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Dancing with the devil: Country size and the incentive to tolerate money laundering

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ABSTRACT

The incidence of money laundering, and the zeal with which international anti-money laundering (AML) policy is pursued, varies significantly from country to country, region to region. There are, however, quite substantial social costs associated with a policy of toleration, and this begs the question as to why such a variance should exist. In this paper we claim that, due to the globalisation of crime, if a single country should break the "chain of accountability", then it will provide a safe haven for criminals and attract the total financial proceeds of crime. Because smaller economies are best able to insulate themselves from the costs of crime, we argue that smaller countries bear only a tiny share of the total costs relative to the potential benefits of investment that money laundering offers, and so have a higher incentive to tolerate the practice compared to their larger neighbours. As such, we claim that the existence of a money laundering market is due to a policy of AML 'defection', and that the degree of 'defection' depends largely on the size of the country. We present a simple model of policy competition which formalises this intuition, and conclude by exploring a number of policy recommendations which flow from this.

1. Introduction

Money laundering is the process by which criminals and criminal organisations attempt to "conceal or disguise the nature, location, source, ownership or control" of their ill-gotten gains,[1] so as to make it possible to invest or consume the proceeds of crime.

The existence of a money laundering market is, as we will see in the course of the literature overview presented in Section 2, a well-recognised threat to the stability of the legitimate economy (see, Unger, 2007). So much so, in fact, that European legislators have suggested that the presence of a money laundering market threatens to "shake the very foundations of society" (Directive 2005/60/EC). Money laundering acts as a multiplier for crime, corruption, bribery and terrorism, and so comes at a significant total cost to society.

Despite this fact, the zeal with which international anti-money laundering (hereafter AML) policy is pursued varies significantly from country to country, and from region to region. So significant is this variance, in fact, that the Financial Action Task Force (FATF), the anti-money laundering organization founded by the then G-7, and now located in the OECD, has felt it necessary to identify a number of "Non-Cooperative Countries and Territories" (NCCT), and to label these as having "severe deficiencies" in their AML regimes (Force, 2002).[2] The most extreme of these, the Seychelles, actively encouraged money laundering, and publically invited criminals to invest their ill-gotten gains under the promise of an immunity from prosecution (Unger & Rawlings, 2008).

At the present time, it is quite unclear as to why this should occur, and why money laundering should be tolerated in some jurisdictions and not in others. In the course of Section 3, however, we will present a simple model of policy competition, which attempts to explain the existence of a money laundering market by simultaneously considering the existence of heterogeneities between countries on the one hand, and the strategic actions of the policy makers that govern them on the other.

We will show that, in a closed economy, there is a strong incentive to regulate, and to prevent money laundering. In a closed economy the total social costs of crime will be borne, we suggest, by the domestic community, and as these costs will outweigh any

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[1] See Stages of the Money Laundering Process, A Report to Congress in Accordance with 356(c) of the USA PATRIOT Act, December 2002.

[2] There are currently no countries on the list of NCCTs. It has been suggested, however, that this may be due to political considerations, and that many of the countries listed in 2000/2001 may have been removed for 'apparently' rather than actually complying with AML best-practice (Masciandaro, 2005; Unger, & Ferwerda, 2008).

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potential benefits that come from a policy of toleration, we will show that financial transparency will be maximised. In a closed economy, the costs of crime outweigh the benefits of criminal investment, and so money laundering will not be tolerated. Because criminals are, at least in our set-up, motivated by the attainment of profit, the supply of crime will, consequently, suffer an adverse shock.

In an open and globalised economy, however, we will show that this result no longer holds. Openness and globalisation, we find, means that the costs of crime, and the investment benefits that come with a policy of toleration, can easily be separated. Domestic arbitrageurs can compete, in the hope of profiting from the crimes committed in other jurisdictions. So too can states. As a consequence, our model suggests that we will observe a beggar-thy-neighbour policy in relation to criminal finances, as countries attempt to attract the proceeds of crime, and an international "regulatory race to the bottom", as they attempt to facilitate criminal investment by lowering domestic standards on financial transparency. As a result, we claim that the existence of, and variance within the money laundering market is due to a policy of AML 'defection', and that the degree of 'defection' depends largely on the size or economic significance of the country. Countries with a large legitimate economy can, we suggest, be expected to avoid the money laundering market, while smaller, developing economies will be more likely to "dance with the devil", and to embrace it. The implications of this finding will be explored in the course of Section 4, after which Section 5 will conclude by exploring the policy implications of this finding.

By doing so, this paper contributes to the literature in a number of ways. Firstly, it presents an integrated model, which simultaneously considers the existence of heterogeneities between countries and the strategic actions of the policy makers that govern them. This is to our knowledge new to the literature, as previous contributions analysed one or the other factor in isolation. Secondly, it shows that countries exert a *laundering externality* on each other, because they fail to take into account the cost of laxity on other countries when setting their AML policy goals. This is an important finding, with many real world policy implications, which we will discuss. Thirdly, it derives what will be referred to as an endogenous "Seychelles effect" – named after the Seychelles' policy of deliberately inviting criminal investment – which results from the fact that small and developing countries are low-cost producers of money laundering. This shows that smaller countries need to bear only a small part of the social cost they generate, and provides the theoretical reasoning for the observed variance in AML regimes.

2. Literature and hypothesis development

2.1. Crime and criminal proceeds

Variously defined as "deviant behaviour [which] violates the prevailing norms and cultural standards on how humans ought to behave", as a "public wrong" and as an exploit "injurious to the community" (Ormerod, 2005), crime exists and endures because it offers the individual an opportunity to gain. Crime provides the individual with a cost effective source of power, influence and authority, and so crime, it must be recognised, is the unavoidable consequence of human ambition and creativity, and the flip-side of entrepreneurial spirit. It is held to be "wrong" and "injurious" because the private gain it creates typically benefit the criminal far less then they cost society. Estimates place the cost of crime to the US, for example, at about $1 trillion per annum (Anderson, 1999; Reuter, Peter & Truman, 2004; Takats, 2007).

Thus, inevitable as it may be, society can tolerate only a low level of crime and, as a result, is forced to 'tip the scales' in favour of legitimate activity by criminalising all 'injurious' behaviour. In observing that crime is often motivated by profit, 'balance' can be achieved, and social welfare can be maximised, through the manipulation of the criminal profit formula. By increasing the risks of capture, for example, or the duration and severity of punishment, the costs of crime can, it is suggested, be easily be made to outweigh the benefits (Blumstein & Nagin, 1977; Ehrlich, 1973; Wolpin, 1978).

