

The Internalization Benefits of Transfer Price Manipulation

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Abstract

The ability to arbitrage differences in government policies through transfer price manipulation (TPM) is a key benefit of internalizing cross-border transactions for multinational enterprises.

Empirical work has focused on tax-motivated income shifting; little has been done on how product characteristics and market structures affect TPM.

Using transaction-level US import data, we find direct evidence of aggressive transfer pricing in response to both market and government imperfections.

I. Introduction

Multinational enterprises (MNEs) choose whether to trade their intermediate and final goods through external (arm's length) or internal (intrafirm) markets.

The international business literature argues that **MNEs choose internal over arm's length trade when transaction costs are high due to missing or imperfect markets** (Buckley and Casson, 1976); that is, when there are:

- Missing futures markets
- bilateral monopoly
- buyer uncertainty
- restrictions on price discrimination
- differences in government regulations.**

Transfer pricing is the setting of prices for internal (intrafirm) transactions in goods, services, intangibles and capital flows within the MNE.

Transfer price manipulation (TPM) is the strategic setting of transfer prices above or below opportunity cost so as to avoid (but not evade, since evasion is illegal) government controls and/or arbitrage differences in regulations between countries (Horst, 1971; Eden, 1998).

The ability to arbitrage through TPM is Buckley and Casson's fifth motivation for internalization.

The authors identify transfer price manipulation as one of the key benefits from internalization, and hypothesize that (p. 44):

*the exploitation of transfer pricing depends not only on the **nature of the product** and the **structure of the external market**, but also on the **characteristics of the fiscal systems** in the various regions linked by the market.*

Most transfer pricing scholars have focused on the latter half of this quote (i.e., differences in fiscal systems and income shifting by MNEs). **Little or no work has been done on the linkages between product characteristics, market structure and TPM.**

Examining the **effects of both governments and markets** as incentives for manipulating transfer prices is the raison d'être for this paper.

We test our hypotheses on a confidential dataset from the **US Bureau of Labor Statistics (BLS)** of **260,079** monthly **US merchandise import transactions** from **116** countries, for the time period **June 1998 to March 2000**.

Our **results** provide strong support for the argument that **both markets and governments affect the incentives to internalize markets and engage in transfer price manipulation**.

Our paper also provides the **first empirical evidence** of how market structure and product characteristics can affect MNE aggressiveness in transfer pricing.

Based on these results, we argue that **transfer pricing is a dynamic capability for multinationals** (Teece, Pisano and Shuen, 1997), and that linking insights from the strategic management and transfer pricing literatures should provide a fruitful direction for new research.

II. Literature Review: Empirical Studies of TPM

Income shifting studies that provide indirect evidence of TPM (Bartlesmann and Beetsma, 2000; Grubert and Slemrod, 1998; Grubert and Mutti, 1991; Harris et al., 1993; Hines and Rice, 1990).

Over/underinvoicing studies that compare intrafirm prices to external import or world prices (Vaitsos, 1974; Natke, 1985; Lecraw, 1985; Pak and Zdanowicz, 1994; Swenson, 2001).

Testing TPM on a dataset with both intrafirm and arm's length transactions (Bernard and Weiner, 1990, 1992, 1996; Bernard and Genest-Laplante, 1996; Clausing, 2003).

Our conclusions based on literature review:

Evidence for TPM exists but is not overwhelming.

Most evidence has been by inference from income-shifting studies.

Most product-level studies are case studies, often done years before government transfer pricing regulations were well developed.

Rigorously separating the effects of product and country characteristics from government regulations has not been done.

The small number of empirical studies is not surprising given the fine-grained (individual transactions identified as related party or arm's length) and highly confidential nature of the data needed to test the internalization benefits of transfer price manipulation.

A fresh look at an old issue is required.

III. THEORY DEVELOPMENT

III.A. Markets and Transfer Price Manipulation

We hypothesize that three market factors affect TPM:

If **external market prices** are unlikely to exist or difficult to find transfer price manipulation should be encouraged.

