Compulsory or Voluntary Pre-merger Notification? A Theoretical and Empirical Analysis

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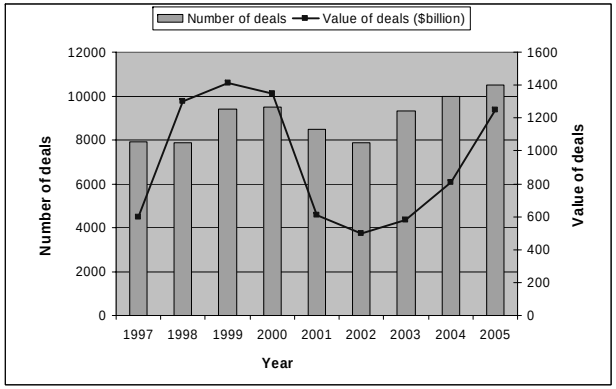
Outline of the talk

- Background
- A model of merger notification
- Comparison of equilibria under different regimes
- Empirical implications
- Preliminary test results
- Summary and discussions

Background

- Various merger notification regimes
  - Compulsory pre-merger notification – US, EC, and growing in number
  - Voluntary pre-merger notification – Australia, Chile, UK (overruled by the EC regulations)
  - Compulsory post-merger notification – Argentina, Japan (for transactions involving stockholdings), Russia
- Rationale for pre-merger notification
  - Give time to regulators to challenge anti-competitive mergers and/or to negotiate remedies before they are realized.
  - Avoid costly process of unscrambling an anti-competitive merger

Mergers and acquisitions in the US



Merger notification under the US Hart-Scott-Rodino Act (1976 modified in 2000)

- Compulsory pre-merger notification to the FTC and the Antitrust Division of the DOJ if a merger passes:
  - Size-of-transaction test – transaction is valued at more than $53.1 million (threshold to be adjusted annually)
  - Size-of-person test – threshold for assets and revenues for the acquirer and the target (threshold to be adjusted annually)
- Filing fees - $45,000, $125,000, and $280,000 as transaction value increases
- Penalties for failing to notify can be $11,000 per day for each day a filing should have been made (30 days' notice).
- On average, the FTC and DOJ receive annually about 4500 – 5000 notifications.

Should notification be compulsory?

- Pros
  - Possibility of negotiated outcomes
  - Avoid costly process of unscrambling an anti-competitive merger
  - Reduce litigation-related costs
- Cons
  - Notification costs for the merging parties: costs of preparing and filing; information leakage and delays to completion
    - Average external costs for compliance with notification procedures in multiple jurisdictions about €3.28 million
    - Average duration of merger review about 7 months
  - Regulatory burden

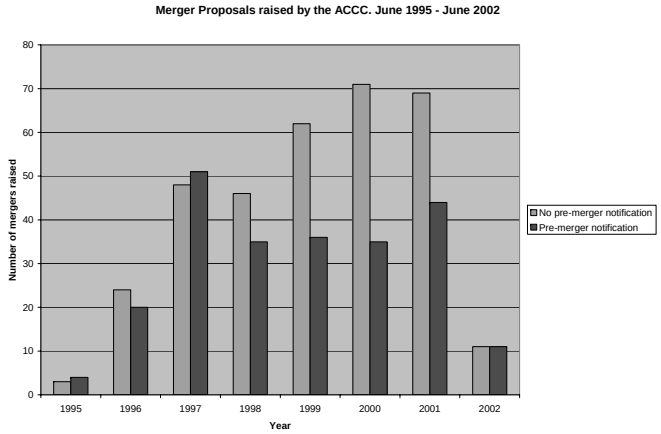
Should notification be compulsory?

- Case for voluntary notification?
  - Reduce notification costs
  - Reduce regulatory burden – notification signals the parties' private information
  - A large number of mergers in Australia involve competitively neutral transactions
- Will study a voluntary notification regime - Australia

