



# Resolving the Performance Puzzle of Board Gender Diversity

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# AGENDA

- Status of board gender diversity in Singapore
  - Board gender representation
  - Board practices
- Performance impact of board gender diversity
  - Gender impact on governance
  - Governance impact on performance
  - Resolution of performance puzzle
- Application issues

# Inspiration: Back-of-Envelope

## Singapore Governance & Transparency Index (SGTI 2017)

	Has Woman on Board of Directors	No Woman on Board of Directors
SGTI Score*	50.4	45.9

\* Score is average for all SGX-listed companies excluding REITs and Business Trusts over 5 years

# Board Gender Diversity in Singapore

**BOARD GENDER REPRESENTATION**

**BOARD PRACTICES**

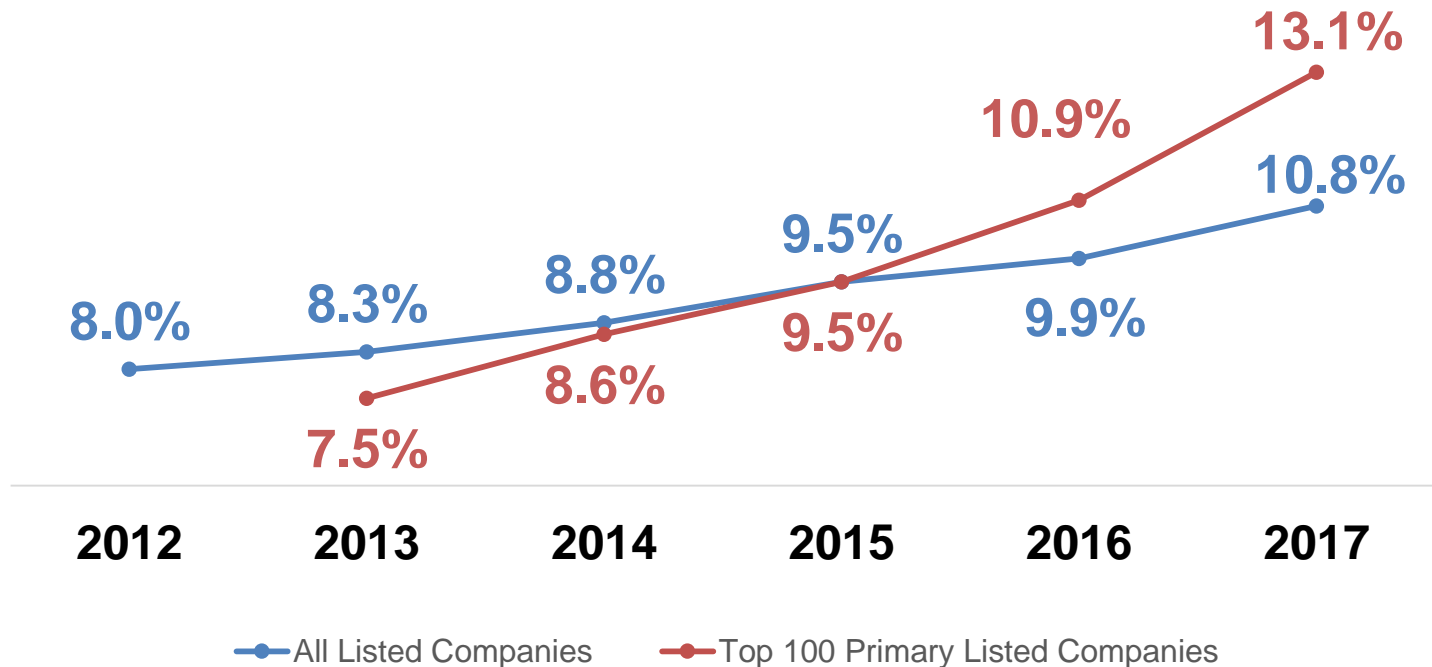
**What's  
missing?**

**PERFORMANCE  
IMPACT**



# Board Gender Representation: Trend

## Women Directors on Boards of SGX-listed companies



Source: Diversity Action Committee Singapore (Data as of Dec 2017)