Certain **product characteristics**, such as knowledge intensity, provide more opportunities for TPM.

The **degree of market concentration** may provide an opportunity for large MNEs to exercise market power and engage in TPM.

H1: TPM should be more frequent where **external markets do not have organized exchanges or reference prices.**

H2: The higher the **knowledge-intensity of the product**, the greater the incentive to engage in TPM.

H3a: **The more important the product is to the firm**, the more flexibly should IFT respond to exogenous shocks compared to arm's length trade (the price elasticity of import demand is higher for IFT).

H3b: **Firm size should be positively related to TPM**; that is, large MNEs are more likely than small MNEs to engage in TPM.

III.B. Government Policy and Transfer Price Manipulation

Based on previous theoretical and empirical work, we expect (1) differences in corporate tax rates, (2) ad valorem tariffs, (3) political risk, and (4) foreign exchange controls to encourage TPM. That is:

H4: If the **corporate income tax rate in the exporting country is lower than in the importing country**, the MNE should overinvoice intrafirm exports and underinvoice intrafirm imports in order to **shift profits to the lower taxed location**; and vice versa if the tax rate is higher in the exporting country.

H5: The **greater the extent of ring fencing** in a country, the **greater the incentive to use transfer price manipulation** to shift profits to the ring-fenced zone.

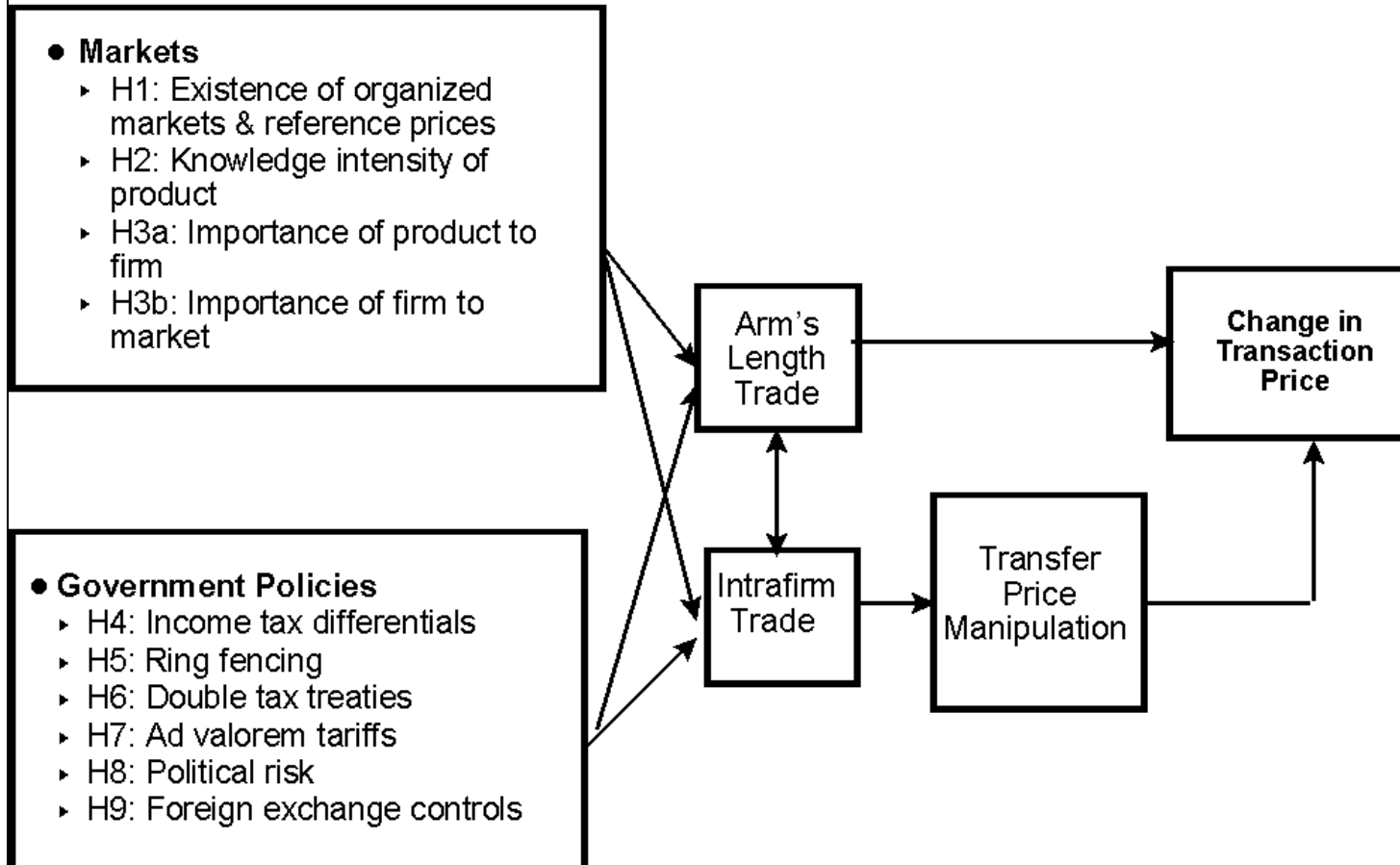
H6: The presence of a **double tax treaty has confounding effects** on transfer price manipulation, **except when the foreign country is a low-tax location (tax haven)** where we expect more income **shifting** through TPM.