In a world where the proceeds of crime are measured in the tens of billions (Unger, 2007; Unger & Rawlings, 2008), however, and where the sheer complexity of the criminal operations often makes the risk of detection and the threat of punishment too remote a possibility to act as a serious deterrent, many believe that this is simply not enough. Many are therefore choosing to supplement these traditional methods of punishment with the practice of institutionalised ostracism; governments and international institutions are increasingly refusing the criminal, and his proceeds, access to the legitimate economy.

2.2. Understanding the market for money laundering

But desirable as this may sound, many uncomfortable questions are raised by the process of institutionalised ostracism regarding the substitutability of money (Unger, 2007).

By direct intention the distinction between legal and illegal monies means that a 'dirty dollar' earned in the criminal economy is worth less then a "clean" one earned in the legitimate economy, and so the profitability of crime is reduced. Criminal incomes are effectively"taxed' at a rate equal to the state's enthusiasm for a crime free society. Because crime already pays less (Wilson & Abrahamse, 1992), any loss in profitability implies an adverse shock to the supply of crime, and so criminal activity will be reduced.

As an unintended consequence, however, a demand for "money laundering" services will be created. These services—broadly defined as financial services conducted "to conceal or disguise the nature, location, source, ownership or control" of money aim to make it possible for criminals to invest or to consume the proceeds of crime, and to circumvent the crime-stopping efforts of government.[3]

The Bank of International Settlements (BIS), the Organization of Economic Cooperation Development (OECD), the G8 and G20, the European Union (EU), several departments of the United Nations (UN), the World Bank (WB), the International Monetary Fund (IMF), and the Financial Stability Forum (FSF) are all involved in efforts to assess and reduce money laundering. Between them they have created a plethora of bilateral and multilateral rules and agreements – despite the widespread uncertainty of what actually constitutes money laundering (Unger, 2007) – and the diverging definitions which are now employed by them at both the national and the international level makes estimation a difficult task (Van Duyne, 2007, 2006, 2003). It has been suggested, in fact, that measuring money laundering is no more possible then measuring a "fata morgana" (Van Duyne, 2006).

A number of heroic attempts have been made, however, "to measure the immeasurable" (Unger, 2007). The IMF (International

[3] See Stages of the Money Laundering Process, A Report to Congress in Accordance with 356(c) of the USA PATRIOT Act, December 2002. Within the European legal framework the: (1) conversion or transfer of property; (2) the concealment or disguise of the true nature, source, location, disposition, movement, rights with respect to property; or (3) the acquisition, possession or use of property, knowing that such property is derived from criminal activity, are all activities which, when committed intentionally, are considered to be acts of money laundering. See also Council Directive 91/308/EEC of 10 June 1991 on prevention of the use of the financial system for the purpose of money laundering.

Table 1
Estimates of world-wide money laundering, from Schneider (2008).

Origin/study	Year	Volume (USD billion)
NCIS (Washington, DC, USA)	1998	1300
NCIS (Washington, DC, USA)	2001	1900
NCIS (Washington, DC, USA)	2003	2100
UN	1994/1998	700–1000
IMF/Interpol (Washington, DC, USA)	1996	500
Takats (2007)	2005	600–1500
CITE	2002	1000–1600
Agarwal and Agarwal (2006)	2005	2000–2500
Agarwal and Agarwal (2004)	2002	500–1000
Friedrich Schneider (University of Linz)	2001	595
Friedrich Schneider (University of Linz)	2002	640
Friedrich Schneider (University of Linz)	2003	680
Friedrich Schneider (University of Linz)	2004	720
Friedrich Schneider (University of Linz)	2005	760
Friedrich Schneider (University of Linz)	2006	790
The Economist (London)	1997	400
The Economist (London)	2001	600
Friedrich Schneider (University of Linz)	2001	270
Friedrich Schneider (University of Linz)	2002	295
Friedrich Schneider (University of Linz)	2003	330
Friedrich Schneider (University of Linz)	2004	340
Friedrich Schneider (University of Linz)	2005	345
Friedrich Schneider (University of Linz)	2006	338
Sam Kerry	1997	420–1000
Michael Schuster	1994	500–800
John Walker	1998	2850

Monetary Fund, 2003, 2001) and the World Bank, for example, have estimated that some 2–4% of the worlds GDP stems from illicit sources, and Agarwal and Agarwal (2006, 2004), using regression analysis and forecasts, suggest an even higher level of 5–6%. At this rate somewhere between $2.0 and $2.5 trillion should flow through the money laundering market on an annual basis. Walker (1999, 2004, 2007), however, claims that this is too low a figure, and, using input–output and gravity models, proposes that the true number is more like $3 trillion per annum. Each estimate is subject to some criticism (see Reuter, 2007): Van Duyne (2006) suggests that most are overblown by media hype, Schneider (2008) suggests estimation errors may be as large as ±20%. Despite this, the consensus remains that the market for money laundering is a significant one; see also the wide range of estimates reported in his study and reproduced in Table 1.

Because unintended as the very existence of this market may be, these figure are of some tremendous economic and political significance. For innocuous as the term 'money laundering' may sound, a term first coined in the 1930s to describe criminal attempts to launder illegal money via cash-intensive "washing salons" in the US Masciandaro (2004)—it is a well documented fact that the presence of a relatively large and strong money laundering market not only threatens the stability of the legitimate economy, but the very existence of the state.[4] According to European legislators, in fact, money laundering threatens to "shake the very foundations of society".[5]

Supplying the market for money laundering is, however, quite clearly a profitable venture. Criminals need money because nearly all illegal transactions are done with cash. Cash leaves no traces on information carriers, as is the case with documents or bank sheets (Masciandaro, 2004; Schneider, 2008; Vanempten, & Ludwig, 1994). As a result, and because of the presence of a "persecution premium", which is placed upon crime by society, criminals are willing to 'invest' their resources with money launderers for far less than the international rate on legal capital. Research suggests that money launders charge rates of 5–10%, although actual rates may vary, and may, in fact, be significantly higher (Unger, 2007).

