to international financial markets [Helleiner, 2000]. As a second-best result, less developed countries will adopt the regulations, get better grades on their institutional scores, and get access to international funds and financial markets, thus raising growth rates.

This entire possible outcome, however, is not enough to ensure a money-laundering free environment in less developed countries (as it is impossible in developed countries too). If the country's social behavior is corrupt (even in the higher levels of government), it does not matter if the legal framework is in place, it will always be possible to break the law and get no punishment, due to the possibility of "buying" the result of a judgment (either in the administrative or the judiciary areas).

4. CONCLUSION

In this paper, we have confirmed previous studies' results that point to a positive relation between low corruption levels and investment and growth. From this finding, we can think of two possible explanations: (1) one that relies on developed institutional framework to explain a better economic performance or (2) another that expects possible financial shortages from international investors, multilateral bodies aides and financing, or access to international financial systems.

Further, we addressed the growth impact of money laundering prevention initiatives. We did it in two ways: first, by verifying that the perception of corruption is affected by the existence of anti-money laundering regulation, such as the ones we focused here: which criminalize other types of money laundering activity different from drug-related ones; make it an obligation to inform of suspicious financial activities; and establish a Financial Intelligence Unit (FIU). Second, by verifying that the impact of some of the mentioned variables (MLP) showed to be related to growth and investment.

One of the most striking results is the fact that the banks' obligation to inform suspicious activities was negatively related to growth (significant at 10%). This is a very insightful result, showing the effect of effective money laundering on growth. We can

suppose that when the anti-money laundering regulation requires banks to inform suspicious transactions, there could be a "dirty money run" from the economy. This result suggests the political economy outcome described before, as the implementation of anti-money laundering regulations can probably reduce growth from countries where the regulation is in place.

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