H7: **Ad valorem tariffs encourage underinvoicing of intrafirm imports**, ceteris paribus, but the effect is reduced if the foreign CIT rate is lower than the importing country's rate.

H8: High levels of **political risk** should cause MNEs to under (over) underinvoice intrafirm exports (imports) in order to **shift profits to safer locations**.

H9: If a host country imposes **foreign exchange (FX) controls restricting profit remittances**, the MNE should underinvoice outbound transactions and overinvoice inbound transactions as an alternative means of repatriating profits through income shifting; however, if the government applies **FX controls as a tax on all crossborder transactions**, the MNE should underinvoice both in- and out-bound transactions.

Figure 1: The Internalization Benefits of Transfer Price Manipulation



IV. Research Methodology

IV.A. Regression Equation

In summary, we argue that the ability to manipulate transfer prices is an internalization benefit for MNEs. **TPM is a strategic response to arbitrage opportunities from incomplete globalization.** These opportunities are of two types: **differences in government policies and differences in product characteristics and industry structures.**

We test equation (1) where **P_{ijkt} is the transaction price of product i imported by firm j from country k at time t .**

$$P_{ijkt} = \text{CONTROLS} + \text{IFT} + \theta \text{ MARKET} + \text{POLICY} + \gamma \text{ IFT} * \text{ MARKET} + \psi \text{ IFT} * \text{ POLICY} + \quad (1)$$

Our specification in equation (1) assumes that:

IFT (intrafirm trade dummy variable)

MARKET (vector of product characteristics & market structure variables)

POLICY (vector of government policy variables)

each **directly** affects the transaction price P_{ijkt} and that

IFT moderates the relationship between **POLICY, MARKET** and

P_{ijkt} .

Variables are natural logs so the coefficients are price elasticities.

IV.B. The BLS Import Price Data

Our basic dataset is confidential price data for US merchandise import transactions from the US Bureau of Labor Statistics, for June 1998 to March 2000.

The data come from a voluntary survey of approximately 8,000 companies engaged in US trade (Alterman, Diewert & Feenstra, 1999; BLS, 1997).

Each item (an import or export transaction by a firm) in the dataset has a unique identifier number. Items aggregate into **classif** groups that correspond to TSUSA product-level codes, and **classif** groups aggregate into three-digit SITC Revision 3 groups. Thus, items are nested in **classif** groups, which are nested in **3-digit SITC** groups.