# Board Gender Representation: Comparison

Country	Gender Representation On Boards	Data Population	Date
Norway*	42.1%	All public listed	Dec 2016
France*	42.0%	CAC 40	Jun 2016
UK	27.7%	FTSE 100	Oct 2017
Australia	27.7%	ASX 200	May 2018
New Zealand	27.0%	S&P/NZX 50	Dec 2017
Germany*	23.0%	Top 100	Dec 2016
USA	21.0%	S&P 500	May 2016
Malaysia#	19.2%	Top 100	Dec 2017
India*	15.3%	NSE listed	21 Jun 2018
Hong Kong	13.8%	HSI 50	2 Jan 2018
<b><u>Singapore</u></b>	<b><u>13.1%</u></b>	Top 100 Primary Listed	Dec 2017
China	12.9%	Top 100	2014
Indonesia	11.1%	Top 100	2014
Japan	4.5%	Nikkei 225	2016
South Korea	2.6%	Top 100	2014

Source: Diversity Action Committee Singapore

\* Countries with legislated quotas # In Code of Corporate Governance, not legislated

# Board Practices: Effects on Women on Boards

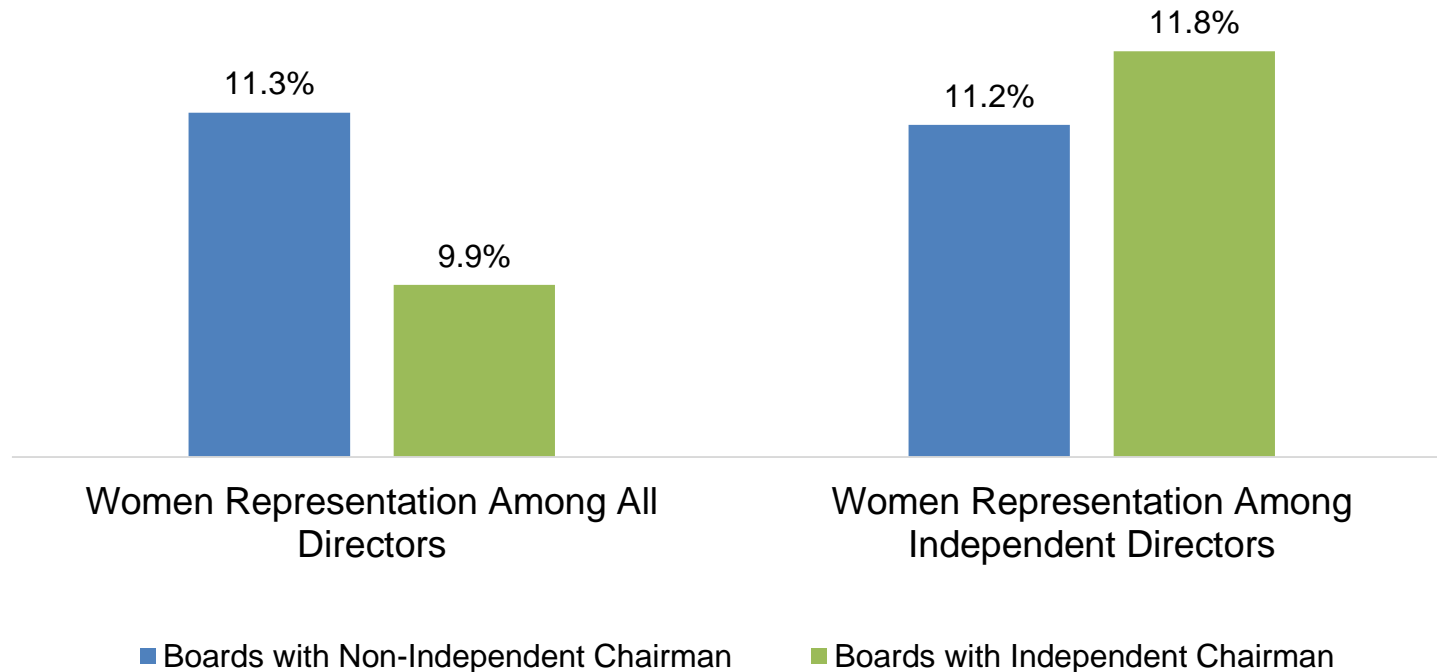
***When independent director tenure increases, women representation decreases***



Source: CGIO (Singapore data based on ASEAN Corporate Governance Scorecard as of Dec 2017)

