

# Did the 2003 Dividend Tax Cut Increase the Payouts and Investment of Large US Corporations? An International Perspective

Steve Bond and Ahmed Tohamy

University of Oxford

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# History: the 2003 dividend tax cut

- Top federal tax rate on individual dividend income for US shareholders was cut from 38.6% to 15% in 2003
  - Jobs and Growth Tax Relief Reconciliation Act (JGTRRA)
  - Much smaller reduction in tax rate on capital gains
- Proposed Jan 2003; enacted May 2003; retroactive to Jan 2003
- Largely unanticipated before Dec 2002 (Auerbach and Hassett, 2007)
- Initially temporary, through 2008; later extended in 2005, and again in 2010; made permanent (with some exclusions) in 2013

# US corporate dividends

- Aggregate dividends (scaled by aggregate lagged total assets) for publicly traded US corporations (Compustat)
- Falling up to 2002
- Rising from 2003 to 2006

Dividends (\$ per lagged assets)



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- Aggregate dividends (scaled by aggregate lagged total assets) for publicly traded US corporations (Compustat)
- Falling up to 2002
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- Similar pattern for total payouts from US corporations to their shareholders, including (an estimate of) share repurchases

# US corporate investment

- Aggregate capital expenditure (on property, plant, and equipment) (scaled by aggregate lagged total assets) for publicly traded US corporations (Compustat)
- Falling up to 2003
- Rising from 2004 to 2006

Investment (\$ per lagged assets)



# US evidence

- These patterns around 2002/2003 in US corporate dividends and investment have often been attributed to the 2003 US dividend tax cut
  - Poterba (AER pp, 2004)
  - Chetty and Saez (QJE, 2005)
- Although standard theory of value-maximizing firms does not predict **both** higher dividends and higher investment in response to a dividend tax cut
  - Chetty and Saez (AEJ: Econ Pol, 2010)
  - Gourio and Miao (AEJ: Macro, 2010)



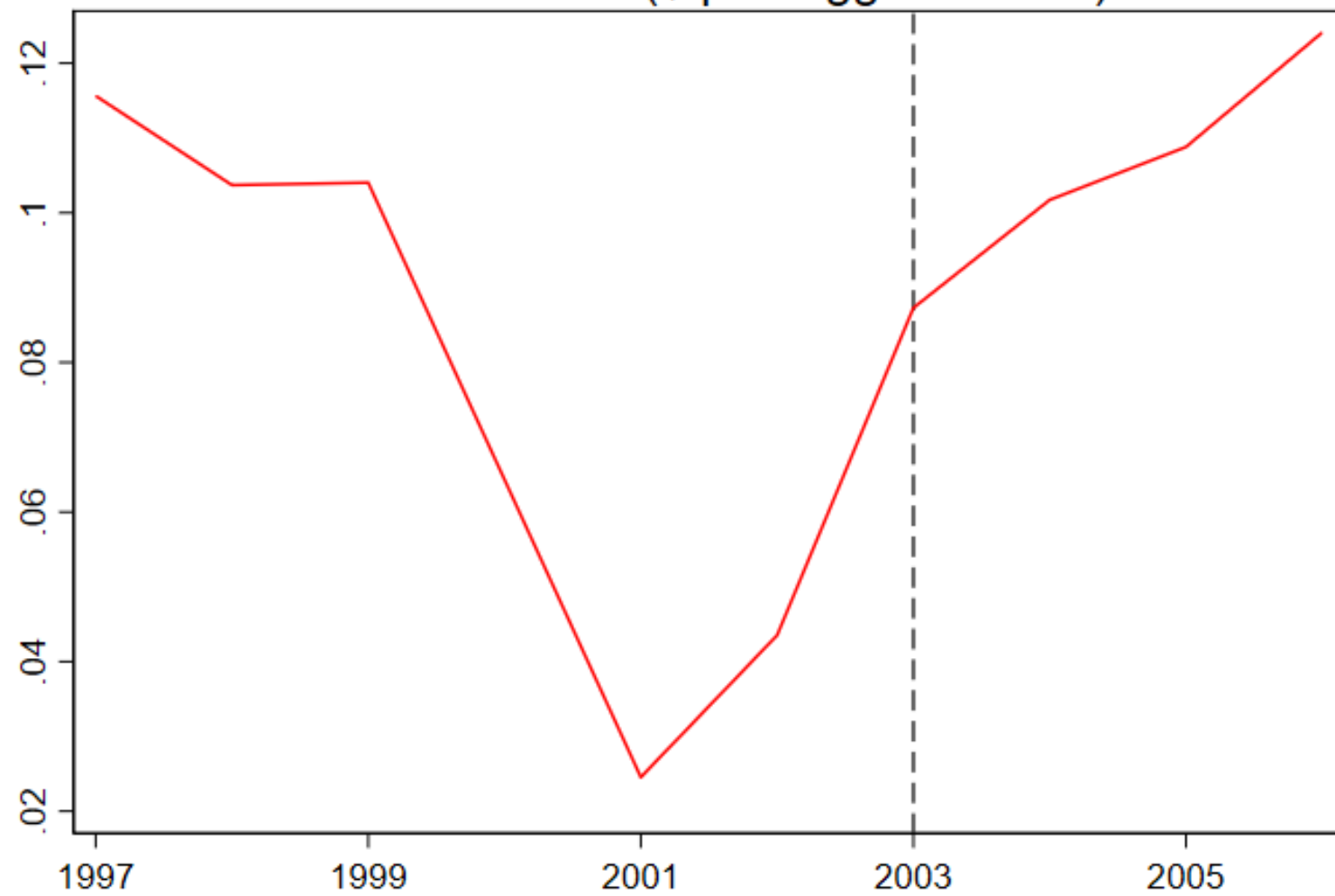
# This paper

- Were these patterns observed only for large US corporations?
  - No – similar cycles in corporate dividends and investment for publicly traded firms in other OECD countries
  - No significant differential increases, post-2003, for US firms (diff-in-diff results; matched samples)
- What about the business cycle?
  - US corporate profitability fell sharply in 2001 (end of dotcom bubble)
  - Then recovered strongly from 2002 to 2006 (run up to financial crisis)

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- Aggregate pre-tax income (scaled by aggregate lagged total assets) for publicly traded US corporations (Compustat)

Pretax Income (\$ per lagged assets)



# This paper

- Were these patterns observed only for large US corporations?
  - No
- What about the business cycle?
  - US corporate profitability fell sharply in 2001 (end of dotcom bubble)
  - Then recovered strongly from 2002 to 2006 (run up to financial crisis)
  - Similar cycle in corporate profitability in other OECD countries
  - Rising profits can explain rising dividends
  - Rising expectations of future profits can explain rising investment
  - Similar patterns seen (for both US and non-US corporations) during recovery from previous recession in early 1990s

# Caveats

- Our focus is on **large**, publicly traded corporations
  - Macroeconomic significance
  - Non-US publicly traded firms (our matched control group) tend to be larger/older than publicly traded US firms (our treated group)
  - US dividend tax cut may have affected dividends paid by smaller C-corporations (cf. Yagan, AER, 2015)
- We find no **differential** effect on large US corporations, but the US dividend tax cut **may** also have influenced the behaviour of publicly traded firms in other OECD countries
  - Partly owned by taxpaying US shareholders
  - Competing for capital with US corporations