In a world where no "big bills [are] left on the side walk" (Olson, 1996), and where estimates suggest that as much of 69.9% of criminal proceeds are laundered (Walker, 2004), the presence of a positive interest rate differential means that there will always be an enterprising arbitrageur willing to offer a supply on the money laundering market. Entrepreneurs are ubiquitous (Baumol, 1996) and so, so long as the interest rate differential exists, the attraction to money laundering will remain constant.[6]

The costs incurred by this enterprising arbitrageur, however, will vary, and will depend directly upon the costs of circumventing anti-money laundering (AML) regulation. As such, the money launderers' costs will be directly proportional both to the levels of financial transparency, and to the levels of AML regulation, and as these are directly set by government policy, government, it is suggested, can indirectly control the supply of national money laundering services. The paradox then is, if government can control the levels of money laundering, and if crime is, on balance, destructive to society, why is the money laundering market tolerated, and why is crime not snuffed out?

2.3. Modelling the market for money laundering

Much of the existing literature on money laundering looks at this question by considering the trade-offs that rational and well-informed policy-makers face when seeking to serve their national interest. Currently, however, the literature considers either homogenous countries, or the strategic interaction between the policy-makers that govern them, but not both.

Masciandaro and Portolano (2003), for example, consider the rational behaviour of a single policy-maker. Their model allows government to draw financial benefits from launderers, but face the costs of increased crime, the potential of sanctions from the international community, and a loss of international reputation from doing so. The authors argue that the extent of these costs is not certain, and hence they adopt an expected utility framework. They derive comparative statics results for individual countries that, as we will see, also hold in our model, such as greater laxity when crime costs are low, but do not consider the possibility of strategic interaction between policy-makers. The partial equilibrium nature of the approach is also evident in the fact that, for example, the benefits from laundering are taken as given by individual jurisdictions.

Unger and Rawlings (2008), on the other hand, focus on strategic interaction of policy-makers, but with homogenous countries. Their framework of a simultaneous-move Cournot competition

[4] In the short-term, an active money laundering market is said to distort prices, consumption, saving and investment rates and to increase the volatility of import/export levels, the demand for money, interest and exchange rates, as well as the availability of credit. In the short run, the existence of a money laundering market will thus undermine the legitimate economy, but as money laundering takes root, the consequences become increasingly dire. In the long-term money laundering endangers the survival of the financial sector – not only because of the risk it poses in terms of solvability and liquidity, but in terms of reputation and profitability – which, in turn, threatens the continuance of foreign direct investment (FDI) flows into the country, and denies it an instrument for growth. Furthermore, money laundering is seen to act as a multiplier for crime, corruption, bribery and terrorism which, at its worst, can undermine both the democratic institutions of the state and the foreign policy objectives of its people. In the long-term, money laundering can thus be seen to poses a serious and even existential threat to the state, and for this reason it must be tackled.

[5] Directive 2005/60/EC of the European Parliament and of the Council, of 26 October 2005 on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing.

[6] Baumol (1996) argues that the supply of entrepreneurial talent is constant across soceities, and that it is institutions which predict whether this talent gravitates toward productive, unproductive or destructive behaviour. Acemoglu (1995) suggests that, without the correct intervention from the state, societies can get trapped in a rent-seeking steady-state equilibrium.

game follows Sinn (2003), and is very similar to our set-up, as we will show below. Unger and Rawlings consider far richer interactions than we do and allow, for example, for sequential-move games in which a country may "break out" of an international agreement—but do so at the limitation of abstracting from heterogeneous costs invariably faced by different policy-makers.

The goal of the model which we will present in this paper is to build upon both of these contributions, and to analyse both of these factors – that is, heterogeneities between countries and strategic interaction between policy-makers – simultaneously, and in a simple setting. We hypothesise that it is the differences in country size which is the most significant explanatory mechanism for the variation in AML regimes and, on the basis of this prediction, we explore the incentives associated with financial transparency. We suggest that because smaller economies are better able to insulate themselves from the costs of crime, smaller countries bear a smaller share of the total costs relative to the potential benefits of investment that money laundering offers, and so have a higher incentive to tolerate money laundering.

3. Modelling transnational AML policy

3.1. Set-up

To explore the transnational dimension of AML policy further, we develop a simple economic model that seeks to capture the incentives faced by the various actors involved in the money laundering process.

In our model, the world is populated by consumers with identical preferences over all goods, which include illegal goods. Illegal goods are produced by criminals, the second class of actor in our model, using an input which we call "labour". Since the interest of our paper lies squarely with money laundering, we abstract from further details of criminal production technology. The criminal good in our model is then traded internationally and sold to consumers in a perfectly competitive market. However, for the criminals to capture the revenue they gained, assistance from money launderers is required; in particular, one unit of money laundering is required to "white-wash" the proceeds from a single sale of the criminal good. As we discuss below, this gives rise to a Leontief production function for the criminal good.

Laundering is a globally traded service: capturing the idea that a single broken link in a financial transaction is enough to break the chain of accountability associated with a transaction. Laundering and crime are also closely linked: without the former, there would be no incentive to commit crimes.

Money launderers may use a wide variety of methods to conceal the sources of criminal funds. What is of most interest for the purpose of the present paper is that the difficulty of doing so is largely determined by government policy: strict regulation of the financial sector and high transparency requirements make money laundering difficult; weak enforcement, or indeed absence of anti-money laundering regulation, on the other hand, have the opposite effect. In general, the precise interaction between launderers and domestic policy makers is poorly understood and difficult to model.

Our approach envisages a policy-maker first deciding on the quantity of laundering she wishes to tolerate domestically; the policy-maker then effectively auctions off the right to conduct said quantity of money laundering to some agent. This enables the policy-maker to capture all profit made from laundering, for further domestic use very much like other sources of government revenue. Such a process captures the idea of the policy-maker turning a blind eye on laundering activity carried out by a certain group, but rigorously prosecuting others who attempt to enter the market also; laundering resembles a state-owned monopoly that is not shut down because policy-makers have to rely upon the profits thus earned (Fig. 1). Although we do not believe that all money laundering is explicitly tolerated by governments – even if governments do not tolerate laundering at all, there are clearly some difficulties of enforcement and transactions that succeed in remaining under the radar – this notion captures the essence of "non-cooperativeness" in NCCTs quite well. The interactions between the various parties are summarised in Fig. 1.

In a closed economy, the government uses laundering tolerance as a device to implement the optimal level of crime. This level may well be larger than zero, for example, because small quantities of the criminal good yield higher marginal utility to the consumer than the social cost imposed on everybody else. However, the resulting outcome will be efficient in the Pareto sense.