Firms report **actual import prices for the item, by month,** identifying the **country of export** and **whether the transaction was at arm's length or between related parties.**

Our BLS import prices dataset consists of:

- 260,079 US import transactions
- 116 foreign countries
- 19,434 items
- 3,652 companies and
- 2,942 classification codes.

Variables

Dependent Variable: LNPNX, the natural log of the import price P_{ijkt} of item i imported by company j from country k at time t , as our dependent variable.

Control Variables

LINK (0=NO LINK): BLS DV for quality adjustment.

PXFLAG (0=no imputation): BLS DV for imputed prices.

LNEXRATE, the monthly natural log of US-dollar-equivalent exchange rate.

INVOICEUS: DV for invoicing currency (1=invoiced in US dollars).

LNCIF: $\ln(1 - d)$ where D is distance costs as % of import price.

COUNTRY DUMMY VARIABLES.

INDUSTRY DUMMY VARIABLES.

Intrafirm Trade: 0 = arm's length trade (ALT); 1 = intrafirm trade (IFT).

Market Variables.

RAUCH (0= organized exchange, 1= reference prices, 2=differentiated).

DV for MFGLMT (low-medium tech manufacturing) and MFGHT (high-tech manufacturing).

LNWTITCO: the natural log of the relative importance of item i to company j in classif group m .

LNWTITEM: the natural log of the absolute size of firm j within the market for item i .

LNWTCOCLS: the natural log of the relative importance of firm j as an importer in classif m (measure of monopsony bargaining power).

Policy Variables

LNTAXMIN: natural log of 1 minus the minimum statutory foreign corporate tax rate, $\ln(1 - t_x)$, where t_x is the exporting country's CIT rate.

LNTAXGAP: foreign ring fencing, measured by gap between the minimum and maximum CIT rates, $\ln(t_x^{\max} - t_x^{\min})$, including withholding taxes.

TREATY: DV for double tax treaty with the United States (1=yes, 0=no).

LNTARIFF: Natural log of tariff rate, $\ln(1 - \tau)$.

LNPOLRSK: Natural log of ICRG country risk ratings.

FXCNTRL: DV for foreign exchange controls (0=no controls, 1=minimal, 2=high controls).

Regression Methods

With large N and small T, and large number of dummy variables, we use **AREG, ROBUST** regression technique with **White-corrected standard errors in STATA 6.0.**

AREG permits a categorical variable to be **ABSORBED** in the regressions.

We absorb **COMPANY**, which creates a vector of 3,652 dummy variables, enabling us to control for the key variable influencing product price.

AREG allows us to **CLUSTER** a second variable where the observations are independent across groups, but not necessarily independent within groups. We use **ITEM** (n=19,434) as a cluster variable.

We also use **21 monthly time dummies** to control for variation across time periods (dropping the first month).

All regressions in the paper are therefore clustered on ITEM and include dummy variables for COMPANY and MONTH. The impact of clustering by item i with dummy variables for $j - 1$ firms is to create **item-company pairs, recognizing that transactions are not independent; firms buy the same product repeatedly from the same suppliers in the same markets.**

Clustering and absorption also reduce the size of the t-statistics and raise the adjusted R squared. Given our huge N , without clustering and absorption, all variables are significant at $p < .001$, but regressions have little power.