# Board Practices: Effects on Women on Boards

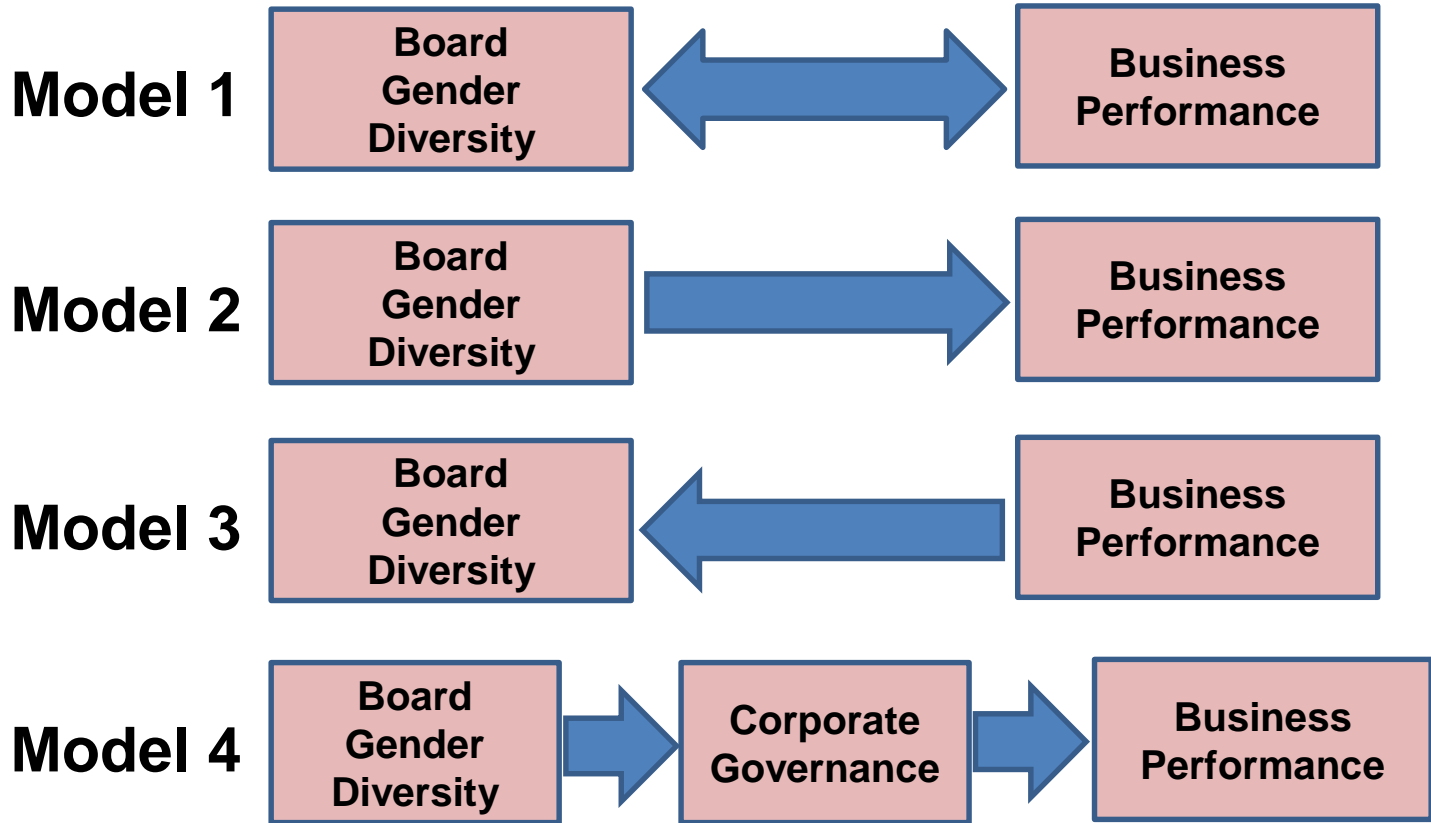
*When board chairmen are non-independent, women representation increases for full board but decreases amongst independent directors*