# Standard theory

- King (ReStud 1974), Auerbach (QJE 1979)
- Constant dividend tax rate:
- Dividend taxes raise the cost of capital for investment financed by new equity/external equity
  - Future returns are subject to dividend taxes
- Dividend taxes do not raise the cost of capital for investment financed by retained earnings/internal equity
  - $\downarrow \text{Div}$  to finance  $\uparrow \text{Inv}$  implies an offsetting current tax saving
- [Unless we expect a different dividend tax rate in the future]

# Standard theory

- King (ReStud 1974), Auerbach (QJE 1979)
- Dividend taxes make retained earnings a cheaper source of finance
- Pecking order/Hierarchy of sources of finance
- ‘Cash rich’ firms finance investment from retained earnings, and pay dividends
- ‘Cash poor’ firms finance investment using new equity, and do not pay dividends
- [Strictly what matters is investment opportunities relative to available internal funds]

# Dividend tax cut - permanent

- A cut in the dividend tax rate which is perceived to be permanent:
- Lowers the cost of capital for investment financed using new equity
- No effect on the cost of capital for investment financed using retained earnings



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- Lowers the cost of capital for investment financed using new equity
- No effect on the cost of capital for investment financed using retained earnings
- Predictions:
- Higher investment – to the extent that ‘cash poor’ firms are reliant on new equity finance
- No change in dividends (or in investment, for ‘cash rich’ dividend-paying firms)

# Dividend tax cut - temporary

- A cut in the dividend tax rate which is perceived to be temporary:
- Raises the cost of capital for investment financed using retained earnings
  - Now is a good time to pay out earnings as dividends
- No effect on the cost of capital for investment financed using new equity
  - No change in relevant future dividend tax rates

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- No effect on the cost of capital for investment financed using new equity
  - No change in relevant future dividend tax rates
- Predictions:
- Higher dividends and lower investment for 'cash rich' dividend-paying firms
- No change in investment for 'cash poor' firms reliant on new equity finance

# Standard theory

- Note that it is hard work to generate the prediction that a cut in the dividend tax rate should increase **both** dividends and investment
- See Chetty and Saez (AEJ: Econ Pol, 2010) for a principal-agent model which can deliver that prediction

# Which dividend tax rate?

- Under perfect capital mobility, the relevant dividend tax rate is a weighted average across all (actual or potential) shareholders
  - US taxpayers, foreign taxpayers, tax-exempt institutions, ...
- Weighted by shares of global wealth
  - Brennan (NTJ, 1970)
- Predicted effects are then much smaller than if only the top US tax rate matters
  - And also similar for non-US firms
- Perhaps less relevant for smaller companies, which are of more limited interest to international investors

# What about the business cycle?

- The 2003 dividend tax cut occurred two years after the bursting of the dotcom bubble, early in the boom period which ended with the Great Financial Crisis
- Both dividends and investment are often observed to be cyclical
- During the recovery phase of the business cycle:
- Higher profits → higher dividends
  - Unless there is a fully offsetting increase in desired investment
- Higher expectations of future profits → higher investment
- These patterns are wholly consistent with standard theory

# Data

- Annual accounts for publicly traded US corporations from Compustat North America
- Annual accounts for publicly traded corporations in (all) other OECD countries from Compustat Global
- Income statement: pre-tax income
- Balance sheet: total assets
- Cash flow statement: dividends, capital expenditure (on PPE)
- [Change in treasury stock (if positive) used to estimate share repurchases]

# Matching

- Within 2-digit NAICS sectors
- Propensity score matching based on 1997 characteristics (size, age, profitability, leverage)
  - One-to-one, nearest neighbour w/o replacement, narrow caliper
  - Similar results using alternatives, including inverse probability weighting
- Note that matched sample of US firms is skewed towards larger and older firms, compared to population of US publicly traded firms
  - Since publicly traded firms in other OECD countries tend to be larger and older than those in the US

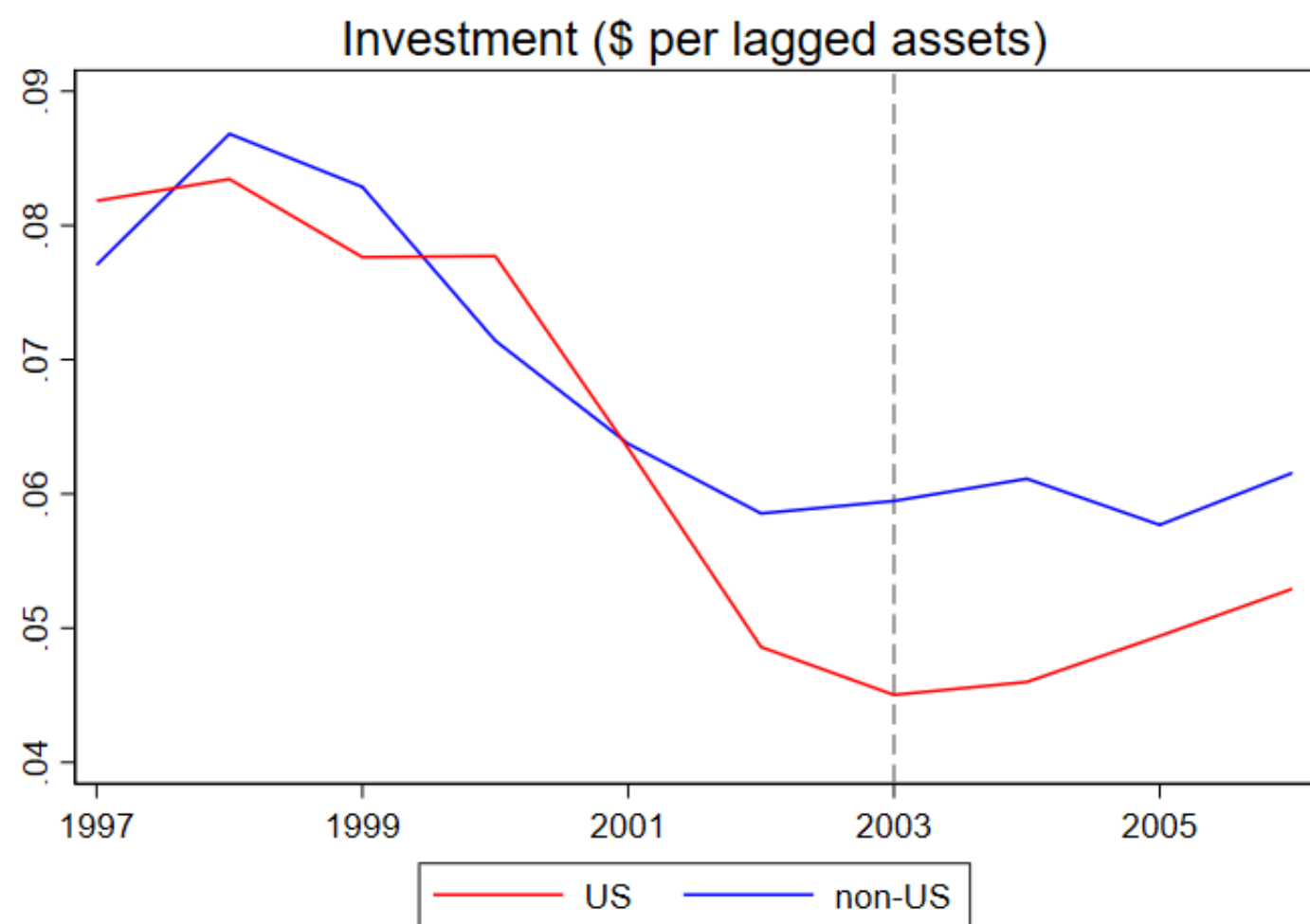


# US Vs. Non-US firms: 1997-2006, matched

- Matched samples
- Aggregate series
- US in red
- Non-US (rest of OECD) in blue

Dividends (\$ per lagged assets)