This result does not hold in open economies: both criminal goods and money laundering are traded in global markets, which means that the link between laundering and crime is broken at the country level. A policy-maker that increases his laundering tolerance will not face the world social cost of the crime thereby generated; the lion's share of marginal crime will occur abroad and hence not enter into the policy-maker's consideration. The world faces a kind of global public goods game, in which the world crime level is higher than would be optimal. If the number of countries is large, this effect is very substantial.

A key result in this context is the Seychelles effect: for small countries, laundering is especially cheap to produce. This is because the costs caused by increased crime are borne almost entirely by other countries. Hence the model is consistent with the empirical observation that money laundering havens are often small countries that can insulate themselves relatively well from the social cost they impose on the rest of the world.

To simplify the model, we adopt a partial equilibrium perspective. Feedbacks from criminal or laundering activity on the legal sector of the economy – e.g. through the wage channel – are abstracted from the model. We do this for two reasons: firstly, we believe that general equilibrium effects are, at the margin, quite small in the setting we consider because the size of the illegal sector is often small relative to legal one. Secondly, the model seeks to make explicit one channel through which transnational interaction affects money laundering and crime; clearly, no single model can yet account for the full complexity of the global money laundering problem.

3.2. The criminal market

In our framework, criminals are driven by the profit motive, and furthermore, profits can only be consumed once they have been laundered. This brings out the point that money laundering is an *essential input* to crime production: without laundering, profits cannot be recouped, and the incentive to produce crime is removed. Our model reflects this by adding money laundering directly to a Leontief fixed-proportions production function:

$$x_c = min[l, x_l] \tag{1}$$

Here l denotes a composite input ("labour"), and x_l the units of money laundering available. Producing a single unit of the criminal good thus requires one unit of the composite input, and one of the laundering input under the most efficient production schedule. Criminals, of course, run the risk of being detected; in general, this should raise the cost of crime. This is captured indirectly by the production function through two ways: firstly, effective money laundering reduces the likelihood of detection. Secondly, workers employed in criminal production will require higher wages to compensate for the cost of detection. Hence the criminal wage reflects the intensity of criminal enforcement.

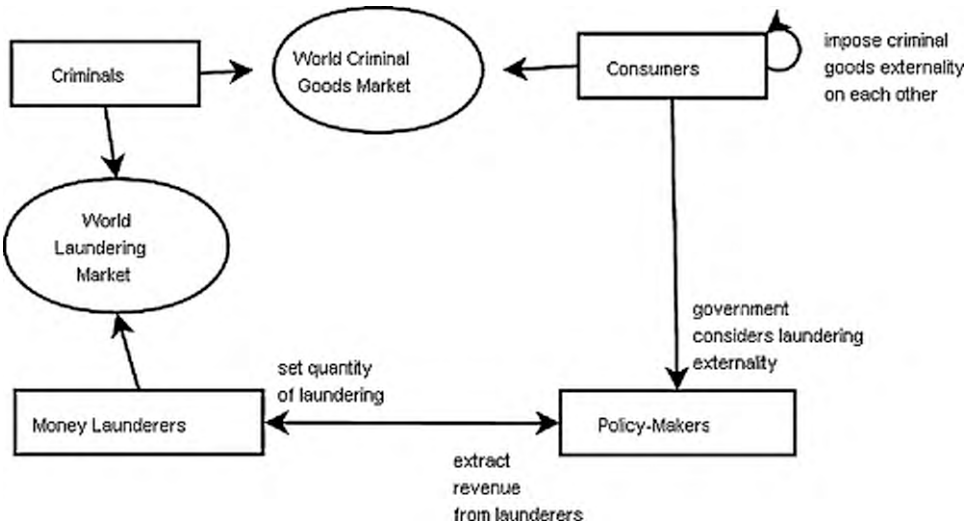

Fig. 1. Summary of the model.

The cost function of the criminal is thus given by

$$c(x_c) = (w + p_l)x_c \tag{2}$$

where w is the criminal wage, p_l the price of money laundering and x_c the quantity of the criminal good produced. The criminal market trades a homogenous good and has a large number of buyers and sellers; hence it is well approximated by a perfectly competitive model. Aggregating over a large number of price-taking criminals, we hence find the industry supply function to be:

$$x_c^s(p_c) = \begin{cases} \infty & \text{if} \quad p_c > w + p_l \\ [0..\infty] & \text{if} \quad p_c = w + p_l \\ 0 & \text{if} \quad p_c < w + p_l \end{cases} \tag{3}$$

It is apparent that the supply function is perfectly elastic. That is, the only price consistent with finite and non-zero criminal output is $p_c = w + p_l$.

Demand for the criminal good is assumed to be downwards-sloping, and more specifically a linear decreasing function of price. For notational simplicity, we set the slope to unity, and therefore let world demand for the criminal good be equal to:

$$x_c^d(p_c) = A - p_c \tag{4}$$

Moreover, we assume that each individual consumes the same amount of the criminal good. This would occur, for example, if each agent had quasi-linear preferences and consumed at an interior point. With such a utility function, demand for the criminal good is independent of the level of income. Another justification for this assumption is that, without knowing more about the personal characteristics of an individual, the mean level of criminal consumption is our best estimate of that person's consumption. World population has unit mass; the world demand follows by aggregating over all individuals.

From our assumption of ex-ante identical individuals, it follows that the demand for the criminal good of a subgroup of the world population is proportional to its size; if a country has world population share s_i, the domestic demand for the criminal good is given by:

$$x_{c,i}^d(p_c) = s_i(A - p_c) \tag{5}$$

Substituting the industry supply function (3) into national demand gives us an expression for the national equilibrium crime level:

$$q_c^* = s_i(A - [w + p_l]) \tag{6}$$

Optimal crime is increasing in country size (which increases the strength of demand), decreasing in the criminal's wage and laundering cost, as expected.

As noted above, cost-minimising production of the criminal good requires that one unit of the laundering input is used for each unit that is produced. Thus we have have $q_c^* = q_l^*$, and the equation above reflects the factor demand for the laundering input.

Total revenue in the laundering market is thus given by

$$R_{l,i}(q_l; \bullet) = q_l \left[A - w - \frac{q_l}{s_i} \right] \tag{7}$$

As discussed above, we assume that the government can capture this revenue, either directly or indirectly. It is precisely this revenue that creates the incentive to tolerate crime—for revenue can partly offset the welfare loss created by crime.