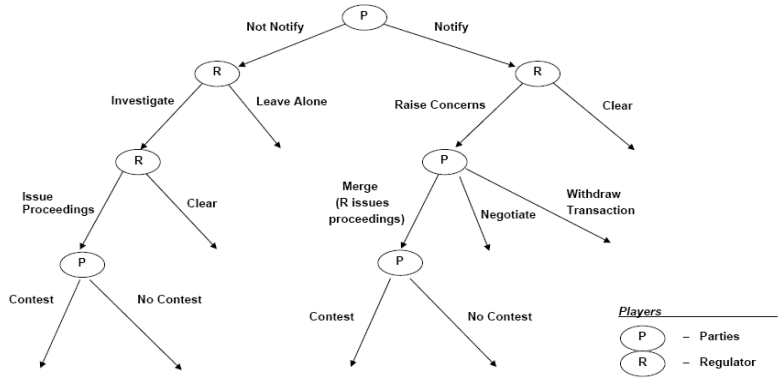
Merger process in Australia

- Australian Competition and Consumer Commission (ACCC) – Competition watchdog
- Pre-merger notification not compulsory
- Merging parties have two options
  - Voluntary notification – possibility of negotiation; parties offer undertakings to the ACCC's concerns
  - Midnight merger at the risk of regulatory challenge
- A large number of mergers are not notified and competitively neutral.
- For details – ACCC mergers register (http://www.accc.gov.au/content/index.phtml/itemId/750991)

Merger process in Australia



Merger process in Australia



The model

- A merger is represented by two parameters:
  - b denotes private benefits to the merging parties, $b_h > b_l$;
  - w denotes social welfare from the merger, $w_h > w_l$.
- (b, w) is the merging parties' private information.
  - The regulator's prior beliefs are given by independent probabilities p for b_h and q for w_h.
  - The regulator can learn the merger type at cost (lower if notification is given).
- The merging parties maximize private benefits less any costs (notification, legal, etc.)
- The regulator maximizes social welfare less any costs (investigation, legal, etc.)

Extensive form game – no notification

- Stage 1: The parties with type (b, w)-merger decide whether or not to notify.
- Stage 2: If the parties do not notify, then the regulator may investigate at cost γ, and
- Stage 3: Issues proceedings or gives clearance.
- Stage 4: Given the regulator's challenge, the parties may choose to contest in the court or no contest.
  - π: probability of court-found contravention
  - f: penalty for anti-trust infringement
  - c: cost of litigation for both sides (borne by the losing side)
- Expected payoffs in case of litigation:
  - Merging parties: $\pi(-c-f) + (1-\pi)b$
  - Regulator: $\pi f + (1-\pi)(w - c) - \gamma$

Extensive form game - notification

- Stage 1: The parties with type (b, w)-merger decide whether or not to notify.
- Stage 2: If the parties choose notification at cost n, then the regulator reviews the case at cost $\gamma' < \gamma$, learns the type (b, w), and
- Stage 3: Raises concerns or gives clearance.
- Stage 4: Given the regulator's concerns, the parties may choose to
  - Withdraw transactions, or
  - Offer undertakings that weakly increase social welfare and reduce private benefits to $b(1 - \alpha)$, $0 < \alpha < 1$, or
  - Proceed with the merger, which is followed by the court proceedings.
- Expected payoffs in case of litigation:
  - Merging parties: $\pi(-c-f) + (1- \pi)b - n$
  - Regulator: $\pi f + (1- \pi)(w - c) - \gamma'$

Equilibrium under compulsory notification – backward induction

- Stage 4: Given the regulator's concerns, the parties' best response is
  - 'Negotiate' if $b(1 - \alpha) - n \geq \pi(-c-f) + (1- \pi)b - n \leftrightarrow b \leq \pi(c + f)/(\alpha-\pi)$;
  - 'Merge and contest', otherwise
- Stage 3: Given the parties' best response in stage 4, the regulator's decision is
  - 'Raise concerns' if the parties choose 'negotiate';
  - 'Raise concerns' if the parties choose 'merge and contest' and $w - \gamma' \leq \pi f + (1- \pi)(w - c) - \gamma' \leftrightarrow w \leq f - c(1-\pi)/\pi$;
  - 'Give clearance' if the parties choose 'merge and contest' and $w > f - c(1-\pi)/\pi$.

Equilibrium under compulsory notification – backward induction

- Proposition 2: Given assumptions 1 ((b_h, w_h) sufficiently larger than (b_l, w_l)) and 2 (notification cost not too large), compulsory notification leads to
  - (b_h, w_h)-type mergers cleared;
  - (b_h, w_l)-type mergers challenged and contested in the court;
  - The rest are settled into negotiated outcomes.

Equilibrium under voluntary notification

- Stage 4: If the regulator issues proceedings after investigation, the parties' best response is
  - 'Contest' if $b > \pi(c + f)/(\alpha-\pi)$;
  - 'No contest', otherwise
- Stage 3: Given the parties' best response in stage 4, the regulator's decision is
  - 'Issue proceedings' if the parties choose 'contest' and $w \leq f - c(1-\pi)/\pi$;
  - 'Issue proceedings' if the parties choose 'no contest' and $w \leq f$;
  - 'Clear' otherwise.

