

# Is finance a binding constraint for SME participation in trade?

Evidence from 8,080 Asian Firms

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# Structure of talk

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1. Context and outline of study
2. Framework for the study
3. Macro Trends - finance, SMEs and trade
4. Firm level microeconomic results
5. Conclusions and implications

# 1.

## Context and outline of study

- Recent experience shows finance-trade link
  - Great trade collapse after the global financial crisis highlights finance-trade link
  - Trade recovery, to some degree, due to massive monetary and fiscal stimulus
  - Developing countries in Asia exporting their way back to growth
- Worthwhile exploring trade-finance nexus in Asia and its implications for SMEs – crucial for inclusive growth

# Outline of study on finance-trade link

- Draw on body of trade, industrial organization and finance literature emphasizing firm heterogeneity
- Focus: inter-relationships between finance, trade and other firm characteristics
- Large, recent World Bank dataset
  - 6 economies (PRC, Malaysia, Thailand, Philippines, Indonesia & Vietnam) and many sectors
  - Covers 8,080 randomly selected firms

# 2.

## Framework for the study

### Macroeconomic links

- Finance and economic growth
  - Finance—by channeling savings to entrepreneurs and allowing risk sharing—improves chances of successful innovation, thereby accelerating growth (King & Levine, *JME*, 1993)
- Trade and finance are linked
  - 2007 Financial crisis associated with sharp declines in global GDP and trade volume (Baldwin, 2009)
    - Tightened credit conditions during crisis may have discouraged some trade transactions from taking place
  - Two-way feedback: Financially developed economies have higher export shares, yet exports also determine which industries a country needs more working capital for (*JIE*, 2002; *JFE*, 2007)

# Microeconomic evidence

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- New new trade theory (Melitz 2003) emphasizes firm heterogeneity:
  - ✓ Differences between firms + considerable sunk costs of exporting = only some firms will be productive enough to export
- Firms with better access to finance tend to self-select as exporters AND continue to export (Bernard & Jensen, 2004; Bellone et al., 2010)
- Foreign ownership, skills, technology, age etc also matter for exporting (Wilmore, 1992, Rasiah, 2004; Srinivasan and Archana, 2011)

# Firm Size and Exports

- Most studies assume that large firms are more competitive than SMEs in exports (Zhao and Li, 1997, van Dijk, 2002)
  - ✓ Large firms have more resources to meet fixed costs of exporting
  - ✓ Scale economies means large firms have lower average and marginal costs
- Apart from scale economies, SMEs are at a disadvantage in exporting because of:
  - ✓ Relative resource constraints (finance, skills technology and networks/marketing)
  - ✓ Suffer disproportionately from market imperfections and regulations

# Econometric modeling

- Baseline regression:

$$y_{it} = X'_{it}\beta + \varepsilon_{it}$$

Where  $i = \text{firm}$ ,  $t = \text{year}$

$y = \text{export participation}$

$X = \text{firm characteristics}$

Firm characteristics (Controls): age, foreign ownership, patent ownership, foreign license, worker education, having audited financial statements