Criminal goods are presumably illegal because the externalities associated with their production and consumption outweigh the surplus enjoyed by the parties to the exchange. We capture this net social cost of crime with a function $T(\bullet)$, and assume this cost to be a proportional to the level of crime:

$$T(q_{c,i}) = c \times q_{c,i} \tag{8}$$

These costs accrue only within the country in which the criminal good is consumed.

Money laundering requires no inputs other than government approval; hence the profits from laundering in a given country i equal the domestic laundering revenue $R(\bullet) = p_l * q_{l,i}$. Many agents would typically compete for the "right" to conduct money laundering without facing government sanctions; hence all profit made in the laundering sector can be captured by the government.

3.3. The closed economy

The policy-maker's objective is to choose the optimal degree of policy laxity, trading off the benefit of revenue against the social cost of increased crime. Formally stated, her problem is (after rearranging the conditional factor demand):

$$max\phi(q_i) = R(q_{l,i}) - T(q_{l,i}) = p_l \times q_{l,i} - c \times q_{x,i} \tag{9}$$

Substituting and maximising, we find

$$q_{l,i}^* = \frac{s_i}{2} \times (A - w - c) \tag{10}$$

Thus our very simple model suggests that government policy will permit crime per person to rise as s_i slowly grows, in

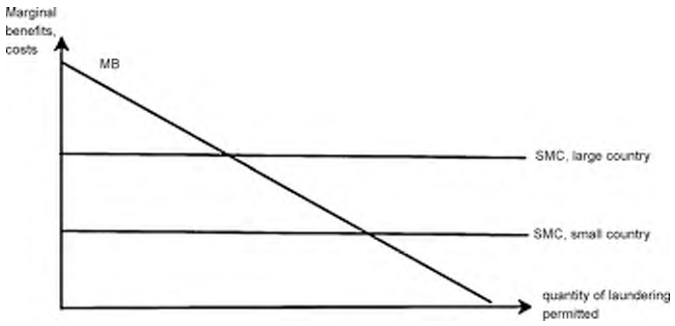

Fig. 2. Comparative statics: country size and laundering tolerance.

the absence of international interaction effects. This is because a larger number of people in the country lead to an expansion of the demand for the criminal good, and hence a more favourable trade-off between allowing money laundering and the social cost of crime.

3.4. The open economy

Suppose now that we have k countries, with population shares $s_1, s_2, \ldots, s_k$ respectively. Each country is sovereign and sets a policy on money laundering laxity, i.e. on the quantity of laundering that will be permitted within its jurisdiction, labelled $q_{l,i}$. But because laundering services are internationally tradable, this policy has spill-over effects on other jurisdictions. In particular, much of the laundering permitted by a small country will typically be used to support crime that takes place abroad—because said country only contributes a small part to world crime consumption. This causal mechanism is fundamental to our simple model of transnational competition for criminal money.

The model is developed in analogy with a classic model in industrial organization, the Cournot model, expanded to cover heterogenous firms/countries. We are looking for a Nash equilibrium in strategies $(q_1 \ldots q_k)$, in which no state can change its laundering policy unilaterally without worsening its payoff.

Let Q^{-i} denote the cumulative crime output of all countries *except i*. Then the country's problem is to

$$maxSWF_i = [A - w - (Q^{-i} + q_{l,i})]q_{l,i} - T[s_i(Q^{-i} + q_{l,i})] \tag{11}$$

Taking the policies of other countries as given, maximising this expression yields the optimal laundering output

$$q_i^* = \frac{A - w - s_i \times c - Q^{-i}}{2} \tag{12}$$

Thus, the larger the country, the higher its marginal cost of laundering – creating relatively more crime at home than abroad – and the lower its laundering output, all other things equal. This effect is illustrated in Fig. 2.

Furthermore, as is common in Cournot models, anti-money laundering policies (AML) are *strategic substitutes*. That is, if one country relaxes its AML policy, other countries will tend to tighten theirs. This occurs because the latter find that the ceteris paribus lower price of laundering yields them a less favourable trade-off of revenue for crime.

For each country of the K countries, one such first order condition is obtained. Solving them simultaneously yields the Nash equilibrium solution of world laundering output (cf. Bergstrom et al., 1986):

$$2Q = K(A - w) - K \times Q + Q - c \tag{13}$$

Rearranging:

$$Q = \frac{K(A - w) - c}{K + 1} \tag{14}$$

Total world money laundering is thus not affected by the size distribution of countries. In other words, the existence of small countries does not necessarily change the amount of world laundering, but merely its distribution between countries.

To sum up, the simple model of transnational competition for criminal money yields three key results:

- Countries exert a **laundering externality** on each other, because they fail to take into account the cost of lax financial regulation to other countries when setting their AML policy goals.
- We derived an **endogenous Seychelles effect**, resulting from the fact that small countries are low-cost producers of money laundering: they need to bear only a small part of the social cost they generate.
- However, in this model we note the **irrelevance of the country size distribution** to world laundering output. This results from the fact that small countries out-compete their larger counterparts in the ML market one-for-one.

4. Discussion

4.1. Beggar-thy-neighbour and criminal monies

Our model thus suggests that, in a closed economy, the state will be forced to 'internalise' the total costs of crime and, as a result, it will suffer the (negative) net consequence of criminal activity. Accordingly, crime prevention will quickly become a high policy priority for the government, and financial transparency – being the only policy instrument permitted by our model in achieving this end – will be set at a high level.

In the more realistic context of an open economy, however, the fact that crime is both organised and globalised means that the incident and effect of crime can be separated from the positive cash flows they create. Total social costs can be divided across countries – irrelevant of incident, cause and effect – and each country's domestic arbitrageurs will hope to profit from the crimes in other jurisdictions. Since money does not stink, government will be tempted to lower its regulatory standards in order to attract such black capital.

Moving from the closed economy, openness and globalisation are thus seen to erode the incentive for higher levels of financial transparency, simply because countries with lower standards will attract higher investment. As a consequence, we will observe a "beggar-thy-neighbour" policy in relation to the competition for criminal monies, along with an international 'regulatory race to the bottom' (Sinn, 2003). Governments will permit jurisdictional arbitrage in order to attract criminal investment flows, and will take advantage of the confused multitude of rules, definitions and conflicting agreements that currently govern the market (Unger, 2007) to increase their comparative advantage.