AREG ROBUST (CLUSTERED) REGRESSION RESULTS #1

LNPX	Hyp	Sign	1	2M	2P	2MP
IFT			0.207 *	0.164 †	0.194 *	0.152 †
RAUCH	H1	+		0.372 **		0.368 **
MFGLMT	H2	+		0.811 *		0.783 *
MFGHT	H2	+		0.672 **		0.642 *
LNWTITEM	H3a	-		0.13 ***		0.129 ***
LNWTITCO	H3a	-		-0.204 ***		-0.207 ***
LNWTISCOCLS	H3b	-		0.016 *		0.016 *
LNTXMIN	H4	+			1.000 **	1.005 **
LNTXGAP	H5	-			-2.024 †	-1.897 †
TREATY	H6	+			0.466 ***	0.47 ***
LNTARIFF	H7	+			-0.093	-0.576
LNPOLRSK	H8	-			-0.261 **	-0.256 **
FXCNTRL	H9	-			0.111 *	0.105 *
CONTROL VARIABLES (NOT SHOWN)						
ADJ R SQ			0.7306	0.7346	0.7311	0.7352
F			7.35 ***	9.38 ***	7.32 ***	9.06 ***
Δ F DIST				22.92 ***	5.81 ***	6.08 ***
				2M v 1	2P v 1	2MP v 2M
						22.95 ***
						2MPv2P

REGRESSION RESULTS – INTERACTION EFFECTS

LNPX	Hyp	Sign	3M	3P	3MP
IFT			-1.282 ***	0.987	-0.244
RAUCH	H1	+	0.06		0.03
MFGLMT	H2	+	1.131 **		1.192 **
MFGHT	H2	+	0.864 **		0.9 **
LNWTITEM	H3a	-	0.074 **		0.073 **
LNWTITCO	H3a	-	-0.124 ***		-0.123 ***
LNWTCOCLS	H3b	-	0.029 **		0.028 **
LNTXMIN	H4	+		0.392	0.417
LNTXGAP	H5	-		-0.182	-0.045
TREATY	H6	+		0.345 ***	0.341 ***
LNTARIFF	H7	+		0.973	0.785
LNPOLRSK	H8	-		-0.21 *	-0.192 *
FXCNTRL	H9	-		0.128 **	0.125 **

(rest of regression reported on next slide)

IFT*RAUCH	H1	+	0.677 ***		0.765 ***
IFT*MFGLMT	H2	+	-0.588		-0.877 *
IFT*MFGHT	H2	+	-0.309		-0.5 *
IFT*LNWTITEM	H3a	-	0.115 **		0.116 **
IFT*LNWTITCO	H3a	-	-0.159 ***		-0.166 ***
IFT*LNWTCOCLS	H3b	-	-0.022 *		-0.018
IFT*LNTXMIN	H4	+		1.909 **	2.037 **
IFT*LNTXGAP	H5	-		-6.543 **	-6.769 **
IFT*TREATY	H6	+		0.359 *	0.447 **
IFT*LNTARIFF	H7	+		-4.63 *	-5.866 **
IFT*LNPOLRSK	H8	-		-0.042	-0.118
IFT*FXCNTRL	H9	-		-0.171 †	-0.153 †
ADJ R SQ			0.7355	0.7316	0.7367
F			9.03 ***	7.02 ***	8.51 ***
Δ F DIST			5.41 ***	4.51 ***	5.64 ***
			3M v 2M	3P v 2P	3MP v 2MP
					5.53 ***
					3MP v 3M
					6.13 ***
					3MP v 3P
CHOW TEST			4.97 ***	4.97 ***	5.62 ***

Subgroup Analysis - Intrafirm v Arm's Length Trade

	ALL	IFT ONLY	ALT ONLY
LINK			+
PXFLAG	+		+
LNEXRATE	+	+	
INVOICEUS	-	-	
LNCIF			
IFT	+	d	d
RAUCH	+	+	
MFGLMT	+		+
MFGHT	+		+
LNWTITEM	+	+	+
LNWTITCO	-	-	-
LWTCOCLS	+		+
LNTXMIN	+	+	
LNTXGAP	-		
TREATY	+	+	+
LNTARIFF		-	+
LNPOLRSK	-		-
FXCNTRL	+	+	
CONTROL VARIABLES (NOT SHOWN)			
OBS	260079	107809	152270
ADJ RSQ	.7352	.7155	.7941