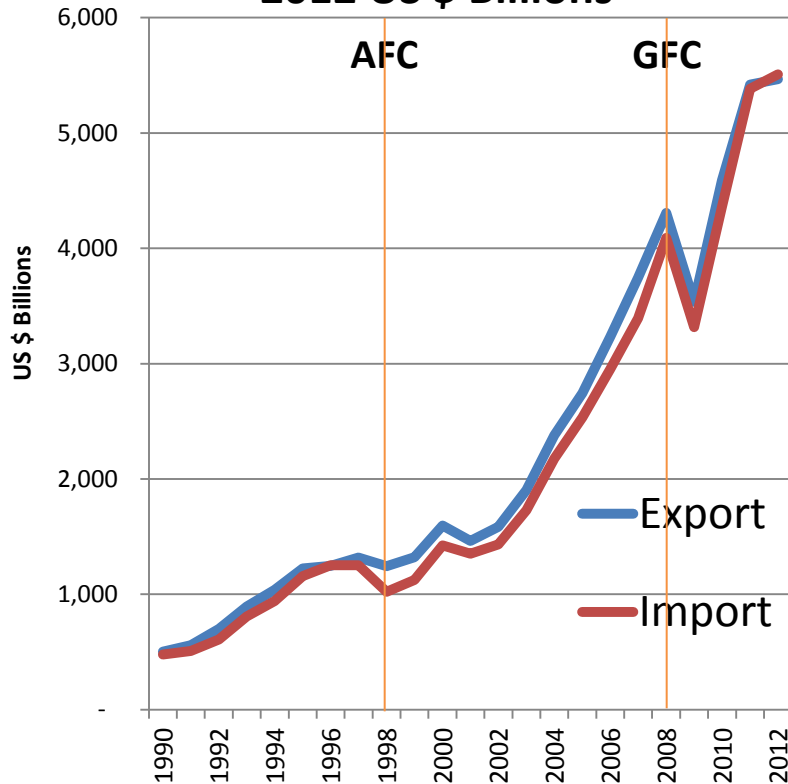
- Seemingly Unrelated Regressions (SUR) for export share, firm size, external finance



# 3.

# Macro Trends - finance, trade and SMEs

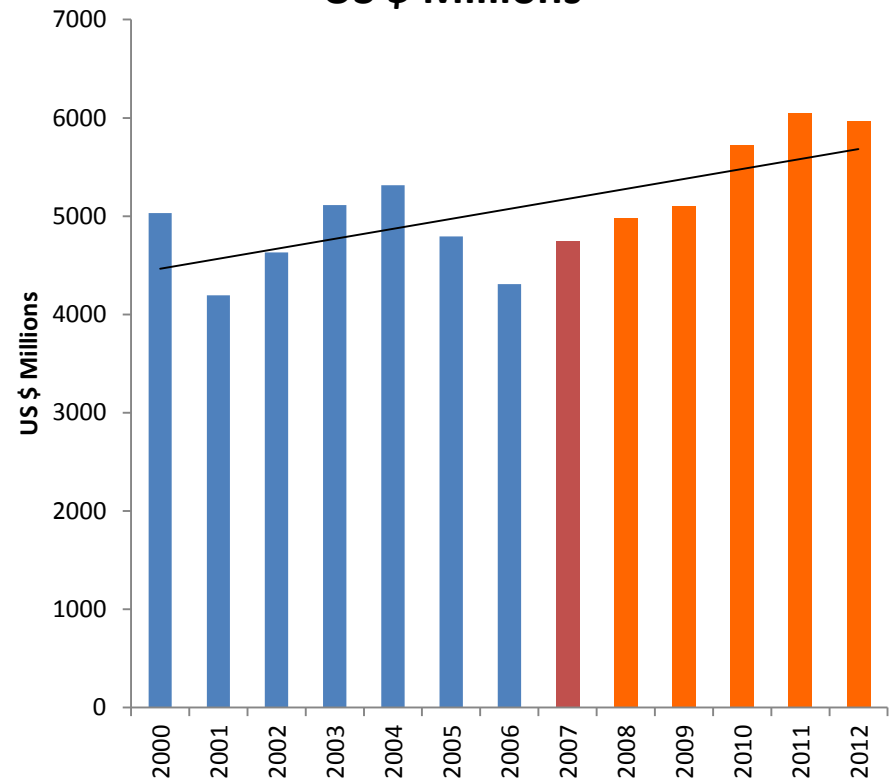
**Asia's trade with the world 1990-2012 US \$ Billions**



Source: UN Comtrade, accessed November 2013

Notes: ADB's definition of Asia includes Central Asia, South Asia, East Asia and South East Asia and the Pacific. AFC – Asian Financial Crisis, GFC – Global Financial Crisis

