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ASSESSING THE INTRODUCTION OF ANTI-MONEY LAUNDERING LAW ON TRADE MISINVOICING: THE CASE OF VIETNAM

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ABSTRACT

This paper aims to investigate the effect of the introduction of the anti-money laundering (AML) law on trade misinvoicing in Vietnam. Trade misinvoicing is the deliberate falsification of the value or quantity of goods and includes overvalued imports and undervalued exports. The AML law can positively or adversely affect trade misinvoicing. Findings are practically important for investigating the real effect of future laws. A panel regression analysis is employed to isolate the effect of the AML law on trade misinvoicing. The hypotheses related to the effect of the introduction of the AML law are empirically investigated. Using panel data from 2000 to 2019, our empirical result is that the enactment of Vietnam's AML accelerates trade misinvoicing. This finding supports the view that individuals and firms are shifting from traditional methods of money laundering through trade-based channels when the State Bank of Vietnam promulgated legislation that focuses on financial intermediaries. This paper specifically concentrates on the effect of Vietnam's AML law on trade misinvoicing. We provide evidence that the introduction of the AML law encourages launderers to lean on cross-border trade to disguise their money. The findings suggest a number of important policy implications for combating money laundering, especially for transition economies, such as Vietnam's.

Contribution/Originality: This paper is one of the first attempts to investigate the effect of Vietnam's anti-money laundering law on trade misinvoicing.

1. INTRODUCTION

Recent decades have witnessed the increasing role of the globalization of financial markets and organized crime internationalization in nurturing cross-border money laundering (ML) (Lilley, 2003). Countries involved in ML have a weak capacity and an ineffective legal framework to counter ML. Although the banking system has been considered as a vital ground for money launderers, a change from banks to non-bank financial intermediaries has occurred.

Money laundering has also been detected within a large set of commercial institutions. ML methods are the composite of legal and illegal money, the engagement of loan back provisions (whereby the launderer conveys proceeds to other nations and uses them as bank loan collateral which is shifted back to the origin nation), and multiple layers of transactions via offshore shell firms. As financial intermediaries are asked to report suspicious transactions, money launders shift to other sectors, such as misinvoicing in global trade. Furthermore, the trade-

based ML channel is promising due to the large value of transactions and the lack of sophisticated computer software that impedes government authorities from detecting abnormally priced imports and exports.

Vietnam has interesting characteristics in terms of geographical, social, economic, and legal frameworks to attract tainted money. For example, Vietnam is recognized as a mainly cash-based economy bordered by other cash-based nations, including Cambodia, mainland China, and the Lao People's Democratic Republic. Cash is swapped and transferred across Vietnam's border. Moreover, Vietnam is one of the fastest-growing economies in the world, but with a weak legal framework that serves as another determinant of ML. Vietnam has made several efforts to create and enhance its anti-money laundering (AML) regime in line with international standards. In 1999, even though the law documents did not use the term "money laundering" officially, several attempts were made to criminalize ML activities in provisions 250 and 251 of the Penal Code of Vietnam (1999) (Le, 2013; Le, 2014).

Six years later, Vietnam announced the Governmental Decree No. 74/2005/ND-CP that defined the term "money laundering" ("rửa tiền") and provided the legal background for AML. Vietnam became a member of the Asia/Pacific Group (APG) on ML in 2007. In addition, in the amendment to the 1999 Penal Code of Vietnam in 2009, Vietnam criminalized ML ("tội rửa tiền") as an autonomous violation of the law. On top of that, in June 2012, the National Assembly of Vietnam passed the Law on the Prevention and Suppression of Money Laundering No. 07/2012/QH13 (henceforth, LPSML), which came into effect on January 1, 2013.

The LPSML states that all financial institutions must report to the State Bank of Vietnam if they believe, based on compelling evidence, that ML is occurring, and capital from these operations will thereby be frozen. The goal of these requirements is to identify the genres of transactions that will trigger banks, insurance companies, lawyers, and financial institutions to be vigilant and conduct extra checks.