Equilibrium under voluntary notification

- Lemma 3: The subgame following the regulator's investigation has the outcomes:
  - (b_h, w_h) and (b_l, w_h)-type mergers cleared;
  - (b_h, w_l)-type mergers challenged and contested in the court;
  - (b_l, w_l)-type mergers challenged and parties offer no defense.

Equilibrium under voluntary notification: parties' notification decision

- Parties' notification decision depends on the regulator's investigation probability σ, and the outcomes in Lemma 3 following the investigation.
- Parties with (b_h, w_h) and (b_l, w_h)-type mergers are cleared after investigation. Thus they are better off without notification.
- Parties with (b_h, w_l)-type mergers are challenged after investigation, which they will contest. Thus they are better off without notification.
  - Their expected payoff is $\pi(-c - f) + (1 - \pi)b_h - n$ with notification, which is larger than $\sigma[\pi(-c - f) + (1 - \pi)b_h] + (1 - \sigma)b_h$, the expected payoff without notification.
- Parties with (b_l, w_l)-type mergers are challenged after investigation and they offer no defense. Thus their notification decision depends on the investigation probability.
  - Their expected payoff is $b_l(1 - \alpha) - n$ with notification, and $\sigma(-f) + (1 - \sigma)b_l$ without notification.
  - They choose notification and negotiation if $\sigma \geq (b_l\alpha + n)/(b_l + f)$.

Pooling equilibrium under voluntary notification

- Pooling equilibrium: If the regulator's investigation probability is small enough ($\sigma \leq (b_l\alpha + n)/(b_l + f)$), then none of the parties choose notification.
- If the regulator does not investigate any merger, then its expected payoff is $E_\mu(w) = qw_h + (1 - q)w_l$ where μ is the regulator's belief about merger type, same as the prior belief.
- If the regulator investigates, then its expected payoff is $E_\mu(W) = qw_h + p(1 - q)[\pi f + (1- \pi)(w_l - c)] + (1-p)(1-q)f - \gamma$.
- Thus the regulator chooses investigation probability σ such that (i) $\sigma = 0$ if $E_\mu(w) > E_\mu(W)$, (ii) $0 \leq \sigma \leq 1$ if $E_\mu(w) = E_\mu(W)$, and (iii) $\sigma = 1$ if $E_\mu(w) < E_\mu(W)$.

Pooling equilibrium under voluntary notification

- Proposition 4: If the cost of investigation or the proportion of mergers with high social welfare are large enough, then a pooling equilibrium exists where
  - None of the parties choose notification,
  - The regulator investigates a merger with probability $0 \leq \sigma \leq (b_l\alpha + n)/(b_l + f)$, and
  - The outcome following investigation is as in Lemma 3.

Separating equilibrium under voluntary notification

- Separating equilibrium: If the regulator's investigation probability satisfies $\sigma \geq (b_l\alpha + n)/(b_l + f)$, then only the parties with (b_l, w_l)-type mergers choose notification.
- In the absence of notification, the regulator's updated beliefs are
  - $\mu(b_h, w_h) = pq / [q + p(1-p)]$,
  - $\mu(b_l, w_h) = (1-p)q / [q + p(1-p)]$,
  - $\mu(b_h, w_l) = p(1-q) / [q + p(1-p)]$,
  - $\mu(b_l, w_l) = 0$.
- If the regulator does not investigate any merger, then its expected payoff is $E_\mu(w) = [qw_h + p(1 - q)w_l] / [q + p(1-p)]$.
- If the regulator investigates, then its expected payoff is $E_\mu(W) = \{qw_h + p(1 - q)[\pi f + (1- \pi)(w_l - c)] - \gamma\} / [q + p(1-p)]$.

Separating equilibrium under voluntary notification

- Proposition 5: If w_l is small enough, then a separating equilibrium exists where
  - Only the parties with (b_l, w_l)-type mergers choose notification, and settle into negotiated outcomes;
  - The regulator investigates other mergers with probability $\sigma \geq (b_l\alpha + n)/(b_l + f)$, and the outcomes following investigation are as in Lemma 3.

Comparing compulsory and voluntary notification regimes (separating equilibrium)

	Compulsory notification	Voluntary notification
(b_l, w_l)	negotiation	notification/negotiation
(b_l, w_h)	negotiation	no notification/clear
(b_h, w_l)	court challenge	no notification/court challenge
(b_h, w_h)	clear	no notification/clear

1. Parties are better off with voluntary notification.
2. Regulatory burden is smaller with voluntary notification.
3. There is less litigation with voluntary notification
4. Compulsory notification can increase social welfare through negotiation but it is limited only to (b_l, w_h)-type mergers.