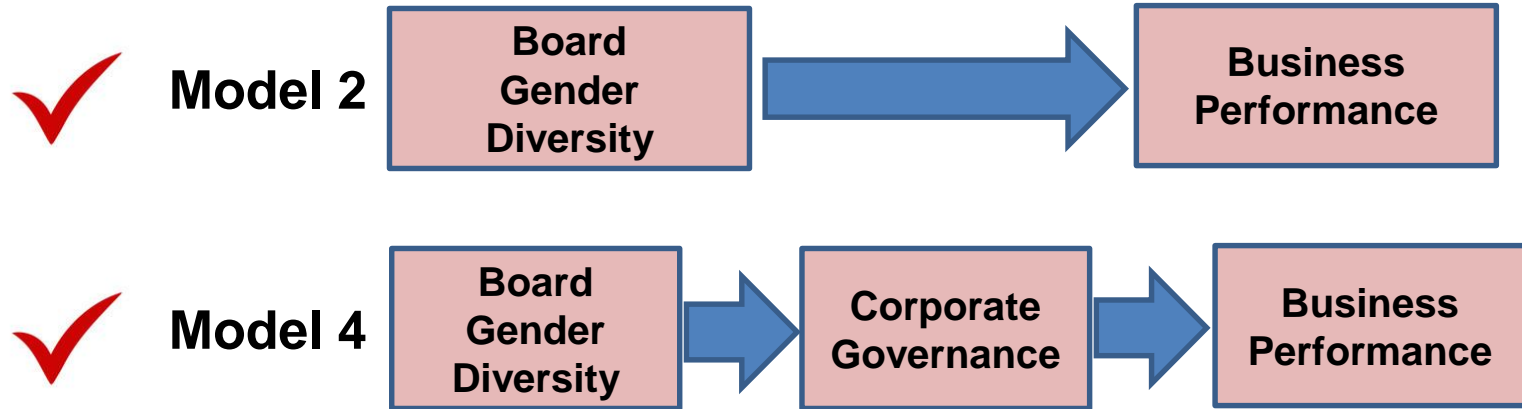
Source: CGIO (Singapore data based on ASEAN Corporate Governance Scorecard as of Dec 2017)



# Modelling the Performance Impact



# Modelling the Performance Impact



## Sample

All SGX-listed companies for 5-year period covering FY ending in 2012 to 2016 (i.e. up to data reported in 2017)

- Sample comprises about 500 companies per year excluding REITs and Business Trusts
- Total sample size is 2,378 observations matched across data sources and pooled across years

# Gender Impact on Governance: Analysis

Dependent variable: Corporate governance score

Independent Variables	(1)	(2)	(3)
Proportion of female directors	6.628*		
Proportion of female independent directors		9.773***	
Has women on board			2.178**
No. of board meetings held	1.369***	1.327***	1.351***
Board size	2.099***	2.096***	2.012***
Board independence	45.72***	45.13***	45.64***
Market cap (mil S\$)	0.00101***	0.00101***	0.00101***
D/E ratio	0.00164	0.00205	0.00209
P/E ratio	-0.000183	-0.000172	-0.000114
Constant	4.685*	5.119*	4.958*
R <sup>2</sup>	0.378	0.382	0.380
Adjusted R <sup>2</sup>	0.376	0.379	0.377
F	139.2***	141.4***	140.1***

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Source: Loh, L., Nguyen, M.H. (2018). Board Diversity and Business Performance in Singapore-Listed Companies: The Role of Corporate Governance. RJSSM: Volume 7, Number 10, pages 95-104.