**Total Loans in the Asia-Pacific US \$ Millions**

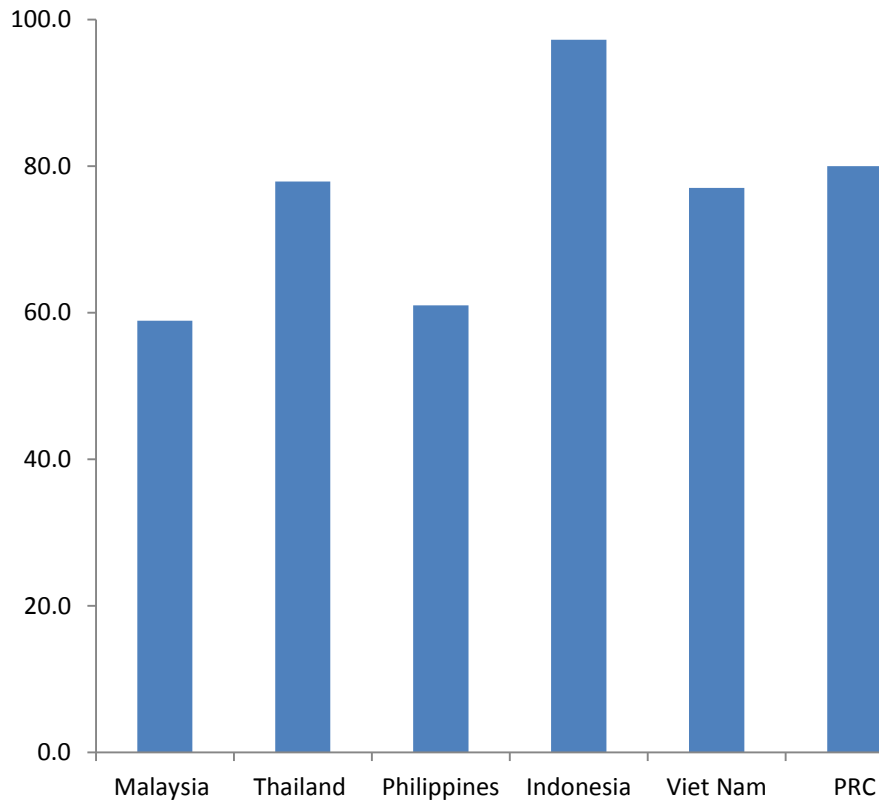


Source: Economist Intelligence Unit, accessed Jan. 2014

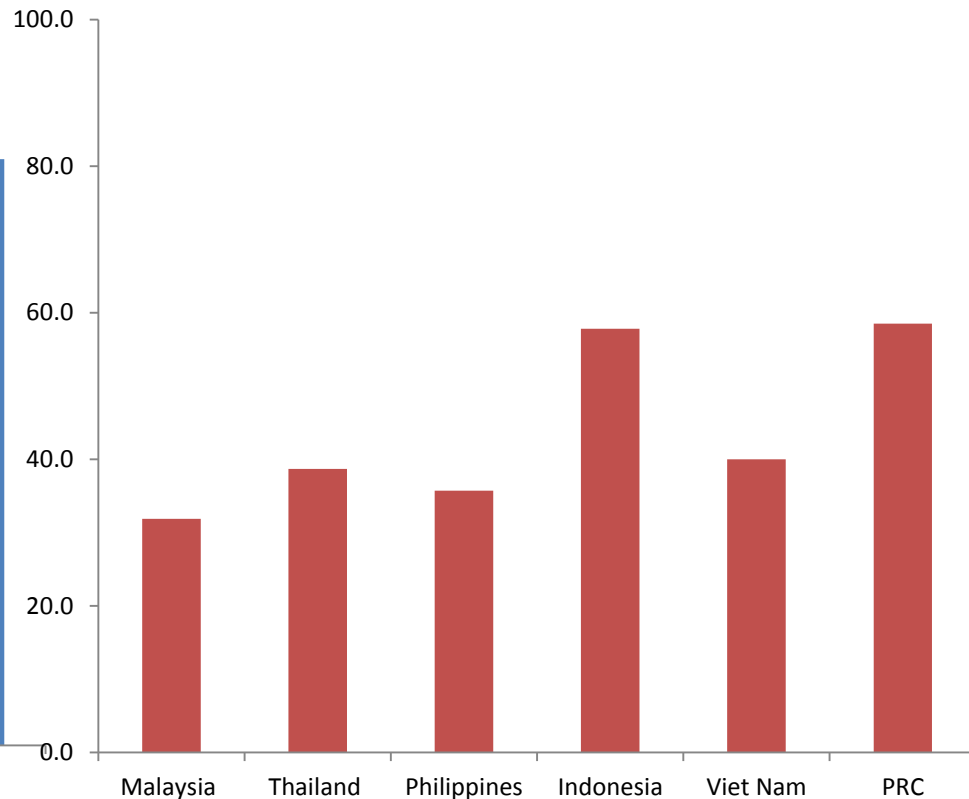
Notes: Includes Australia, PRC, Hong Kong, India, Indonesia, Japan, Malaysia, New Zealand, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Taipei, Thailand, Viet Nam