Empirical implications and prior studies

- Empirical implications for Australian mergers (voluntary notification)
  - Notified mergers are associated with low private benefits compared to mergers that are not notified.
  - Mergers with high social welfare are less likely to be notified and more likely to be cleared after investigation.
  - Mergers that are objected to and contested by the parties are associated with high private benefits.
- Existing studies on the US and European mergers (compulsory notification)
  - Private benefits estimated by cumulative abnormal returns are positive for targets, negative for bidders. Combined abnormal returns are positive.
  - Transactions involving regulatory challenge experience strong positive returns.
  - Estimation of social welfare, notification and enforcement costs is an unresolved issue.

Australian mergers 1996 – 2002

Panel A - All merger proposals

	N	Not Objected	Objected	Renegotiated	Withdrawn
Initiated by Parties	547	499 (91.22%)	48 (8.77%)	35 (6.39%)	13 (2.37%)
Initiated by Others	303	295 (97.35%)	8 (2.64%)	2 (0.66%)	6 (1.98%)

Panel B - Merger proposals by firms with price data available

	N	Not Objected	Objected	Renegotiated	Withdrawn
Initiated by Parties	126	102 (81%)	24 (19%)	17 (13.49%)	7 (5.55%)
Initiated by Others	44	43 (97.72%)	1 (2.27%)	0 (0%)	1 (2.27%)

Estimation of private benefits

- Data
  - 850 mergers from January 1996 to June 2002 from the ACCC's public register
  - 170 mergers for which stock price data are available – 126 self-reported transactions and 44 transactions reported by others
- Private benefits are estimated as the abnormal returns around the event date.
  - Event date: the earliest date a merger proposal is publicly identified
- Abnormal return for firm i at time t is $AR_{it} = R_{it} - R_{it}$ (est) where
  - R_{it} is firm i's actual return and
  - R_{it} (est) is estimated from the market model $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$ where R_{mt} is the All Ordinaries Accumulated Index, a proxy for the market return.

CAAR estimation: all mergers

Panel A - Notified vs. Not Notified mergers, all firms					
Interval	(-1, 1)	(-1, 0)	(0, 0)	(0, 1)	(-2, 2)
Notified (N=148)	*4.83%*	*2.7%*	*2.44%*	*4.55%*	*5.32%*
Not Notified (N=50)	*5.32%*	*5.08%*	*3.65%*	*3.84%*	*7.57%*
t-statistic	0.26	1.48	0.9	-0.44	1.06
z-statistic	0.24	1.46	0.48	-0.124	0.897

CAAR estimation: not objected mergers

Panel B - Notified vs. Not Notified mergers, not objected mergers only					
Interval	(-1, 1)	(-1, 0)	(0, 0)	(0, 1)	(-2, 2)
Notified (N=120)	*3.75%*	*2.75%*	*2.58%*	*3.51%*	*4.12%*
Not Notified (N=49)	*5.59%*	*5.32%*	*3.85%*	*4.07%*	*7.88%*
t-statistic	-0.98	-1.55	-0.91	-0.34	-1.75
z-statistic	1.05	1.89*	0.824	0.594	1.716*

CAAR estimation: objected mergers

Panel C - Notified vs. Not Notified mergers, objected mergers only					
Interval	(-1, 1)	(-1, 0)	(0, 0)	(0, 1)	(-2, 2)
Notified (N=28)	*9.34%*	*2.435%*	*1.67%*	*9.015%*	*10.39%*
Not Notified (N=1)	*-8.24%*	*-7.0%*	*-6.23%*	*-7.48%*	*-7.81%*
t-statistic	-	-	-	-	-
z-statistic	-1.61	-1.58	-1.576	-1.6	-1.61

Summary of the main results

- Merger notification
  - A leading regime is compulsory pre-merger notification.
  - The rationale is to avoid costly litigation and reach a negotiated settlement and higher social welfare before anti-competitive mergers are consummated.
  - This is at the costs of enforcement for the regulator and notification for the merging parties.
- Voluntary pre-merger notification achieves similar outcomes but at lower costs.
  - In the separating equilibrium, mergers that are not likely to cause anti-trust concerns are not notified, which significantly reduces the regulator's enforcement burden.

Summary of the main results

- Analysis of Australian mergers partially supports our findings.
  - A majority of un-notified mergers that are investigated ex post are cleared.
  - Un-notified mergers that are investigated ex post and cleared are associated with larger private benefits.
  - Further analysis is needed incorporating the measure of social welfare, the costs of enforcement and notification.