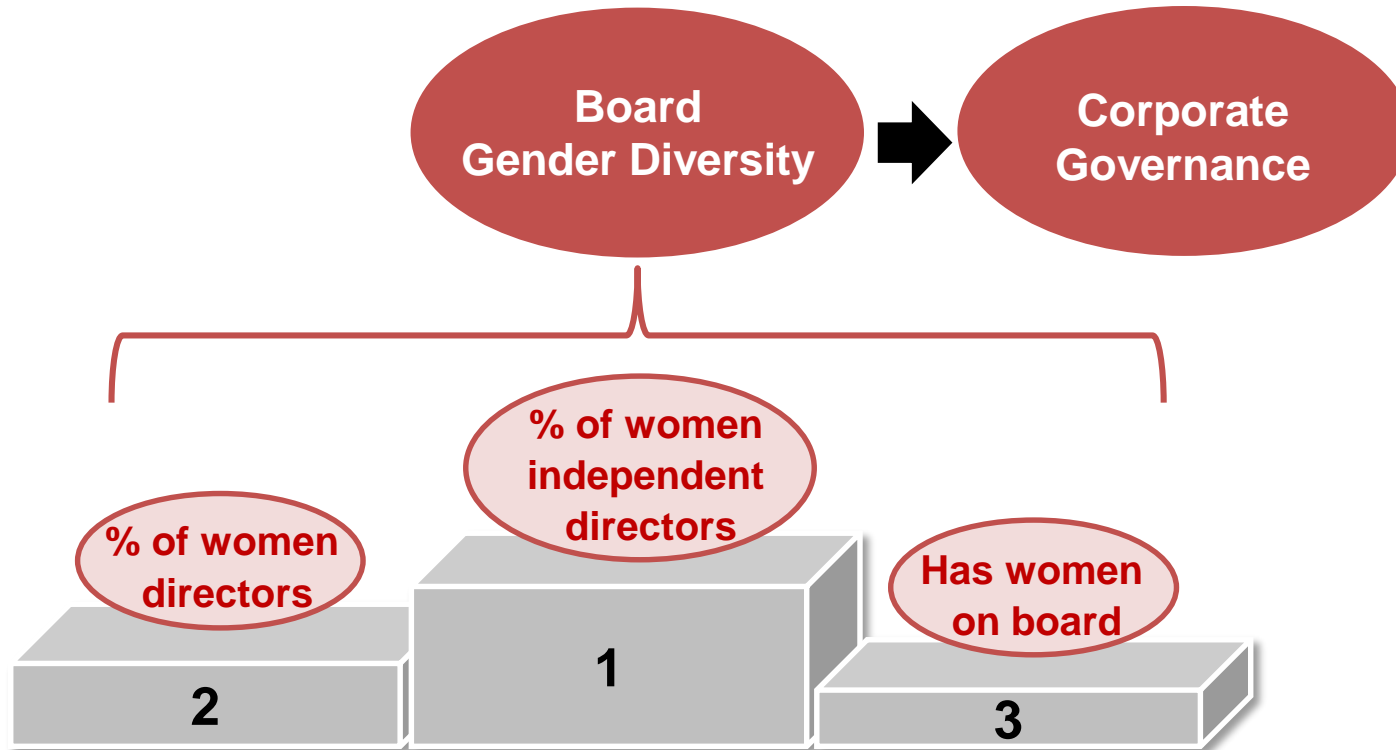
Note: Corporate governance score is taken from the SGTI score (<https://bschool.nus.edu.sg/cgio/our-research/sgti>)

# Gender Impact on Governance: Interpretation

Variables	Impact on Corporate Governance
Proportion of women directors	Positively significant
Proportion of women independent directors	Positively significant
Has women on board	Positively significant

# Gender Impact on Governance: Interpretation

Board gender diversity has positive impact on corporate governance



# Governance Impact on Performance: Analysis

Dependent variable: Return on equity

Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CG score	0.117*		0.120*		0.115*		0.121*
Proportion of female directors		-5.500	-6.331				
Proportion of female independent directors				3.710	2.593		
Has women on board						-1.283	-1.548
No. of board meetings	-0.231	-0.0889	-0.247	-0.0881	-0.236	-0.0748	-0.232
Board size	1.209**	1.450***	1.194**	1.460***	1.215**	1.504***	1.257**
Board independence	-12.99	-7.439	-12.99	-7.813	-13.08	-7.422	-13.02
Market Cap (mil S\$)	-	-	-	-	-	-	-
	0.000137	0.0000130	0.000133	0.000024	0.000139	0.0000135	0.000134
D/E ratio	0.0809***	0.0809***	0.0806***	0.0814***	0.0811***	0.0807***	0.0804***
P/E ratio	-0.00315	-0.00323	-0.00321	-0.00315	-0.00313	-0.00325	-0.00324
Constant	2.095	3.279	2.754	2.593	2.035	2.949	2.383
R <sup>2</sup>	0.099	0.096	0.099	0.096	0.099	0.096	0.099
Adjusted R <sup>2</sup>	0.095	0.092	0.094	0.092	0.094	0.092	0.094
F	24.78***	24.12***	21.78***	24.09***	21.70***	24.12***	21.79***

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Source: Loh, L., Nguyen, M.H. (2018). Board Diversity and Business Performance in Singapore-Listed Companies: The Role of Corporate Governance. RJSSM: Volume 7, Number 10, pages 95-104.