# SMEs are important...

Share in total employment



Contribution to GDP



**SMEs account for at least 60 percent of total employment and 30 percent of GDP in ASEAN and PRC, according to various estimates**

Source: Various statistical agencies (ASEAN SME data, Business in Asia, DTI Philippines, PRC Ministry of Industry and Information Technology)

# ...yet not very much in trade



Source: Various statistical agencies (ASEAN SME data, Business in Asia, DTI Philippines, PRC Ministry of Industry and Information Technology)

# Impact of Business Environment on SMEs

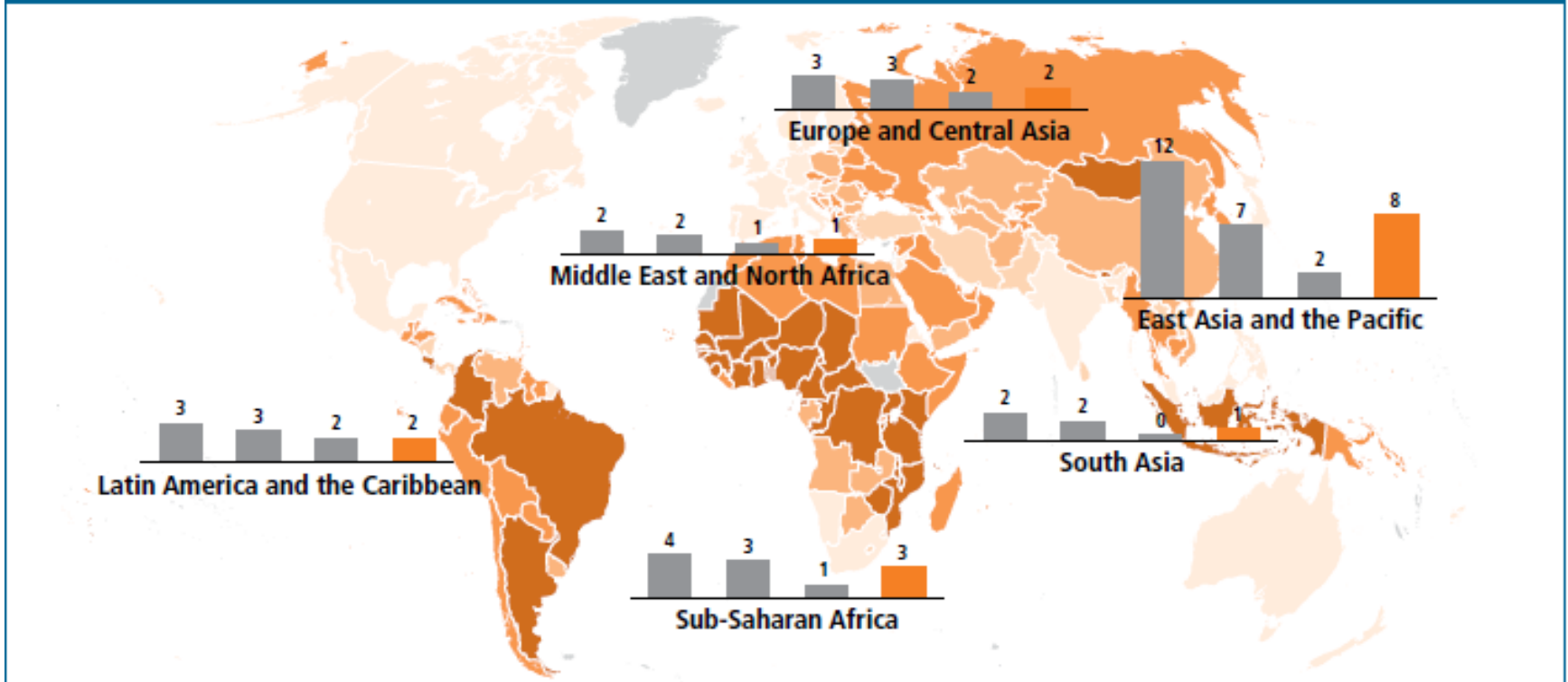
Perceived Major Obstacles to Conducting Business, SME firms (% of SME firms)