While a huge value of illegal and suspicious capital flux is conveyed in the financial service sector, the manipulation of cross-border trade prices is increasingly used to avoid detection by government authorities. The purpose of this paper is to investigate the influence of Vietnam's AML law on the flow of money from Vietnam to its trading partners via misinvoicing in international trade. The HS2 trade data was collected from the United Nations Commodity Trade Statistics Database (UN Comtrade) from 2000 to 2019. The empirical results show that launching Vietnam's AML law fosters trade misinvoicing. This finding implies that when the governments promulgate the legislation that concentrates on financial intermediaries, money launderers find a new route by using trade-based ML to avoid stricter AML regulations in the financial sector.

The rest of the paper is organized as follows: Section 2 provides the literature review and hypothesis development, Section 3 describes the data and specifies the model, Section 4 provides the empirical results, and Section 5 concludes and provides policy implications.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. Determinants of Trade Misinvoicing

Based on the statistics of bilateral trade among partners, trade misinvoicing is detected through a deviation between the face value of exports or imports, as reported to governmental authorities, and their true value (Berger & Nitsch, 2008; Farzanegan, 2009; Fisman & Wei, 2009). The literature on determinants of trade misinvoicing reveals that this behavior is motivated by either micro- or macro-environmental factors. From the microeconomic perspective, financial benefits obtained from tax evasion are directly linked to this practice (Buehn & Eichler, 2011; Lemaitre, 2019). Moreover, since illegal traders could buy or sell foreign exchange on the black market, the black market premium is also another determinant of misinvoicing (Barnett, 2003; Biswas & Marjit, 2005). In addition, trade misinvoicing is also referred to as a trade-based money laundering mechanism (Umar, 2021).

Specifically, export under-invoicing and import over-invoicing may result from hiding "dirty" money from the government's scrutiny. In addition, the disparity between the domestic price and the tax-included price in the global market may incentivize misinvoicing (Pitt, 1981). The reason is that an exported product cannot sell well, or the

exporter may suffer a loss, if its price in a foreign market is lower than the domestic price. From the macroeconomic perspective, high customs duties and quotas (quantitative restrictions) may motivate firms to understate the official value of imports to either evade tax or gain more profit (Beja, Junvith, & Ragusett, 2005; Boyce & Ndikumana, 2001; De Boyrie, Pak, & Zdanowicz, 2005). As there is a time gap between the time of signing a contract and the time of payment, the expected return of an international trade transaction may largely depend on exchange rate fluctuation and the inflation rate. Those factors, in turn, motivate misinvoicing behavior as a way to defend against loss. In this regard, the macroenvironmental and political instability that may cause uncertainty in the exchange rate and inflation is found to influence misinvoicing practice (Kwaramba, Mahonye, & Mandishara, 2016).

On the other hand, the probability and cost of being detected and punished also act as deterrents to misinvoicing that influences the absolute extent of misinvoicing, rather than whether to misinvoice (Buehn & Eichler, 2011).

2.2. Consequences of the Anti-Money Laundering Law

Money laundering involves sophisticated means and activities aimed at legitimizing the proceeds of illegal transactions while keeping their values (Hendriyetty & Grewal, 2017). The money laundering process, hence, turns "dirty" money into "clean" money by disguising either the actual value or the origins of the assets. Given the negative impacts of money laundering on socio-economic conditions, the financial sector, and government revenue, the AML law is considered an institutional instrument to curtail this behavior. Nevertheless, the consequences of money laundering regulations are still controversial.

From the view of Becker (1976) on crime and punishment, money launderers are rational actors who pursue profit maximization. As a result, an anti-money laundering law would function as a deterrent of money laundering activities by raising costs and making the activity less profitable. As the financial intermediaries play a crucial role in the laundering process, regulations of standardized procedures and clear liability rules applied by a bank or non-bank financial institutions could also increase the probability of catching money launderers and reduce enforcement costs for authorities.