# Difference-in-Differences

- Formally we consider:

- Treated group = US firms; Control group = non-US firms
- Pre-reform period = 1997-2002; Post-reform period = 2003-2006

- Country and Year fixed effects specifications:

$$y_{it} = \beta * (Treated_i * Post_t) + \phi_j * Country_{j(i)} + \theta_t * Year_t + \varepsilon_{it}$$

- Outcomes (scaled by assets in year  $t-1$ ): dividends, investment
- Estimation: weighted least squares (lagged assets, giving more weight to larger firms)
  - Similar results using ordinary least squares
  - Similar results with additional controls

# Results - Dividends

	Matched	
	OLS	WLS
$\beta$ (Diff-in-diff)	-0.0039	-0.0049
Std error	(.0007)	(0.0017)
Pre-trends (p-value)	0.10	0.01

Diff-in-diff comparison indicates **lower** dividends in post-2003 period for large US corporations

# Results - Investment

	Matched	
	OLS	WLS
$\beta$ (Diff-in-diff)	-0.0025	-0.0102
Std error	(.0017)	(0.0034)
Pre-trends (p-value)	0.20	0.12

Diff-in-diff comparison indicates **lower** investment in post-2003 period for large US corporations

# Discussion

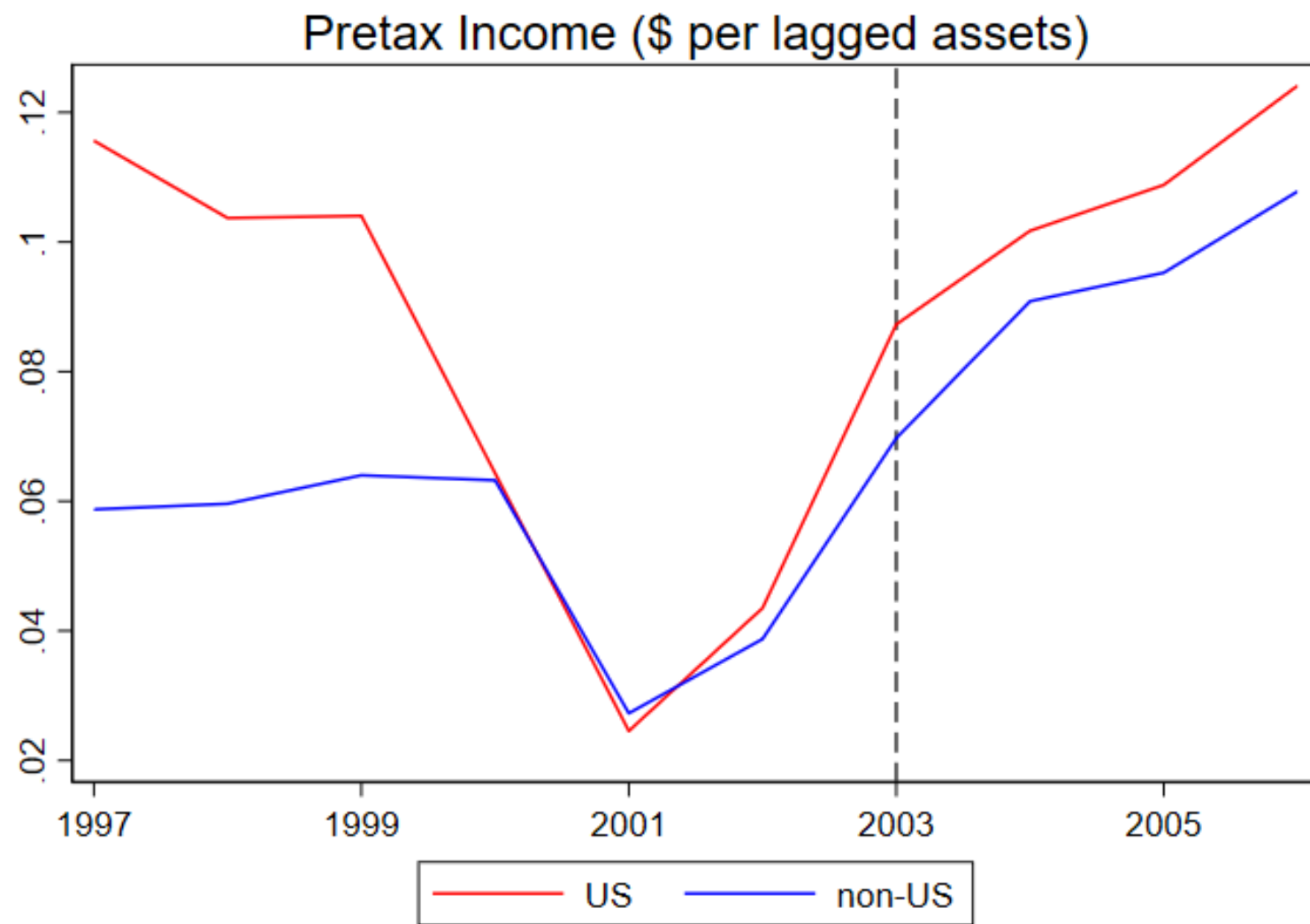
- If anything, both dividends and investment were **lower** after 2003, compared to before 2003, for large US corporations
- Compared to observationally similar publicly traded firms in other OECD countries
- [No significant diff-in-diff effect found for total payouts to shareholders, including (an estimate of) share repurchases
- Share repurchases by US MNCs were also affected by the 2004/05 repatriation tax holiday
  - Blouin-Krull, JAR 2009]