Subgroup Analysis – Multinationals v Non-multinationals

	ALL	MNES	NON-MNES
LINK			+
PXFLAG	+		+
LNEXRATE	+	+	
INVOICEUS	-	-	-
LNCIF			
IFT	+		d
RAUCH	+	+	
MFGLMT	+	+	
MFGHT	+	+	
LNWTITEM	+	+	
LNWTITCO	-	-	-
LWTCOCLS	+		+
LNTXMIN	+	+	
LNTXGAP	-		
TREATY	+	+	
LNTARIFF			
LNPOLRSK	-		-
FXCNTRL	+	+	
CONTROL VARIABLES (NOT SHOWN)			
OBS	260079	137564	122515
ADJ RSQ	.7352	.6809	.8145

Subgroup Analysis – Big Firms v Small Firms

	ALL	BIG FIRMS	SMALL FIRMS
LINK			+
PXFLAG	+		
LNEXRATE	+	+	
INVOICEUS	-	-	
LNCIF		+	
IFT	+		
RAUCH	+	+	
MFGLMT	+		
MFGHT	+		
LNWTITEM	+	+	
LNWTITCO	-	-	-
LWTCOCLS	+	+	
LNTXMIN	+	+	+
LNTXGAP	-		-
TREATY	+	+	+
LNTARIFF			
LNPOLRSK	-	-	-
FXCNTRL	+	+	+
CONTROL VARIABLES (NOT SHOWN)			
OBS	260079	130056	130023
ADJ RSQ	.7352	.8116	.7470

Subgroup Analysis – Rauch Differentiated v Organized Exchanges

	ALL	DIFFERENTIATED PROD	ORGANIZED EXCHANGES
LINK		+	-
PXFLAG	+		
LNEXRATE	+	+	+
INVOICEUS	-	-	
LNCIF		+	
IFT	+	+	
RAUCH	+	+	
MFGLMT	+	+	d
MFGHT	+	+	
LNWTITEM	+	+	+
LNWTITCO	-	-	
LWTCOCLS	+	+	
LNTXMIN	+	+	+
LNTXGAP	-	-	
TREATY	+	+	
LNTARIFF			
LNPOLRSK	-	-	
FXCNTRL	+	+	
CONTROL VARIABLES (NOT SHOWN)			
OBS	260079	210221	49858
ADJ RSQ	.7352	.7400	.7560

Subgroup Analysis - High-Tech v Low-Tech Mfg

	ALL	HIGH TECH MFG	LOW-MIDDLE TECH MFG
LINK			
PXFLAG	+	+	+
LNEXRATE	+	+	
INVOICEUS	-	-	
LNCIF		+	
IFT	+	+	
RAUCH	+	+	d
MFGLMT	+	d	d
MFGHT	+	d	d
LNWTITEM	+	+	
LNWTITCO	-	-	
LWTCOCLS	+	+	
LNTXMIN	+	+	
LNTXGAP	-	-	
TREATY	+	+	
LNTARIFF		-	+
LNPOLRSK	-	-	
FXCNTRL	+	+	
CONTROL VARIABLES (NOT SHOWN)			
OBS	260079	213823	13786
ADJ RSQ	.7352	.7322	.8701

Subgroup Analysis – High-Tax v Low-Tax Intrafirm Trade

	ALL	IFT & HIGH TAX	IFT & LOW TAX
LINK			
PXFLAG	+		-
LNEXRATE	+		
INVOICEUS	-		
LNCIF		+	+
IFT	+	d	d
RAUCH	+	+	+
MFGLMT	+		
MFGHT	+		
LNWTITEM	+	+	+
LNWTITCO	-	-	-
LWTCOCLS	+		
LNTXMIN	+		
LNTXGAP	-	+	
TREATY	+	d	
LNTARIFF			-
LNPOLRSK	-		
FXCNTRL	+	+	
CONTROL VARIABLES (NOT SHOWN)			
OBS	260079	57158	24229
ADJ RSQ	.7352	.6965	.8176

VI. DISCUSSION AND CONCLUSIONS

While previous researchers have investigated the effects of government policies on transfer prices, to our knowledge, **our paper is the first to examine the relationship between market structure, product characteristics and transfer price manipulation (TPM).**

Our empirical results show that **Buckley and Casson were right – the ability to manipulate transfer prices in response to government regulation can be a powerful motive for internalizing crossborder markets.**

Governments *and* markets together generate internalization benefits of transfer price manipulation.