The result of this will be the toleration of a super-optimal level of crime. Because only a single country is necessary to break the "chain of accountability", and only one is needed to provide a safe haven for all the world criminal proceeds, this result suggests that unless anti-crime policy becomes a transnational issue, with a collusive, multinational response, justice can and will not be served in the context of an open and globalised economy. Crime will endure because criminals will continue to launder their ill-gotten gains; crime will continue to pay, and society will continue to suffer.

4.2. Regulatory externalities and small country incentives

The story, however, does not end there. In an open economy, low standards of financial transparency do not merely affect the market for money laundering, but will, in fact, affect all sectors of the economy. Poor financial standards are likely, for example, to encourage the diversion of assets in businesses, to lead to poor supervision of companies (and hence reduce the quality of governance), and to encourage directly unproductive, profit-seeking activities. Because in our framework the state has only a single policy instrument with which to fight crime – namely the level of financial transparency – these effects are the inescapable consequence of its decision to tolerate crime and court the profits from money laundering. As a result, we observe that there is a significant trade-off in the decision to tolerate money laundering: countries with large and developed economies have more to lose from money laundering then developing countries.

We therefore suggest that countries with a large legal-economy sector in absolute terms will be more affected by low financial standards, and will have more to loose by dropping them, and so the costs of tolerating money laundering for small economies vis-a-vis their larger counterparts will be reduced. Countries with a large legitimate economy can therefore be expected to avoid the money laundering market, while smaller, developing economies will be incentivised to embrace it, and it is this finding, we believe, which provides an explanation for the variant zeal with which AML policy is pursued. Not all countries will attempt to court criminal capital, because for some countries – the larger legitimate economies – the costs of doing so will outweigh the benefits.

4.3. Looking to the real world

There will, of course, be exceptions to this generalised rule[7] but by this reasoning, it is suggested that money laundering should be more prevalent amongst the smaller nations, and amongst the developing countries; that is, amongst those countries which have the most to gain and the least to loose through the toleration of money laundering. And, although relatively scarce, there appears to be some empirical and theoretical evidence (see e.g. Argentiero, Bagella, & Busato, 2008) in favour of the proposition.

The Financial Action Task Force on Money Laundering (FATF), for example, identified fifteen Non-Cooperative Countries and Territories (NCCTs) in its 2000 report which, it suggested, were clearly tolerating money laundering, and clearly catering to the needs of the criminal networks. These included the Bahamas, the Cayman Islands, the Cook Islands, Dominica, Israel, Lebanon, Liechtenstein, the Marshall Islands, Nauru, Niue, Panama, Philippines, Russia, St. Kitts & Nevis and St. Vincent & the Grenadines. In 2001 Egypt, Grenada, Guatemala, Hungary, Indonesia, Myanmar, Nigeria, and Ukraine were added to the list, and labelled as having "deficiencies" in their AML regimes (Force, 2002).[8] And while the usefulness of the blacklisting system is often criticised – because countries may, for example, be removed for 'apparently' rather than 'actually' complying with AML best-practice (Masciandaro, 2005; Unger, & Ferwerda, 2008) – the NCCT 'blacklist' serves to illustrate: firstly, that non-cooperative countries exist, and that there is indeed a variance in international AML regimes; and secondly, that for a large part the offending nations tend to be either smaller, relatively poorer and/or developing nations.[9]

Such a conclusion is consistent with many other academic findings. The highly influential gravity model of transnational money laundering, developed by Walker (1999), for example, also points to smaller, developing countries, and identifies the islands of the Pacific/Caribbean as being a significant major centre for international money laundering. Walker suggests that being on the geographic periphery, these countries are incentived to lower their regulatory standards, and attempt to attract criminal investment at almost any cost. Unger (2007) too, in a recent re-estimation of the model, comes to a similar conclusion, as does Morris-Cotterill (2001) in a more general study.

Baker (2007) suggests, in fact, that half the world's money laundering comes out of developing and transitional economies. These countries, he suggests, often have the weakest legal and administrative structures, the most influential gangs, and, far too often, political elites who want to take their money out by any means possible (reported in Schneider, 2008).

4.4. An important distinction: intended and unintended money laundering

It should be noted, however, that these findings do not mean that the "giants [don't] wash more" (Unger 2007, p. 79). As Unger (2007, p. 191) points out "it is not [the] small states like Liechtenstein, Anguilla and Bermuda... [but] large, industrialised OECD economies that are the main conduits for laundering money". Walker (1999) estimates that 46.3% of the world's money laundering originates in the Unites States, and as Unger (2007) shows, Luxembourg – home to the European Court of Justice and the secretariat of the European Parliament – is the most attractive destination for money launders in the world (Unger 2007, p. 77). Of the top twenty largest economies, as ranked in terms of nominal GDP by the World Bank (2007), only Sweden is, in fact, not listed as a Major Money Laundering Country by the US Department of Justice, and of the top fifty largest economies, only five more join it.[10]

What we have argued in this paper, however, is that there is an important distinction to be made between *intended* and *unintended* money laundering in terms of incentives, and that the list of offenders which both produce are quite markedly different. We accept that *unintended* money laundering is probably far larger in the US, Switzerland and the UK then it is in most of the Pacific/Caribbean put together, but the key here is that this is *unintended* money laundering, which arises out of the complexity and scale of the financial systems that these countries operate. We have argued that the incentives for the state sponsored toleration of money laundering are substantially weaker for larger and more developed countries, and that because of this the incidence of *intended* should be substantially lower.

[7] According Houlder (2007) "[m]any US states, including Delaware and Nevada . . .[along with] many industrialised countries 1/2 [intentionally] reduce transparency. Switzerland limits exchange of tax information to cases of fraud [while] Hong Kong and Singapore limit information exchange to cases where they have a domestic interest". Switzerland, Hong Kong and Singapore, despite having large legitimate economies, earn a significant income from their status as financial tax havens, and enjoy this status for historical reasons. As a result, these countries act as outliers to our rule.

[8] The OECD tax evasion list – another list which may be of some relevance in identifying money launders – adds Andorra, Liechtenstein and Monaco to the registry of potential offenders, and more are expected to follow in the course of 2009. See Euronews at: http://www.euronews.net/en/article/21/10/2008/calls-from-17-countries-for-new-tax-haven-blacklist/.

[9] Further criticism of the Blacklist was levied by Unger and Ferwerda (2008), who report that: "In advance of the OECD [first] list release, six jurisdictions made advance commitments to bring their country's laws into compliance with the OECD's recommendations and so managed to stay off the blacklists. Ironically, th[ese] included two of the most significant offshore financial centers, the Cayman Islands and Bermuda (the other four were Cyprus, Malta, Mauritius, and San Marino)." (p.163).