# Discussion

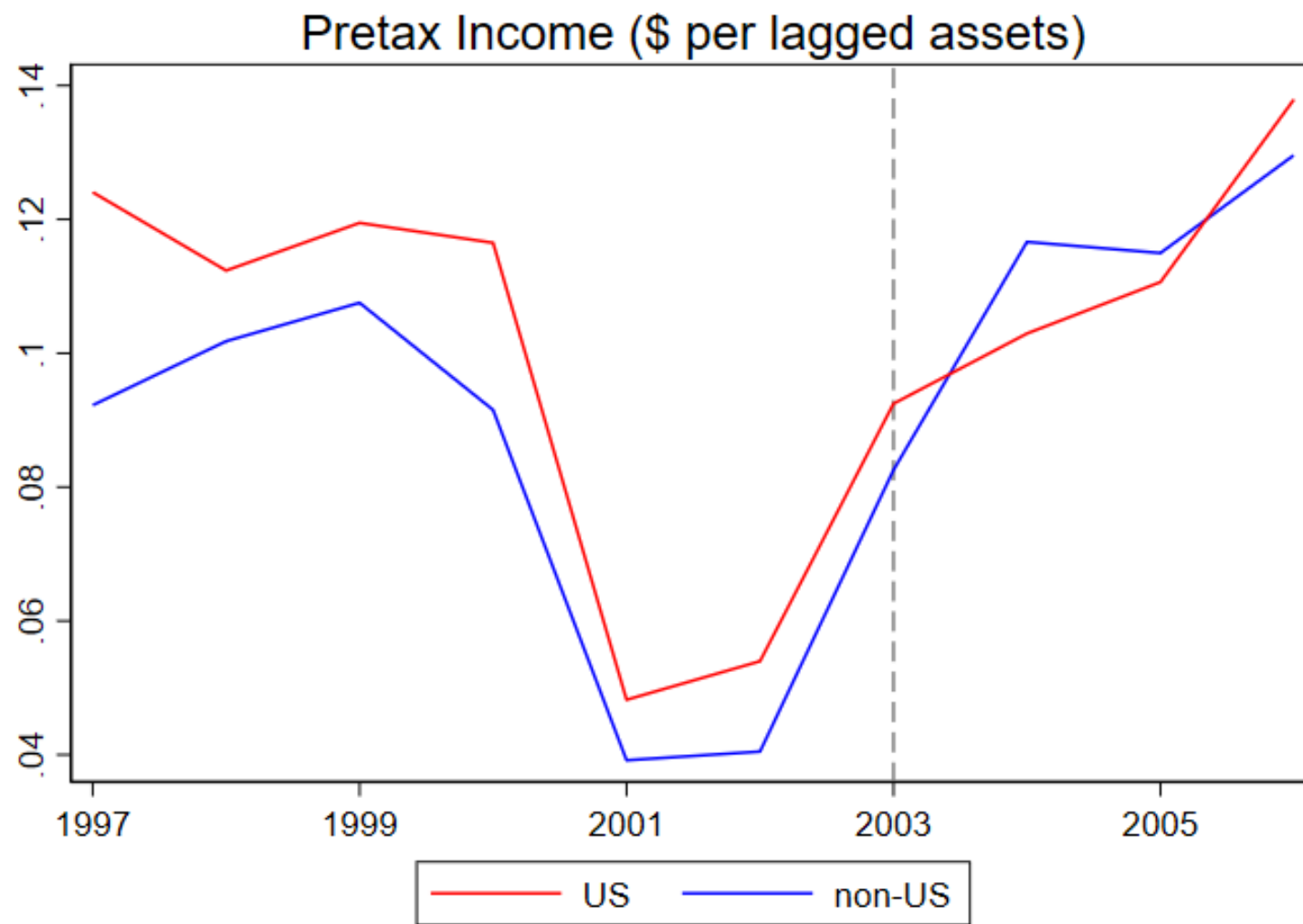
- (Broadly) similar cyclical patterns before and after 2003 suggest a common cause
- The 2003 US dividend tax cut ???
- Another leading candidate is the global business cycle
- We do indeed observe similar cycles in profitability over this period, particularly for our matched samples
  - Aggregate pre-tax income scaled by aggregate lagged total assets



## All firms



## Matched samples



# Discussion

- (Broadly) similar cyclical patterns before and after 2003 suggest a common cause
- The 2003 US dividend tax cut ???
- Another leading candidate is the global business cycle
- We do indeed observe similar cycles in profitability over this period, particularly for our matched samples
  - Aggregate pre-tax income scaled by aggregate lagged total assets
- Similar patterns – rising dividends and rising investment – were also seen during the recovery from the previous recession in the early 1990s
  - For matched samples of US and non-US publicly traded firms

# Conclusions

- While this evidence does not definitively rule out some effects of the 2003 US dividend tax cut on dividend payouts and investment of large, publicly traded corporations:
  - (a) Any effects appear to have been broadly similar between US and non-US corporations
    - If anything, stronger for non-US corporations
  - (b) Rising corporate dividends and investment in the period between the 2003 dividend tax cut and the Great Financial Crisis, in the US and in other OECD countries, could also be explained by global business cycle factors

# Thank you!

Ahmed Tohamy

[ahmed.tohamy@nuffield.ox.ac.uk](mailto:ahmed.tohamy@nuffield.ox.ac.uk)

## Other Work:

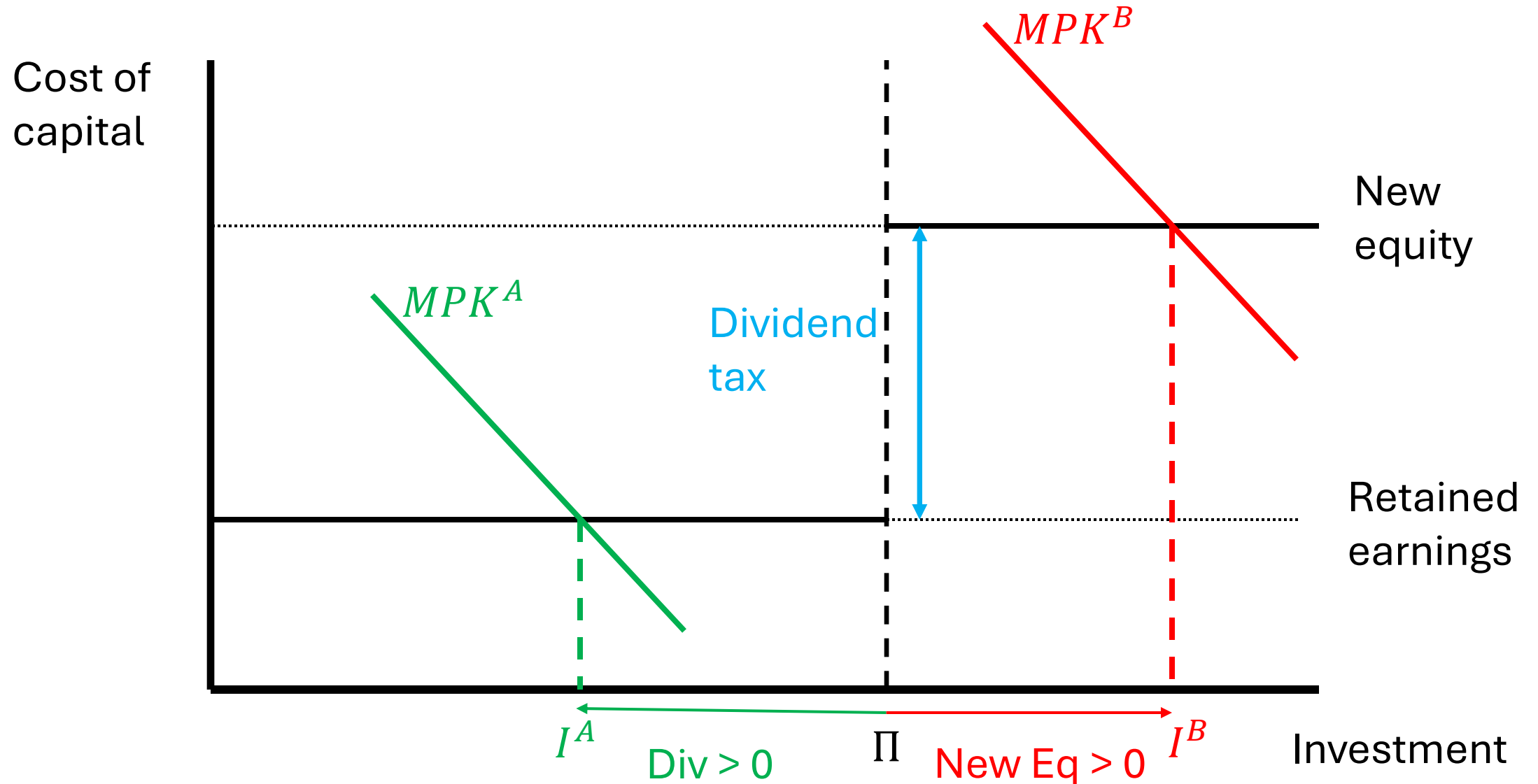
1. Wealth Taxation & Labour Supply: Evidence from the Danish Wealth Tax Reform
2. Dynamic of Financing Frictions for R&D (with Irem Guceri)
3. Market Power in the Middle East (with Yevgeniya Korniyenko & Weining Xin)
4. German Nationality Reform & Immigrant Human Capital Investments