In terms of markets, we found:

TPM is more likely when products are differentiated, that is, when organized exchanges and reference prices do not exist.

TPM is more likely for knowledge-intensive products such as high-tech manufactured goods.

IFT responds more flexibly to import shocks than does arm's length trade as the importance of the input to the buyer rises.

Size matters; **large MNEs are more likely than small MNEs to engage in TPM.**

In terms of governments, we found:

Corporate tax differentials encourage transfer price manipulation.

The combination of the tax differential and the tariff matters. Where foreign CIT rates are lower than US rates, the MNE underinvoices US imports in order to shift profits offshore, and the US tariff simply accentuates this underinvoicing. On the other hand, where foreign CIT rates are higher than US rates, the MNE is faced with a tradeoff: overinvoicing reduces overall tax payments but increases tariff costs.

Tax treaties, by providing security against aggressive tax authorities, **encourage overinvoicing of US intrafirm imports.**

Political risk was negative and significant for all transactions. The interaction terms with IFT were not significant. In the subgroup analyses, political risk appears to be an important negative influence on prices for arm's length transactions, non-MNEs, and for differentiated and knowledge-intensive products.

Contrary to expectations, FX controls appear to encourage higher US import prices. While the negative interaction terms with IFT suggest that MNEs underinvoice intrafirm transfers in order to shift profits out of countries with FX controls, the subgroup analysis results are more mixed.

Implications of our study?

What is the “next frontier” in transfer pricing research?

Ghemawat (2003) theorized that firms can add value through cross-border operations under incomplete integration through **arbitrage (exploiting differences across countries)** and **integration (exploiting similarities across countries)**. **TPM is arbitrage (exploiting differences in policies and markets across countries)**. Therefore, TPM should provide value to the cross-border operations of multinationals, particularly for large MNEs that can take advantage of multiple markets and multiple borders.

Since organizational and managerial processes are key to building the MNE's dynamic capabilities (Teece, Pisano and Shuen, 1997), we argue that **managing transfer pricing decisions should be seen as a dynamic capability for the MNE.** Multinationals with more expertise at managing intrafirm transactions and transfer pricing should achieve **better performance** than MNEs without these capabilities. Three different capabilities are needed: (1) **information gathering, (2) balancing internal and external motivations for setting transfer prices, and (3) handling agency problems** in implementing a transfer pricing strategy within the MNE. Linking the dynamic capabilities approach with TPM suggests a fruitful research direction.

Our research could be extended in several ways:

Longer time period.

Use US export data instead of US import data.

Analyze US cross-border transactions with particular countries (e.g., Japan, China, Canada, Mexico) or industries (e.g., autos, steel) where IFT is large.

If the BLS firm ID-code numbers could be linked to BEA, IRS or Compustat CUSIP numbers, measures for firm characteristics and resources could be added, enabling better tests of the factors affecting TPM aggressiveness and the impacts on firm performance.

In conclusion,

we have examined the **effects of governments and markets on the MNE's incentive to internalize transactions in order to manipulate transfer prices.**

Using monthly BLS transaction-level data for US merchandise imports, together with a large country-level database, we showed that **both markets and governments can induce TPM.** This suggests that managing transfer pricing can be a dynamic capability for the MNE. **Strategic transfer pricing** -- transfer pricing through the “lens” of strategic management theory – should be the **next step for analyzing the internalization benefits of transfer price manipulation.**

THE END

I WELCOME YOUR COMMENTS

AND SUGGESTIONS

FOR WAYS TO IMPROVE THIS PAPER AND

EXTEND THIS RESEARCH.