[10] See the website of the US Department of Justice: http://www.state.gov/p/inl/rls/nrcrpt/2005/vol2/html/42388.htm.

Our model suggests, however, that small, open and developing economies have a very strong incentive to actively promote *intended* money laundering, to flaunt international anti-money laundering agreements, to participate in the international deregulatory race to the bottom, to free-ride on the crime-stopping efforts of the developed nations, and to attract investment almost at any cost. Therefore, while the small island, transitional or developing economy may 1/2 potentially at least 1/2 represent only a small share of the total money laundering market, it will, we suggest, likely have a far higher contribution proportionate to its economic importance. For these reasons, we believe that the "Seychelles strategy" of deliberately inviting capital under the guarantee of immunity from prosecution (Unger and Rawlings, 2008) is far more dangerous to both the rule of law and the legitimate economy of other territories, and claim that such policies must therefore merit far stronger international attention in the future.

Data limitations loom large in the economic analysis of money laundering and anti-money laundering policy, however, and this create a significant challenge for both scholars and practitioners alike. The 'economics of money laundering' is very much an emerging field, and much work needs to be done to advance the discussion.

The empirics of money laundering, in particular, remain a problem: better measurement proxies need to be developed, we suggest, and methodological transparency need to be improved before money can be better understood. We would welcome further efforts to model the market particularly more complex models which develop the strategic interactions illustrated in this paper—in conjunction with other heterogeneous explanatory factors.

5. Conclusions

5.1. Key findings and contributions

In this paper we have argued that crime is the flip-side of human ambition, drive and enterprise, and that it is a nearly unavoidable consequence of human interaction. Criminals are entrepreneurs, who pursue unproductive or destructive behaviour (Baumol, 1996). Because of this we have suggested that the crime will endure, and that the crime rate cannot be reduced to zero. We have shown, however, that it can be manipulated.

Crime, we have argued, is driven by the profit-motive, and by the expectation that the private benefits of illicit action will outweigh the costs and punishments associated with capture. By increasing the risk and/or consequence of capture, or by limiting the possibility to profit through criminal activity, we suggest that crime can be effectively tackled. Policy can be structured to influence the allocation of societies entrepreneurial talent (Acemoglu, 1995) and can be used to encourage it into more productive alternatives (Baumol, 1996).

In attempting this, however, and in making a distinction between "clean" and "dirty" money, we have shown that a profitable market for money laundering services will be created. Broadly speaking, these services aim to conceal the sources of criminal profits, so that the proceeds of crime to be enjoyed by the criminal in the legitimate economy. We have argued that, because criminals are profit-motivated individuals, the availability of such services is a key determinant of the degree of criminal output in a society.

In Section 3 we presented a simple model to consider the money laundering market, and to investigate the question as to why some countries are more likely to tolerate crime than others. Our model builds upon the contributions of Mascinadro citetmascinadro2003itt – who considers heterogeneities between countries when explaining the existence of money laundering – and Unger and Rawlings (2008), who consider the strategic interactions between the policy-makers that govern these countries, by considering both factors, simultaneously, and in an integrated way.

We show that, in a closed economy, government will take a zero tolerance approach to money laundering. In a closed economy we argued that the country suffers the negative net social costs of criminal activity and so, because the costs of crime outweigh any potential benefits, the maximisation of social welfare in a closed economy means that money laundering will simply not be tolerated.

In an open economy, however, we found that this result no longer holds. This is the first contribution of our paper. We found that, because in a globalised world the location of crime and the laundering of its profits can easily be separated, some countries have a higher incentive not only to tolerate money laundering, but to actively attract it. Our simple model suggested that small countries are better positioned vis-a-vis their larger and more developed neighbours, because they obtain relatively more benefits, at a relatively lower share of the total social costs. Small, developing or transitional economies – which are often otherwise unattractive to legitimate foreign direct investment sources – have, we suggested, a lot to gain by attracting illicit criminal proceeds – that is, by opening dancing with the devil – and very little to loose from doing so.

Since Unger and Rawlings (2008) government sponsored efforts at lowering the standards of transparency and actively increasing the level of money laundering are relatively well-known, and are referred to within the community of scholars and practitioners as "Seychelles strategies". The main contribution of this paper, we suggest, is to be found in its microtheoretical support for the adoption of these strategies by small, developing countries.

By showing, however, that countries exert a laundering externality on each other, and by demonstrating that size, financial transparency and strategic interaction at the policy level are significant explanatory mechanisms in understanding the variation in AML regimes, this paper also provides new perspectives for regulators interested in effectively tackling money laundering.

5.2. Policy recommendations

At first glance, the implications of our findings do not leave much room for celebration. We have argued that crime will endure, and that money laundering market is the unavoidable consequence of that practice. We have shown that the incentives to tolerate money laundering vary quite significantly between countries, and that criminals need only to find the weakest link in the international financial system to have their funds cleared. Only one country is needed to break the international 'chain of accountability', whereas effective anti-money laundering policy, we suggest, requires perfect collusion amongst nearly two-hundred sovereign nation states. Because diversity inhibits collusion (Ivaldi, Jullien, Rey, Seabright, & Tirole, 2003), it is unlikely, in our opinion, that money laundering can be prevented. It can be challenged, however, in at least three ways.

The first way is the legalistic approach to tackling money laundering would see international organisations draft conventions to challenge those states which, according to our model, are naturally more inclined to tolerate criminal investment. This approach has, however, failed to bear much fruit, because many of the large and economically more powerful transgressors, such as the US and the UK, are simply too difficult to prosecute. As a result legalistic approaches to anti-money laundering have, at least to date, been largely unsuccessful.

The second approach, the political approach has been slightly more successful in our view. Our model has shown that although

the US is, in absolute terms the largest money launder in the world, it is smaller nations and developing economies which should be targeted for actively encouraging the practice, and for disregarding the international rule of law. Because small developed nations are more easily influenced by bilateral or multilateral pressure (Unger & Ferwerda, 2008), the implication here is that money laundering could be reduced one country at a time. This has already happened with the Seychelles, which bowed to international political pressure over its money laundering policy. Because the political approach could be accused of allowing large and wealthy AML transgressors, such as the US, to persecute small and less significant ones, however, it has its ethical drawbacks.