# Appendix

# Theory Pictures

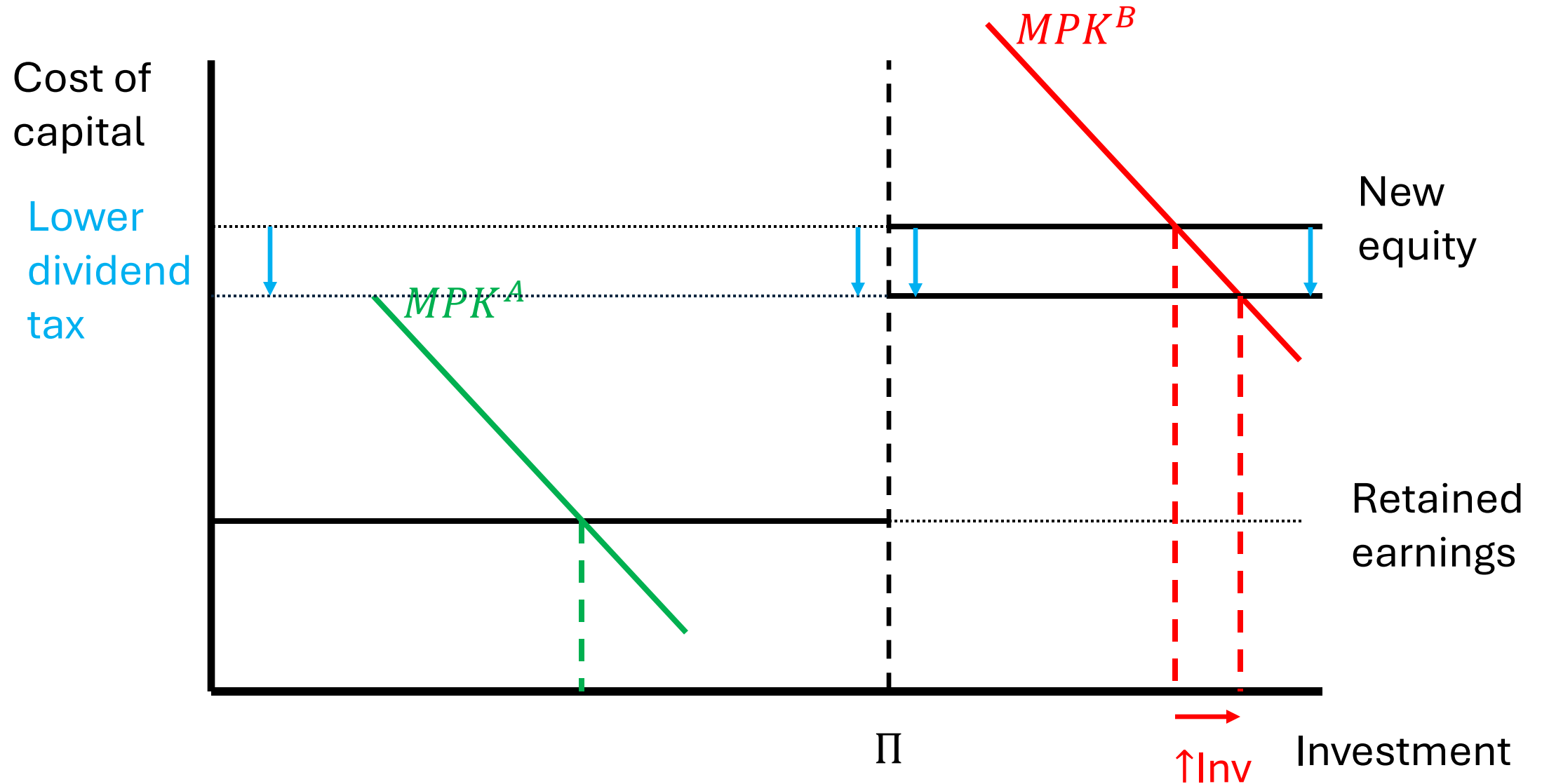
Firm A: 'cash rich'  $\text{Div} = \Pi - I > 0$