On the contrary, rooted in laws and economics, Coase (1937) and Stigler (1964) hold that the anti-money laundering law targets the wrong subject and may, therefore, be irrelevant or even counterproductive in reducing criminal activities. Specifically, money laundering is only a symptom rather than the cause of illegal activities. Instead, legal tools aimed at regulating criminal activities, and good enforcement by courts, would eventually lead to the reduction of money laundering. In addition, the legal framework on illegal activities also raises reputational concerns for financial institutions that discourage them from facilitating the laundering of dirty money. This further renders anti-money laundering laws ineffective. Moreover, the literature also highlights the costs of anti-money laundering legislation to the financial sector and socio-economic development. Masciandaro (1999) proposed a generalized model to illustrate the negative impact of anti-money laundering laws on bank efficiency in Italy. Moreover, Rahn (2001) argues that anti-money laundering laws even foster other crimes, such as kidnapping, smuggling, and racketeering, due to transparency requirements. The reason is that it becomes harder for honest individuals to hide their assets from kidnappers, criminals, and corruption. This further leads to the growth of the criminal industry and the demand for money laundering (Rahn, 2001).

2.3. Effects of Anti-Money Laundering Law on Trade Misinvoicing

Variants of misinvoicing imply different directions of flows (either funds or values embedded in goods). While funds could be moved between economies via export over-invoicing or import over-invoicing, outflows or inflows embedded in goods could be facilitated by both export under-invoicing and import under-invoicing (Tandon & Rao, 2017). Trade misinvoicing, hence, could function as a money laundering mechanism (Bohoslavsky, 2018; Umar, 2021). While export under-invoicing and import over-invoicing would conceal the illicit financial outflows out of

many economies, export over-invoicing and import under-invoicing may legitimize illicit inflows (Pakhlyan, 2020). This practice is increasingly used to move "dirty" money across economies by facilitating illicit financial flows (GFI, 2019). Given that international payments of cross-border trade are mostly conducted through banks, anti-money laundering legislation, which aims to enhance the transparency of bank transfers and the actual value of negotiable documents, could increase the risks of being detected and the costs of illicit financial flows. This, in turn, may discourage misinvoicing.

Based on the above viewpoints, we propose the following hypothesis:

H1a: Anti-money laundering laws negatively affect trade misinvoicing.

Since the AML law only deals with the symptoms of criminal activities rather than the causes, the application of AML regulations may lead to new criminal acts (Coase, 1937; Rahn, 2001; Stigler, 1964). This, in turn, fuels the sources of "dirty" money and motivates the use of misinvoicing. In this domain, Ferwerda et al. (2013) documented that nations which have stringent AML regulations undergo more trade associated with ML. This may indicate that money launderers have uncovered a new technique of laundering by using trade-based ML to escape from the financial system's stricter AML regulations.

According to the above discussions, we raise the following hypothesis:

H1b: Anti-money laundering laws positively affect trade misinvoicing.

3. DATA DESCRIPTION AND MODEL SPECIFICATION

3.1. Measuring Trade Misinvoicing

We compute trade misinvoicing by using HS 2-digit data from the UN Comtrade. The UN Comtrade database describes bilateral merchandise exports and imports data between trading partners. Based on Patnaik, Sen, and Shah (2012) and Kwaramba et al. (2016), Vietnam's trade misinvoicing is computed by looking at the bilateral export and import data between Vietnam and its trading partners as follows:

$$Xmis_{it} = \sum_{k=1}^{99}(M_{vikt} - cif * X_{vikt}), \quad (1)$$

$$Mmis_{it} = \sum_{k=1}^{99}(M_{ivkt} - cif * X_{ivkt}). \quad (2)$$

Equation 1 measures Vietnam's export misinvoicing in year t, where M_{vikt} refers to imports of country i from Vietnam in year t at sector k as reported by country i; X_{vikt} refers to Vietnam's exports to country i in year t at sector k as reported by Vietnam; *cif* reflects the ratio of cost, insurance and freight (CIF) to the Free on Board (FOB) price. After summing up over the HS2 sectors, a positive value of $Xmis_{it}$ would indicate Vietnam's export under-invoicing in year t. Similarly, a positive value of $Mmis_{it}$ in Equation 2 would reflect import over-invoicing by Vietnam in year t. Lastly, trade misinvoicing is defined as the ratio of the sum of export under-invoicing and import over-invoicing across sectors to country i's GDP, and zero otherwise.