Far more equitable is the third option, the 1/2 economic approach 1/2 to tackling money laundering. Our contribution lies in the fact that we formalise the reasons for why smaller and less developed nations tolerate money laundering, and have demonstrated the crucial difference between intended and unintended toleration at the governmental level.

We have shown that, at present, developed countries bare the majority of the costs of money laundering, while the developing countries bare the majority of the benefits. Rich and developed countries thus suffer a money laundering externality, and as with optimal environmental protection policy, the solution is that the rich pay the poor to internalise this externality. The economic approach that we propose would thus see developing countries compensated for voluntarily turning their back on criminal investment, and for loosing the lucrative investment that this brings, and would simultaneously reward them for embracing international law and the will of the majority. The added benefit from such a measure, of course, would be that the anti-money laundering transfer could be used to provide developing countries with financial aid, free from the stigma of being mere charity.

Understanding the strategic incentives discussed in this paper suggests adopting an economic solution with its emphasis on funding economic "carrots" rather than blacklisting sticks and only when this occurs, we suggest, can money laundering be effectively tackled.

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References

Acemoglu, D. (1995). Reward structures and the allocation of talent. *European Economic Review*, *39*(1), 17–33.

Agarwal, J. D., & Agarwal, A. (2004). Globalization and international capital ws. *Finance India*, *19*, 611–641.

Agarwal, J. D., & Agarwal, A. (2006). Money laudering: New forms of crime, victimization. In *Conference presentation at the National Workshop on New Forms of Crime, Victimization, with reference to Money Laundering*. Indian Society of Victimology, Department of Criminology, University of Madras, India.

Anderson, D. (1999). The aggregate burden of crime. *The Journal of Law and Economics*, *42*(2), 611–642.

Argentiero, A., & Busato, M. B. F. (2008). Money laundering in a two-sector model: Using theory for measurement. *European Journal of Law and Economics*, *26*, 341–359.

Baumol, W. (1996). Entrepreneurship: Productive, unproductive, and destructive. *Journal of Business Venturing*, *11*(1), 3–22.

Bergstrom, T., Blume, L., & Varian, H. (1986). *On the private provision of public goods Journal of Public Economics*, *29*(1), 25–49.

Blumstein, A., & Nagin, D. (1977). The deterrent effect of legal sanctions on draft evasion. *Stanford Law Review*, 241–276.

Ehrlich, I. (1973). Participation in illegitimate activities: A theoretical and empirical investigation. *Journal of Political Economy*, *81*(3), 521.

Force, F. A. T. (2002). *Annual review of non-cooperative countries and territories*.

Houlder, V. (2007, 1st May). Financial standards come under fire. *Financial Times London*.

International Monetary Fund. (2001). *Financial system abuse, financial crime and money laundering*.

International Monetary Fund. (2003). *Offshore financial centers: The assessment program, a progress report and the future of the program*.

Ivaldi, M., Jullien, B., Rey, P., Seabright, P., & Tirole, J. (2003). *The economics of tacit collusion*. Final report for DG Competition, European Commission, IDEI, Toulouse.

Masciandaro, D. (2004). *Global financial crime: Terrorism, money laundering, and off shore centres*. Ashgate Publishing, Ltd.

Masciandaro, D. (2005). False and reluctant friends? National money laundering regulation, international compliance and non-cooperative countries. *European Journal of Law and Economics*, *20*(1), 17–30.

Masciandaro, D., & Portolano, A. (2003). It takes two to Tango: International financial regulation and offshore centres. *Journal of Money Laundering Control*, 6.

Morris-Cotterill, N. (2001). 'Money Laundering'. *Foreign Policy*, *124*, 16.

Olson, M. (1996). Big bills left on the sidewalk: Why some countries are rich and others poor. *Journal of Economic Perspectives*, *10*(2), 3–24.

Ormerod, D. (2005). *Smith & Hogan criminal law*. Oxford University Press.

Reuter, P. (2007). *Are estimates of the volume of money laundering either useful or feasible? Conference Tackling Money Laundering*. University of Utrecht.

Reuter, Peter, E. M., & Truman. (2004). *Chasing dirty money: The fight against money laundering*. Washington, DC: The Institute for International Economics.

Schneider, F. (2008). *Money laundering and financial means of organized crime: Some preliminary empirical findings*. Paolo Baffi Centre Research Paper Series No. 2008–16.

Sinn, H. (2003). *The new systems competition*. Blackwell Publishers.

Takats, E. (2007). *A theory of 'Crying Wolf': The economics of money laundering enforcement*. IMF working paper WP/07/81.

Unger, B. (2007). *The scale and impacts of money*. Laundering: Edward Elgar Publishing.

Unger, B., & Ferwerda, J. (2008). *Regulating money laundering and tax havens: The role of blacklisting, (Re)regulation in the wake of neoliberalism, consequences of three decades of privatization and marketliberalization*.

Unger, B., & Rawlings, G. (2008). Competing for criminal money. *Global Business and Economics Review*, *10*(3), 331–352.

Van Duyne, P. (2003). Organizing cigarette smuggling and policy making, ending up in smoke. *Crime, Law and Social Change*, *39*(3), 285–317.

Van Duyne, P. (2006). The Organization of Business Crime. In P. C. Van Duyne, A. Maljevic, M. van Dijck, K. Von Lampe, & J. Newel (Eds.), *The organization of crime for profit: Conduct, law and measurement* (pp. 69–98). Wolf Legal Publishers.

Van Duyne, P. (2007). Criminal Finances in the State-of-the-Art: Case for Concern? In P. C. Van Duyne, A. Maljevic, M. van Dijck, K. von Lampe, & J. Harvey (Eds.), *Crime business and crime money in Europe: The dirty linen of illegal enterprise* (pp. 69–98). Wolf Legal Publishers.

Vanempten, J., & Ludwig, V. (1994). *Le Blanchiment en Belgique. LArgent criminel dans la haute finance*.

Walker, J. (1999). How big is global money laundering? *Journal of Monetary Laundering Control*, *3*, 84–101.

Walker, J. (2004). *A very tentative exploration of the relationship between shadow economy and the production and transit of illicit drugs*. New York: UNODEC.

Walker, J. (2007). Measuring global money laundering. In *Conference tack-ling money laundering* University of Utrecht,

Wilson, J., & Abrahamse, A. (1992). Does crime pay? *Justice Quarterly*, *9*(3), 359–377.

Wolpin, K. (1978). An economic analysis of crime and punishment in England and Wales 1894–1967. *The Journal of Political Economy*, 815–840.