Firm B: 'cash poor'  $\text{New Eq} = I - \Pi > 0$

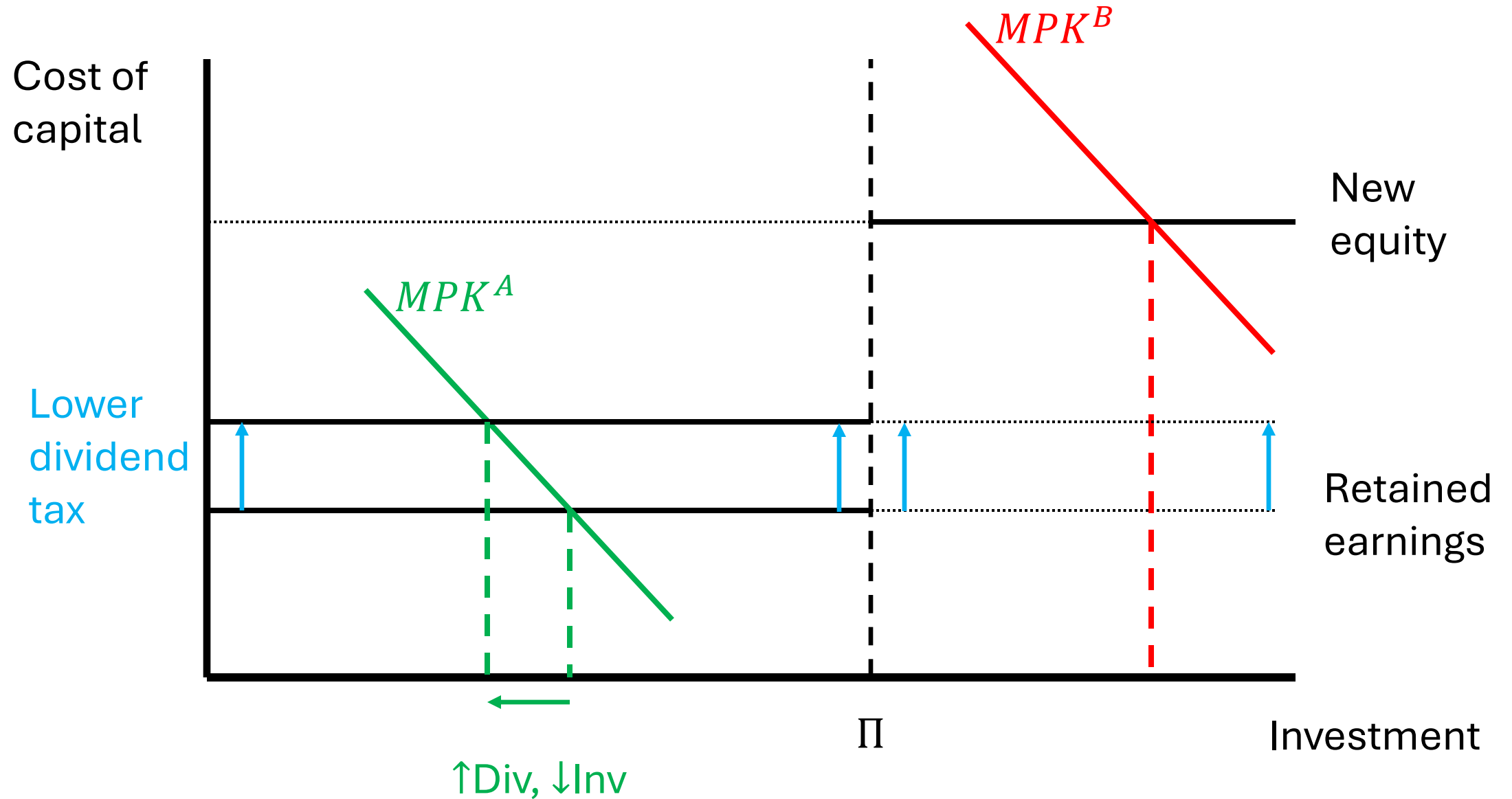




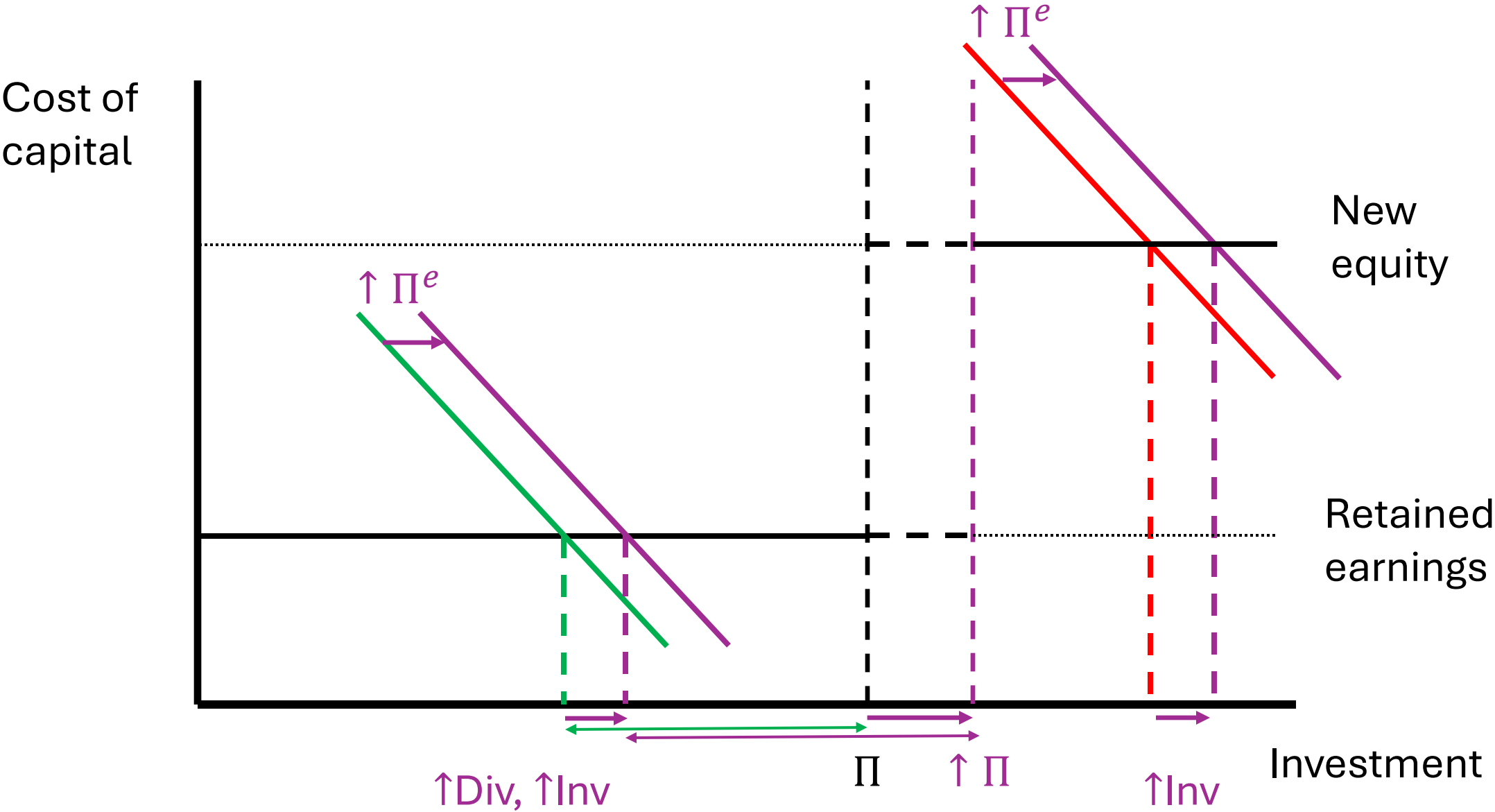
## Permanent Dividend Tax Cut



## Temporary Dividend Tax Cut



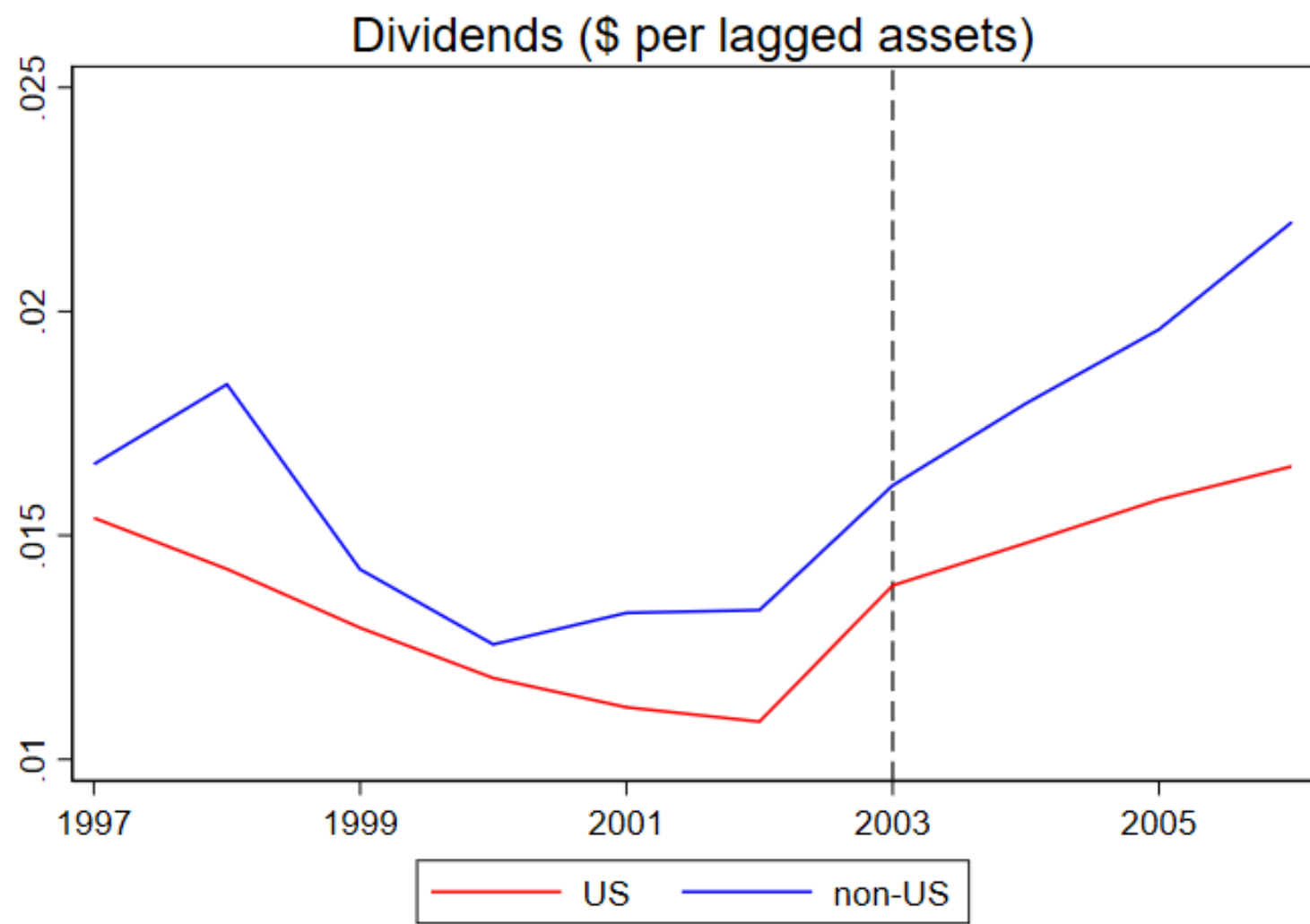