Figure 1 describes the distribution of Vietnam's misinvoicing from 2000 to 2019. It shows that trade misinvoicing was stable from 2000 to 2009, it then sharply increased in 2010 and continued to increase in the following years. Concerning the components of trade misinvoicing, while import over-invoicing is relatively stable, export under-invoicing increases over time, especially after 2011. Moreover, export under-invoicing has surpassed import over-invoicing since 2014.

Figure 2 exhibits the distribution of Vietnam's trade misinvoicing across regions. The left-hand-side panel indicates that Vietnam's trade misinvoicing via countries in East Asia & Pacific is highest, whereas trade

misinvoicing with other regions is similar. We also consider trade misinvoicing at the level data. The right-hand-side panel shows that Vietnam's trade misinvoicing is largest with North America, followed by East Asia & Pacific. Meanwhile, the difference in Vietnam's trade misinvoicing across other regions is not clear. Regarding the components, the relative measure of import over-invoicing is nearly double that of export under-invoicing in the East Asia & Pacific region, whereas the measure at the level data of the former is lower than that of the latter in most regions.

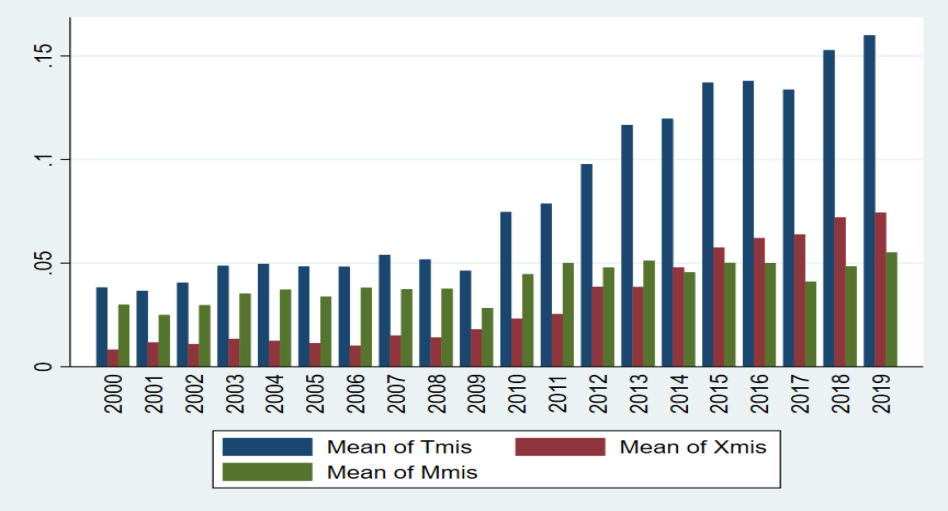

Figure 1. Distribution of trade misinvoicing over years.

Note: Tmis is trade misinvoicing; Xmis is export under-invoicing; Mmis is import over-invoicing.

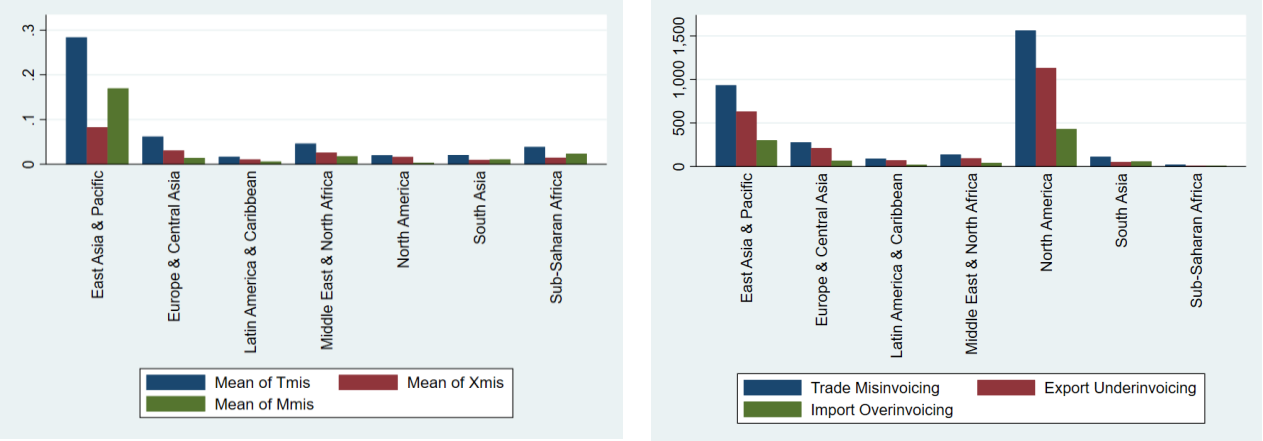

Figure 2. Distribution of trade misinvoicing over regions.