	All countries	Malaysia	Thailand	Philippines	Indonesia	Viet Nam
Major Obstacles	1. Trust deficit (39%)	1. Tax rates (31%)	1. Skills Gap (60%)	1. Trust deficit (45%)	1. Access to credit (39%)	1. Access to credit (39%)
	2. Access to credit (35%)	2. Crime etc. (25%)	2. Trust deficit (56%)	2. Tax rates (43%)	2. Trust deficit (37%)	2. Trust deficit (35%)
	3. Electricity (30%)	3. Skills Gap (24%)	3. Tax rates (55%)	3. Electricity (37%)	3. Electricity (31%)	3. Access to land (25%)

- **“Other” obstacles** – trust deficit hampers intra-firm cooperation; smuggling also disincentive
- **Supply-side factors** – Lack of access to finance; inadequate worker skills; high electricity costs; poor transport systems
- **Policy incentives** – high corporate tax rates; economic uncertainty; cumbersome customs and corruption

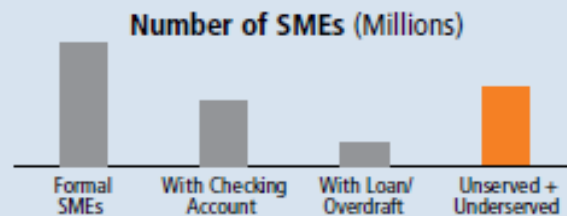
# Finance is a global SME concern

## Formal SME sector—Total credit gap

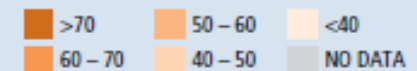


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### Credit Gap: Unserviced & Underserved (Percent)



Source: IFC Enterprise Finance Gap Database (2011)

# Finance is an Asian SME concern

	Total Credit Gap	Credit Gap per SME
PRC	\$62.73B	\$262,048
Thailand	\$11.83B	\$758,737
Indonesia	\$11.77B	\$172,479
Malaysia	\$7.96B	\$757,412
Viet Nam	\$4.28B	\$253,296
Philippines	\$2.03B	\$356,207