Cyclical Recovery



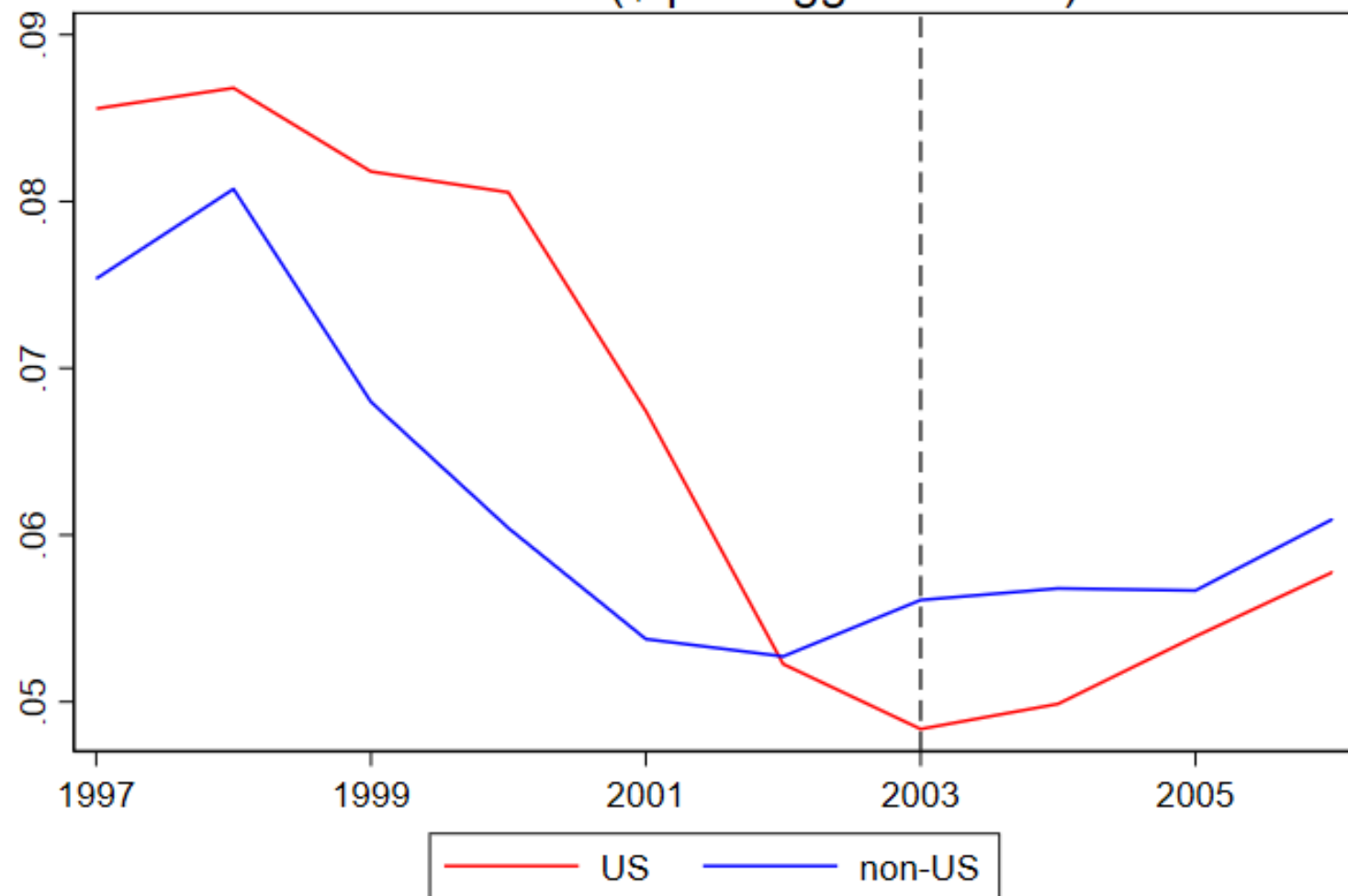
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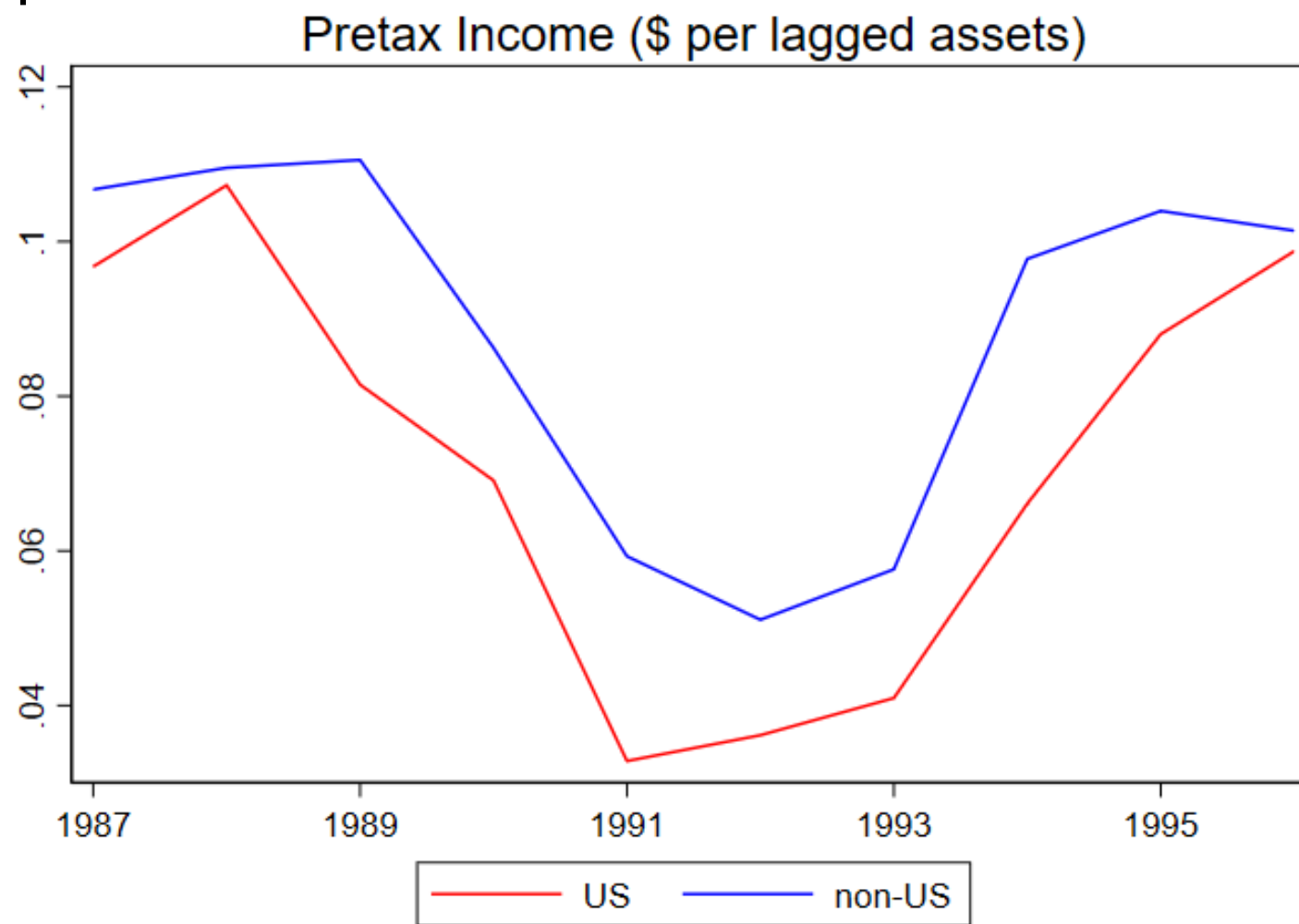
Investment (\$ per lagged assets)