Note: Tmis is trade misinvoicing; Xmis is export under-invoicing; Mmis is import over-invoicing.

3.2. Model Specification

We follow Walker and Unger (2009) and Ferwerda et al. (2013) to apply a gravity model for ML as follows:

$$Tmis_{it} = \beta_0 + \beta_1 VNAML_t + \beta_2 Gravity_{it} + \beta_3 OtherControl_{it} + \alpha_i + \varepsilon_{it}, \quad (3)$$

in which subscript i and t denote country and year, respectively, and α_i reflects the country fixed effect. $Tmis_{it}$ is Vietnam's trade misinvoicing with country i at year t. $Gravity_{it}$ is a set of gravity variables that is common in the literature, including physical distance (D), common colony (*comcol*), common religion (*comrelig*), member of the same free trade area (*rta*), and gross domestic product (GDP).

Physical distance captures the cost to launder money and is expected to have a negative correlation with *Tmis*. Variables *comcol* and *comrelig* reflect the cultural affinity that is viewed as a facilitator of ML. When both countries are members of the same trade block, they are more effective in preventing ML. This set of variables is collected from the Centre d'Études Prospectives et d'Informations Internationales (CEPII).

Based on the current literature, we also incorporate other control variables, $OtherControl_{it}$ (Buehn & Eichler, 2011; Kwaramba et al., 2016; Patnaik et al., 2012). The degree of capital account liberalization (*kaopen*) is a factor that is expected to hinder capital flight by decreasing market distortions. In a country with an open capital account, ML mainly occurs through the capital account rather than trade misinvoicing. We obtained *kaopen* from (Chinn & Ito, 2006).

A country with a severe current account deficit suffers capital flight due to the consequence of the appropriation of private assets. The ratio of the current account to GDP *(CAGDP)* was obtained from the World Bank database. ML is likely to happen in countries that have low levels of political stability as citizens look for a way to mitigate the risk of asset nationalization and future portfolio losses. The political stability index (*Political*) was taken from the Political Risk Services database. We also control for inflation (*Inflation*) and exchange rate (*EX*), which were obtained from World Bank database.

The data is cleaned by dropping the missing observations and winsorizing the outliers. This gives 1103 observations from 109 countries. Table 1 reports the statistical description of the variables.

Table 1. Statistical summary.

Variable	Abbrev.	Count	Mean	S.D.	Min.	Max.
Trade misinvoicing	*Tmis*	1103	0.08	0.27	0.00	2.15
Introduction of Vietnam's AML law	*VNAML*	1103	0.33	0.47	0.00	1.00
Capital account liberalization	*kaopen*	1103	0.70	1.52	-1.92	2.33
Ratio of current account to GDP	*CAGDP*	1103	-0.30	8.21	-37.61	44.62
Natural logarithm of exchange rate	*LnEX*	1103	2.78	2.65	-2.43	9.50
Inflation	*Inflation*	1103	5.13	7.74	-3.69	168.62
Political stability index	*Political*	1103	-0.04	0.93	-2.81	1.62
Gross domestic product	*GDP*	1103	0.71	2.14	0.00	19.52
Physical distance	*D*	1103	8.78	0.87	5.86	9.87
Common colony	*comcol*	1103	0.09	0.29	0.00	1.00
Common religion	*comrelig*	1103	0.01	0.01	0.00	0.04
Member of the same free trade area	*rta*	1103	0.17	0.38	0.00	1.00

Our main explanatory variable, *VNAML*, is the introduction of the LPSML in June 2012 that came into effect on January 1, 2013. *VNAML* takes a value of 1 after 2012, and 0 otherwise. Table 2 shows that the average value of *Tmis* in the post-2012 period is greater than that in the previous period, and this result holds for the whole sample.