# Governance Impact on Performance: Interpretation

Variables	Impact on Financial Performance (ROE)
Corporate governance score	Positively significant
Proportion of women directors	Insignificant
Proportion of women independent directors	Insignificant
Has women on board	Insignificant

# Governance Impact on Performance: Analysis

Dependent variable: Tobin's Q

Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CG score	0.00485**		0.00485**		0.00438**		0.00476**
Proportion of female directors		0.0348	0.00261				
Proportion of female independent directors				0.602***	0.559***		
Has women on board						0.0510	0.0406
No. of board meetings	0.0259	0.0326*	0.0259	0.0308*	0.0250	0.0324*	0.0260
Board size	0.0476***	0.0578***	0.0476***	0.0581***	0.0490***	0.0559***	0.0463***
Board independence	-0.138	0.0838	-0.138	0.0402	-0.157	0.0796	-0.137
Market Cap (mil S\$)	-	-	-	-	-	-	-
	0.0000052	0.0000002	0.0000052	0.00000118	0.0000055	0.00000046	0.0000052
	1	9	1	8	1	7	7
D/E ratio	-0.000227	-0.000219	-0.000227	-0.000177	-0.000186	-0.000203	-0.000213
P/E ratio	0.0000849	0.0000841	0.0000850	0.0000880	0.0000888	0.0000867	0.0000873
Constant	0.621***	0.643***	0.621***	0.630***	0.607***	0.637***	0.613***
R <sup>2</sup>	0.031	0.025	0.031	0.033	0.038	0.026	0.031
Adjusted R <sup>2</sup>	0.027	0.021	0.026	0.029	0.033	0.022	0.027
F	7.338***	5.943***	6.417***	7.797***	7.822***	6.100***	6.507***

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Source: Loh, L., Nguyen, M.H. (2018). Board Diversity and Business Performance in Singapore-Listed Companies: The Role of Corporate Governance. RJSSM: Volume 7, Number 10, pages 95-104.