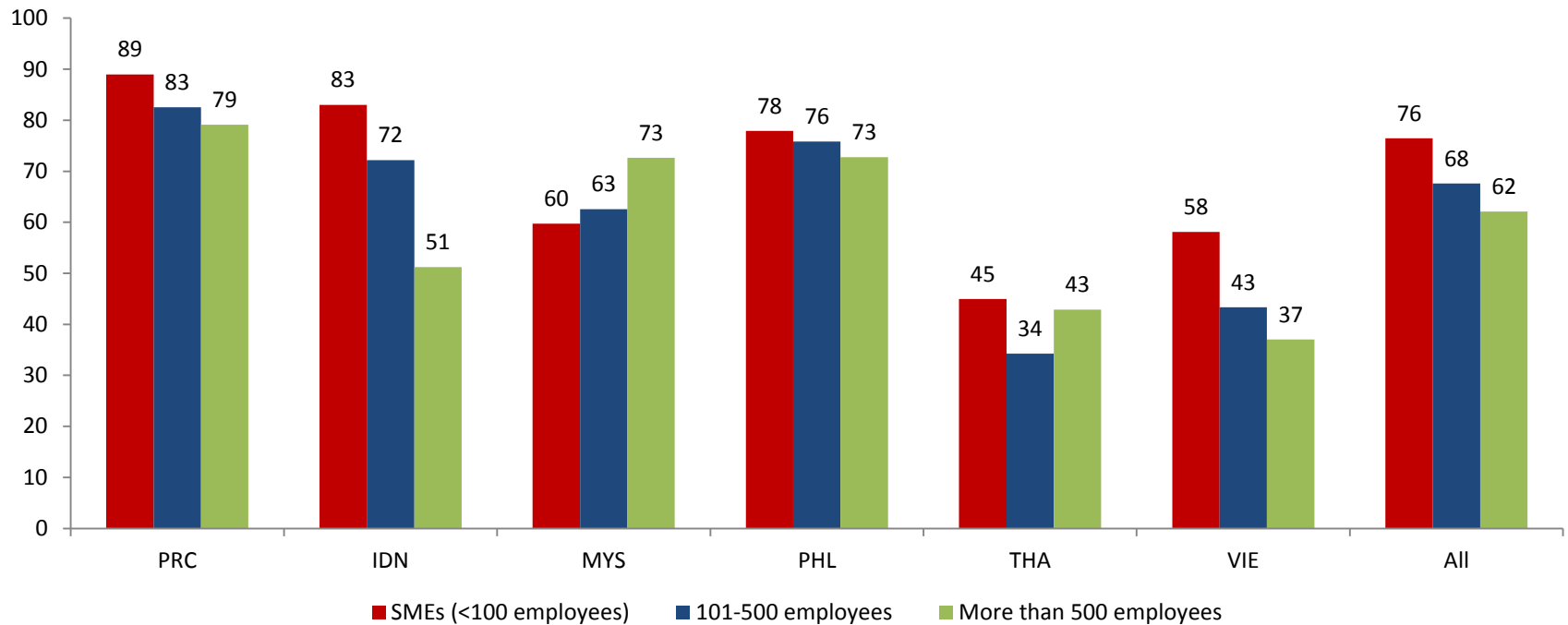
“Credit gap” is the difference between formal credit provided to SMEs and total estimated potential need for formal credit based on McKinsey & Co. estimates. Source; IFC Enterprise Finance Gap Database (2011).

In East Asia and the Pacific, between 60-70 percent or about 8 million of all formal SMEs do not have sufficient access to finance (IFC, 2013).

# 4.

# Firm level microeconomic results

**Importance of bank loans by firm size**  
**Percentage of firms, bank loans <25% of capital**



Source: Author's calculations on WB Enterprise Survey data.  
Columns represent percentages of category-classified, national samples

# Focus of econometric exercise

- How is export participation by ASEAN and PRC firms--especially SMEs--affected by the following factors?
  - A firm's external sources of finance (access to credit)
  - Firm size and other firm-specific characteristics (e.g. foreign ownership, having foreign license, audited finances)
- How do all these variables relate to each other?
  - In what direction and by how much do external finance, firm size, and export participation affect each other?