Table 2. Difference in trade misinvoicing before and after the introduction of LPSML.

Period	Variable	VNAML = 0	VNAML = 1	Diff.	T-test (p-value) Ho: Diff > 0
2000–2019	Tmis	0.07	0.11	0.04	0.00
2010–2015	Tmis	0.08	0.11	0.032	0.01
2011–2013	Tmis	0.10	0.11	0.01	0.04

4. EMPIRICAL RESULTS

Table 3 reports the benchmark results of the regression of Equation 3. We report the estimation results for the whole sample in columns (1) and (2). In column (2), the country fixed effects are used to control the factors that are specific to each trading partner but are invariant over time. It can be seen that the introduction of Vietnam's AML law raises the amount of capital outflows from Vietnam via trade. The coefficient of *VNAML* in both columns is

positive and statistically significant at 5%. In detail, the enactment of Vietnam's AML law leads to 4% of trade misinvoicing. This result supports hypothesis H1b. The potential interpretation is that, as the new law only influences the financial sector, money launderers can use the commodity trade to convey income from Vietnam to the rest of the world. This finding is aligned with De Boyrie et al. (2005), who studied the effect of Switzerland's AML law on capital flows from Switzerland to the US.

Concerning the other explanatory variables, the negative sign and statistical significance of *CAGDP* imply that the current account deficit fosters capital flight through trade. One possible explanation is that when countries suffer a current account deficit, the governments are more likely to devaluate the domestic currency and thereby disincentivize investment in domestic assets. As a consequence, investors find alternative ways to acquire foreign assets. Physical distance and cultural affinity play a role in orienting the false invoicing trade. The physical distance hinders trade misinvoicing as it is costly and riskier when shipping goods to destinations that are further away. Having colonial ties and a common religion nurture trade-based ML as cultural closeness can reduce information asymmetry and connect criminals in different countries. These findings are consistent with Unger and Busuioc (2007). The effects of other variables, including capital account liberalization, exchange rate, inflation, political stability, GDP, and common rta, are muted.

Table 3. Estimation results: Whole sample.

Variable	(1) Tmis	(2) Tmis
VNAML	0.04**	0.04**
	(0.019)	(0.019)
kaopen	0.04	0.04
	(0.027)	(0.034)
CAGDP	-0.00**	-0.00**
	(0.001)	(0.001)
LnEX	0.01	0.02
	(0.007)	(0.018)
Inflation	0.00	0.00
	(0.001)	(0.001)
Political	0.03	0.03
	(0.019)	(0.031)
GDP	0.00	0.00
	(0.003)	(0.004)
D	-0.22***	
	(0.064)	
comcol	0.28**	
	(0.113)	
comrelig	3.97**	
	(1.586)	
rta	-0.00	-0.01
	(0.016)	(0.018)
Constant	1.85***	-0.01
	(0.525)	(0.064)
Observations	1,103	1,103
R-squared	0.544	0.070
Number of partners	109	109
Country fixed effects	No	Yes

Note: Robust standard errors are in parentheses.
*** p < 0.01, ** p < 0.05.
VNAML: introduction of Vietnam's AML law; kaopen: capital account liberalization; CAGDP: ratio of current account to GDP; LnEX: natural logarithm of exchange rate; GDP: gross domestic product; D: physical distance; comcol: common colony; comrelig: common religion; rta: member of the same free trade area.

Even though the fixed country effect is used to control the unobservable time-invariant factors, our estimation results may suffer from bias caused by unobservable time-varying factors. The application of event studies is useful to quantify the immediate effect of the event within a short horizon. We use narrow horizons to isolate the effect of

the introduction of the AML law from other factors. The estimation results are reported in Table 4. The main finding is robust in terms of sign and significance level, but the magnitude of the *VNAML* shrinks in the narrower samples. Moreover, the effects of financial account liberalization and political stability become statistically significant as expected.

Table 4. Estimation results: Subsample.