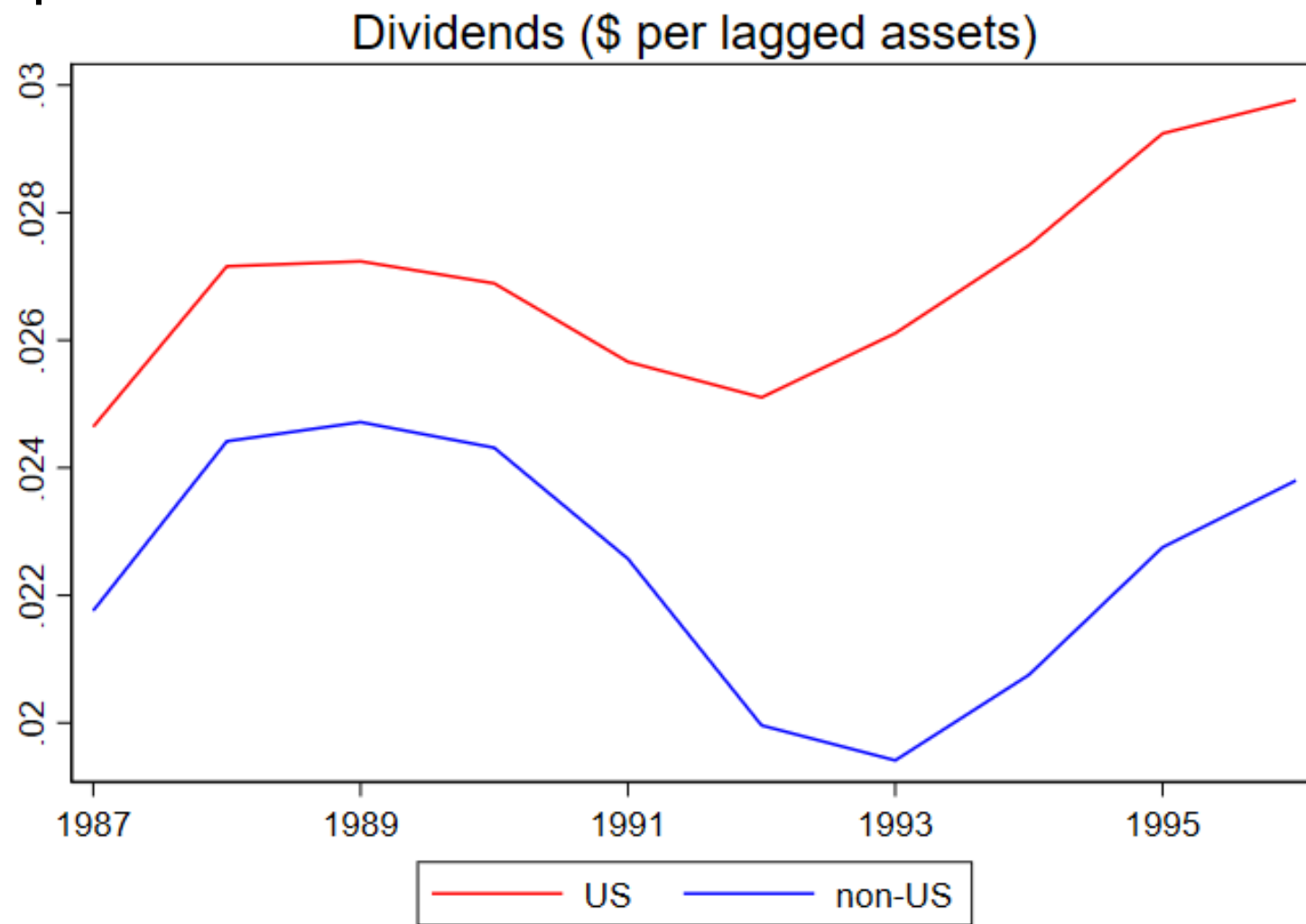
1993 Previous Cycle



## Matched samples



## Matched samples



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