# Baseline export function estimates

	PRC	ASEAN	PRC + ASEAN, by industry type		
			Labor-intensive	Capital-intensive	Services
SME indicator	-31.04*** (4.61)	-104.16*** (3.73)	-131.04*** (7.24)	-76.20*** (4.03)	-74.90** (29.41)
Age	0.17 (0.26)	-0.50*** (0.14)	-0.77*** (0.25)	-0.73*** (0.16)	0.01 (0.91)
Bank borrowing	0.43*** (0.14)	0.20*** (0.05)	0.33*** (0.09)	0.00 (0.06)	0.70* (0.38)
Non-bank borrowing	-0.27 (0.41)	0.37* (0.21)	0.39 (0.41)	0.50** (0.24)	-5.77 (7.25)
Trade credit	0.66*** (0.19)	0.26*** (0.08)	0.40*** (0.15)	0.10 (0.09)	-0.08 (0.61)
Constant	-45.39*** (6.12)	41.50*** (4.41)	67.59*** (8.02)	49.43*** (5.15)	-178.49*** (44.15)
Observations	2,523	5,557	1,808	2,901	848

Dependent variable: Share of exports in firm sales (0-100 percent).

Estimates with firm-level controls do not change results and are reported in a succeeding slide.

# Expanded estimates

	PROBIT	OLS	TOBIT		SUR
SME indicator	-0.90*** (0.03)	-21.54*** (0.88)	N.A.	Firm size (employment)	0.24*** (0.01)
Age	-0.02 (0.02)	-2.90*** (0.37)	-3.33** (1.42)	Age	-0.01 (0.01)
Bank borrowing	0.05*** (0.02)	0.05 (0.41)	3.77*** (1.31)	External finance indicator	0.003*** (0.00)
Non-bank borrowing	0.02 (0.02)	0.01 (0.30)	0.45 (1.33)	Foreign ownership	0.73*** (0.03)
Trade credit	(0.05)*** (0.02)	0.26 (0.39)	2.73** (1.29)	Foreign license	-0.20 (0.16)
Firm size (employment)	N.A.	N.A.	14.99*** (1.20)	Patent ownership	-0.19 (0.24)
Firm size x external finance interactions	N.A.	N.A.	Yes	Worker education	0.16*** (0.04)
Industry & Country FE	Yes	Yes	Yes	Financial certification	0.03 (0.02)
Observations	8,080	8,080	8,080	Observations	8,080

Dependent variable: Share of exports in firm sales (0-100 percent).

# 5.

## Conclusions and implications

- Useful to study finance-trade nexus using micro-data.
  - Adds depth to macro-level analysis and provides policy insights
- Asia's trade recovery encouraging and need to understand underlying strengths and potential gaps to resilience
- PRC and ASEAN account for bulk of Asia's trade and global production network activity
- Macro trends suggest:
  - Financial development matters crucially for trade
  - SMEs are important in national economies but not much in trade
  - Lack of access to credit is the major constraint to SME exports (overcoming scale barriers and network/marketing barriers)
- Firm-level results show interdependence between export participation, firm size, and access to credit
  - Finance, firm size, skills and foreign ownership positively affects exporting
  - Exporting also positively affects access to finance

# Conclusions and implications (*cont*)

- Policy questions for further analysis on financial inclusion:
  - Is the missing “middle” (i.e. medium sized firms) significant in PRC and ASEAN? And what barriers existing to SME graduation?
  - What role should central banks in regulating/supervising informal financial institutions for financial inclusion?
  - Should credit policy be broad-based (independent of firm size, industry), targeted, or both?
  - What measures are needed to improve financial education to support financial inclusion?
  - What complementary policies (e.g. export promotion and non-finance SME support) are needed to promote SME exports and their entry into global supply chains?