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Articles

Event Study Analysis in Cases with Multiple Brand-Generic Reverse-Payment Settlements

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methods stock value
across fo n, indicating
the agreements delayed generic entry beyond the market's expectation.

Keywords: Pharmaceuticals Antitrust Reverse payment Event studies Patent settlements

JEL CLASSIFICATIONS: C53 D43 K2 L11 L41

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Disclosure statement

No potential conflict of interest was reported by the authors.

Notes

1 Saving e-patent expiry b e as savings for all ge

2 Str strictions on drug dis 2017).

3 Edlin e ayment antitrust e brand to the gene

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and to the same extent as in the branded versions.

5 There were at least 140 brand-generic settlements during each of the fiscal years 2011–2015. See FTC, 'Agreements Filed with the Federal Trade Commission under the Medicare Prescription Drug, Improvement, and Modernization Act of 2003: Overview of Agreements Filed in FY 2015,' November 2017. https://www.ftc.gov/reports/agreements-filed-federal-trade-commission-under-medicare-prescription-drug-improvement-9.

6 See also Lemley and Shapiro (2005: 91): 'There is no reason to assume that bargaining between the monopolist and the potential entrant to maximize their joint profits will lead to a socially optimal settlement. … the monopolist and the entrant will have an incentive to negotiate in a way that leads to the monopoly level of output and the monopoly price… an easy way for the parties to settle and achieve full monopoly profits: the incumbent can pay the potential entrant not to enter the market.'"

7 For extensive discussion of the unintended incentive effects of the 180-day exclusivity period, see Hemphill and Lemley (2011). The authors argue that Paragraph IV filing (as opposed to a win in litigation or an at-risk launch) should not earn a first-filer the 180 days of exclusivity.

8 The Medicare Prescription Drug, Improvement, and Modernization Act, enacted in 2003, cr applicant to forfeit its rfeiture provisio

9 Elhaug es. Writing in this cont litigation exclusio elfare is called ex occurred.'

10 M of event study re , Transcript of Jury T rict Court District al., Plaintiffs v. Ceph he Eastern District ed here) included other experts, study

methods in reverse payment cases. See Cipro Cases I and II, in the Superior Court of the State of California in and for the County of San Diego, Reporter's Transcript of Proceedings 27 October 2016 and United Food and Commercial Workers Local 1776 & Participating Employers Health and Welfare Fund, et al., Plaintiffs., v. Teikoku Pharma USA, et al., Defendants, Order on Pending Motions, 3 November 2017.

11 The FTC vs. Cephalon Complaint (2008) indicates that before the reverse payment settlements, 'current Street expectations are for generic competition in the mid-2006 time frame.'

12 Financial analysts interpreted the Provigil settlements described in this paper in this way. For example, see Davis, Shaw, and Kim (2005): 'Although it only takes one generic to erode Provigil, we take today's news as a very optimistic sign that the probability that generics enter the market at the end of June 2006 is somewhere less than 100%. What we like best about this, is that seemingly the entire market has assumed generic entry at that time; any delay is all upside to our forecasts and we think also to the stock.'

13 Other generic manufacturers submitted ANDAs later but were not eligible for the generic exclusivity period as non-first filers. These other generics pose far less of a threat to the brand because they would need to win a final, non-appealable legal decision
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the market returns on that day, MR^t. The percentage changes in the S&P 500 Stock Price index market returns are used for the market index. $\alpha\hat{}$ is the constant term estimated in that model and $\beta\hat{}$ is the estimated coefficient on MR^t.

17 The abnormal return is the difference between the actual return and the expected return: $A^t = R^t - E[R^t]$. For the market model used here, the expected return is based on the corresponding event window market return and the OLS estimates of $\alpha\hat{}$ and $\beta\hat{}$ from the equation in Note 16.

18 See McWilliams, Siegel, and Teoh (1999: 353) describing the method of summing abnormal returns across multiple related events: 'This approach would isolate the effect of [the event] because it allows for the inclusion of all abnormal returns actually related to the event while minimizing contamination from other events.'

19 The reported t-statistics are calculated as the ratio of the cumulative abnormal return over the standard deviation of the daily abnormal returns during the prior 120-day period multiplied by the square root of the number of days in the event window.

20 Robert Baldino, Cephalon's CEO at the time of the settlements, attributed the increase in market capitalization to unexpected profits obtained through the settlement agreements (George 2006): 'A lot of [Wall Street's enthusiasm for Cephalon's stock] is a result of [illegible] get six more ye[illegible]cted.' The $4 billio[illegible]tion after removin[illegible]he settleme[illegible]l as a signal of antic[illegible]

21 For e[illegible]han et al. 2005[illegible]an't imagine that [illegible]l, so we have to [illegible]lon to make payme[illegible]

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