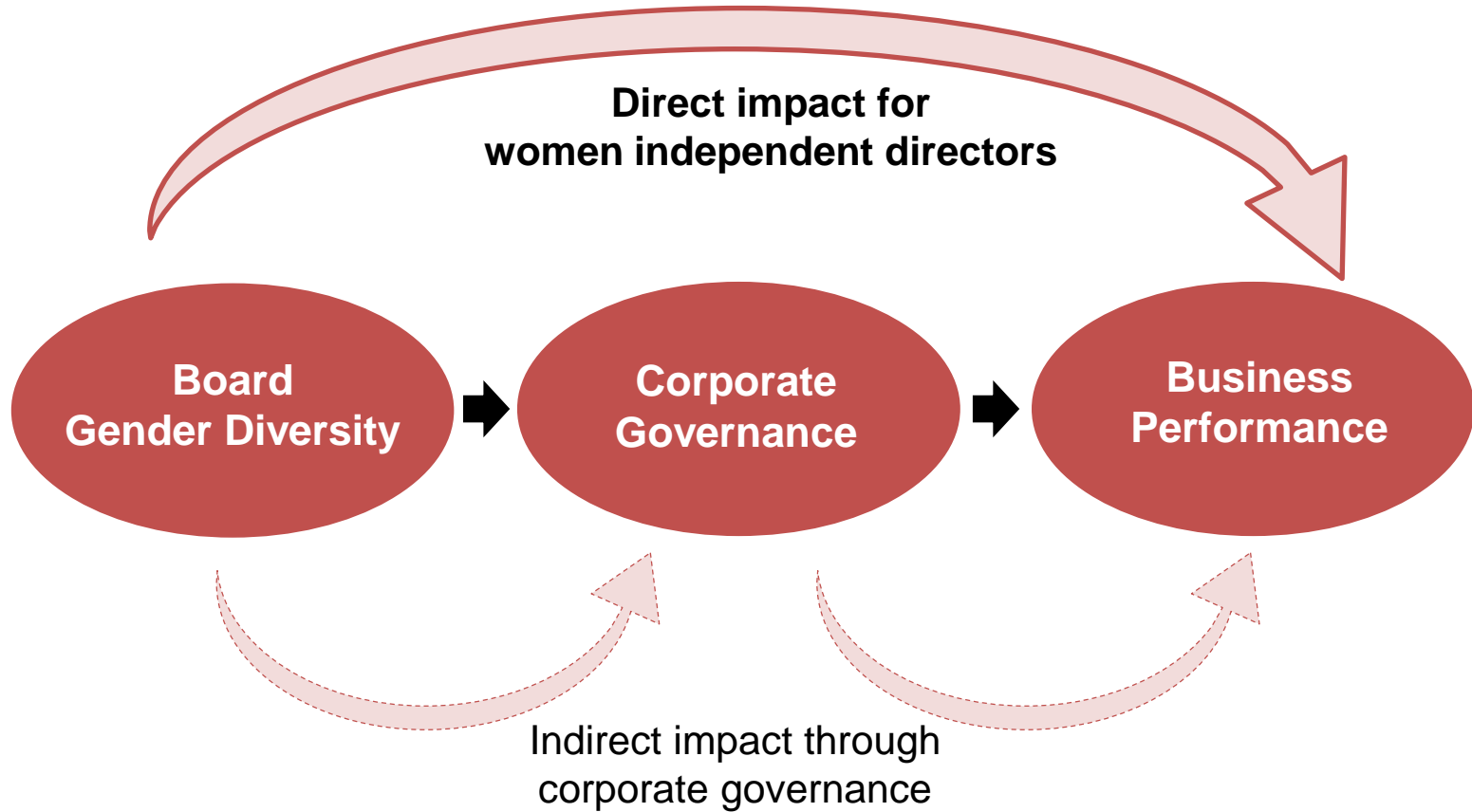
Note: Tobin's Q = market value / book value



# Governance Impact on Performance: Interpretation

Variables	Impact on Financial Performance (Ratio of Market Value to Book Value)
Corporate governance score	Positively significant
Proportion of women directors	Insignificant
Proportion of women independent directors	Positively significant
Has women on board	Insignificant

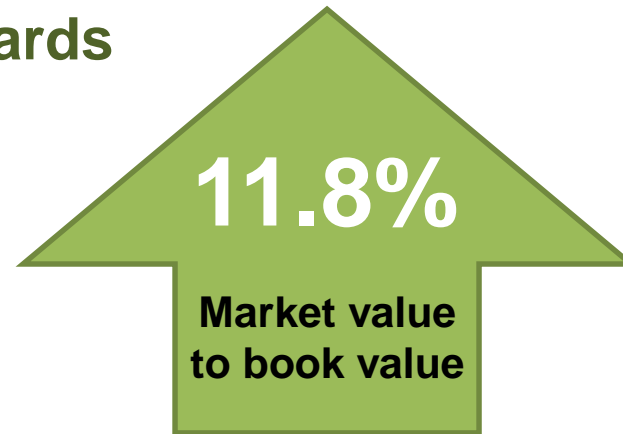
# Resolution of Performance Puzzle



# Increase in Women Independent Directors (WID) Impacts Ratio of Market Value to Book Value

- Current WID on boards averages 0.23 <sup>1</sup>
- Proportion of WIDs of all IDs averages 0.06 <sup>2</sup>
- 1 unit change in proportion of WIDs contributes 0.559 increase in ratio of market value to book value

**If average WID on boards increases by 1**



## Footnotes:

• Based on 5-year pooled sample

<sup>1</sup> WID on boards ranges from 0 to 3

<sup>2</sup> Proportion of WID of all IDs ranges from 0 to 0.67

## Application Issues

- **Linkages**: Distinguishing between correlation, regression and causality for performance
- **Endogeneity**: Chicken-and-egg problem in board gender diversity and corporate governance
- **Validity**: Prediction range for performance relationship of independent directors
- **Extension**: Why not just have all-women boards?

# Board Gender Diversity in Singapore

BOARD GENDER REPRESENTATION

BOARD PRACTICES

What's  
missing?

PERFORMANCE  
IMPACT

FOUND