Variable	(1) 2010–2015	(2) 2011–2014
VNAML	0.02**	0.01**
	(0.010)	(0.007)
kaopen	0.02*	0.02**
	(0.012)	(0.010)
CAGDP	-0.00	-0.00**
	(0.001)	(0.002)
LnEX	0.00	0.00
	(0.006)	(0.006)
Inflation	0.00	-0.00
	(0.001)	(0.001)
Political	0.04**	0.03*
	(0.018)	(0.015)
GDP	0.00	0.00
	(0.003)	(0.005)
D	-0.26***	-0.30***
	(0.078)	(0.083)
comcol	0.34**	0.37***
	(0.135)	(0.135)
comrelig	5.56**	6.91***
	(2.213)	(2.611)
rta	-0.02	-0.03
	(0.030)	(0.037)
Constant	2.26***	2.54***
	(0.661)	(0.700)
Observations	433	290
R-squared	0.594	0.606
Number of partners	97	88
Country fixed effects	No	No

Note: Robust standard errors are in parentheses.
*** p < 0.01, ** p < 0.05, * p < 0.1.
VNAML: introduction of Vietnam's AML law; kaopen: capital account liberalization; CAGDP: ratio of current account to GDP; LnEX: natural logarithm of exchange rate; GDP: gross domestic product; D: physical distance; comcol: common colony; comrelig: common religion; rta: member of the same free trade area.

Finally, we consider the effects of the enactment of the LPSML on export under-invoicing and import over-invoicing. The estimation results are shown in Table 5. The coefficient of *VNAML* is statistically significant at 1% only in the regression on *Xmis*. This means that the introduction of the AML law encourages exporters to find a new way of laundering money by using exporting to escape the restrictive AML law of the financial sector. One possible explanation is that, as Vietnam has implemented an export-oriented policy to develop its economy, the detection of export activities is loosely relative to that of import activities.

Table 5. Regression results on export under-invoicing and import over-invoicing.

Variable	(1) Xmis	(2) Mmis
VNAML	0.03***	0.02
	(0.009)	(0.034)
kaopen	0.01**	0.05
	(0.002)	(0.038)
CAGDP	-0.00**	-0.00
	(0.000)	(0.001)
LnEX	-0.00	0.01
	(0.002)	(0.008)
Inflation	0.00	0.00
	(0.000)	(0.001)
Political	0.01**	0.05
	(0.004)	(0.029)
GDP	0.00	-0.00
	(0.002)	(0.005)
D	-0.07***	-0.24**
	(0.018)	(0.094)
comcol	0.05*	0.37**
	(0.028)	(0.161)
comrelig	1.36***	4.33**
	(0.435)	(2.177)
rta	-0.00	-0.01
	(0.011)	(0.028)
Constant	0.57***	2.00**
	(0.150)	(0.778)
Observations	1,103	1,103
R-squared	0.285	0.395
Number of partners	109	109
Country fixed effects	NO	NO

Note: Robust standard errors are in parentheses.
*** p < 0.01, ** p < 0.05, * p < 0.1.
VNAML = introduction of Vietnam's AML law; kaopen = capital account liberalization; CAGDP = ratio of current account to GDP; LnEX = natural logarithm of exchange rate; GDP = gross domestic product; D = physical distance; comcol = common colony; comrelig = common religion; rta = member of the same free trade area.

5. CONCLUSION AND POLICY IMPLICATIONS

Combating money laundering is pivotal for society. However, an assessment of the impacts of AML policies is impeded by the lack of data. This paper applies the measurement of money laundering through trade misinvoicing. We then investigate the effect of the enactment of Vietnam's LPSML on January 1, 2013, on the flow of false invoicing. The results reveal evidence that there is an increase in the volume of trade-based capital flight from Vietnam. The empirical results further support the hypothesis that the introduction of the money laundering law caused an increase in misinvoicing during the 2000–2019 period. As the new law only targets Vietnam's financial sector and does not pay enough attention to the trade sector, firms or individuals find it easier to transfer capital either legally or illegally through trade without being detected. Hence, the Vietnam government should promulgate AML regulations focused on the trade sector. In addition, as the introduction of the AML law significantly affects export under-invoicing, the Vietnam authorities should pay more attention to export activities.

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