


**HOW DOES TOBIN'S Q RESPOND TO MERGER AND ACQUISITION
ANNOUNCEMENTS: EVIDENCE OF LISTED INDIAN FIRMS**

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ARTICLE INFO	ABSTRACT
<p>Article history:</p> <p>Received 28 November 2022</p> <p>Accepted 20 February 2023</p> <p>Keywords:</p> <p>Mergers; Acquisitions; Tobin's q; Firm Valuation; Listed Firms.</p>	<p>Purpose: The aim of this study is to examine the linkage between mergers and acquisition announcements and firm's valuation taking into consideration Tobin's q.</p> <p>Theoretical framework: The Q theory of investment propounded by James Tobin (1969) is suitable for the present study. According to this theory, there is a significant correlation between a company's market value and its rate of investment. Following this, indicators of the relative potential profitability of investments are the valuations that are placed in financial markets on the securities of companies as ratios to the costs of replacing their assets, which is denoted by q.</p> <p>Design/methodology/approach: The current investigation examines Tobin's q distribution for 140 listed firms on the Bombay Stock Exchange from 2011 to 2022. Tobin's q is calculated for the financial service sector of the Indian economy.</p> <p>Findings: The results study suggests that Stock markets react significantly to the valuation of Indian firms due to M&A announcements in the category of non-banking financial companies. More specifically, 40 companies have a high Tobin's q ratio in the full sample of firms. According to the findings, the majority of M&A announcements had no effect on the Tobin's q of the sampling companies. This indicates that the stocks of companies operating in the financial services sector are not affected by news of mergers and acquisitions. It demonstrates that the Indian capital market responded normally to information on mergers and acquisitions.</p> <p>Research, Practical & Social implications: The study helps financial analysts, top-level management, and stakeholders of a company to correctly evaluate the impact of mergers and acquisitions announcements on Tobin's q of firms as a performance measurement metric.</p> <p>Originality/value: The value of the study can be evaluated from the fact that it investigates the relationship between mergers and acquisitions announcements and Tobin's q as a crucial parameter for corporate valuation, which is the first of its kind for emerging economies.</p>
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**COMO O Q DA TOBIN RESPONDE AOS ANÚNCIOS DE FUSÕES E AQUISIÇÕES: EVIDÊNCIA DE
EMPRESAS INDIANAS LISTADAS**

RESUMO

Objetivo: O objetivo deste estudo é examinar a ligação entre os anúncios de fusões e aquisições e a avaliação da empresa, levando em consideração a q. da Tobin.

Estrutura teórica: A teoria Q de investimento proposta por James Tobin (1969) é adequada para o presente estudo. De acordo com esta teoria, existe uma correlação significativa entre o valor de mercado de uma empresa

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e sua taxa de investimento. Em seguida, indicadores da rentabilidade potencial relativa dos investimentos são as avaliações que são colocadas nos mercados financeiros sobre os títulos das empresas como rácios para os custos de substituição de seus ativos, o que é denotado por q .

Desenho/método/abordagem: A investigação atual examina a distribuição q de Tobin para 140 empresas listadas na Bolsa de Valores de Bombaim, de 2011 a 2022. A q de Tobin é calculada para o setor de serviços financeiros da economia indiana.

Descobertas: O estudo de resultados sugere que os mercados de ações reagem significativamente à avaliação das empresas indianas devido aos anúncios de fusões e aquisições na categoria de empresas financeiras não-bancárias. Mais especificamente, 40 empresas têm um alto índice Tobin's q na amostra completa de empresas. De acordo com os resultados, a maioria dos anúncios de fusões e aquisições não teve efeito sobre a q Tobin's das empresas da amostra. Isto indica que as ações das empresas que operam no setor de serviços financeiros não são afetadas pelas notícias de fusões e aquisições. Isto demonstra que o mercado de capitais indiano respondeu normalmente às informações sobre fusões e aquisições.

Pesquisa, implicações práticas e sociais: O estudo ajuda os analistas financeiros, a alta administração e as partes interessadas de uma empresa a avaliar corretamente o impacto dos anúncios de fusões e aquisições sobre a q de empresas da Tobin como uma métrica de medição de desempenho.

Originalidade/valor: O valor do estudo pode ser avaliado a partir do fato de que ele investiga a relação entre os anúncios de fusões e aquisições e a q da Tobin como um parâmetro crucial para a avaliação corporativa, que é o primeiro de seu tipo para as economias emergentes.

Palavras-chave: Fusões, Aquisições, Tobin's q , Avaliação da Empresa, Empresas Cotadas.

¿CÓMO RESPONDE LA Q DE TOBIN A LOS ANUNCIOS DE FUSIONES Y ADQUISICIONES? EVIDENCE OF LISTED INDIAN FIRMS

RESUMEN

Objetivo: El objetivo de este estudio es examinar la relación entre los anuncios de fusiones y adquisiciones y la valoración de las empresas teniendo en cuenta la q de Tobin.

Marco teórico: La teoría Q de la inversión propuesta por James Tobin (1969) es adecuada para el presente estudio. Según esta teoría, existe una correlación significativa entre el valor de mercado de una empresa y su tasa de inversión. Siguiendo esto, los indicadores de la rentabilidad potencial relativa de las inversiones son las valoraciones que se otorgan en los mercados financieros a los títulos de las empresas en relación con los costes de reposición de sus activos, que se denota por q .

Diseño/metodología/enfoque: La presente investigación examina la distribución de la q de Tobin para 140 empresas que cotizan en la Bolsa de Bombay desde 2011 hasta 2022. La q de Tobin se calcula para el sector de los servicios financieros de la economía india.

Resultados: El estudio de resultados sugiere que los mercados de valores reaccionan significativamente a la valoración de las empresas indias debido a los anuncios de fusiones y adquisiciones en la categoría de empresas financieras no bancarias. Más concretamente, 40 empresas presentan una elevada ratio q de Tobin en la muestra completa de empresas. Según los resultados, la mayoría de los anuncios de fusiones y adquisiciones no tuvieron ningún efecto sobre la q de Tobin de las empresas de la muestra. Esto indica que las acciones de las empresas que operan en el sector de los servicios financieros no se ven afectadas por las noticias de fusiones y adquisiciones. Demuestra que el mercado de capitales indio respondió con normalidad a la información sobre fusiones y adquisiciones.

Investigación, implicaciones prácticas y sociales: El estudio ayuda a los analistas financieros, a la alta dirección y a las partes interesadas de una empresa a evaluar correctamente el impacto de los anuncios de fusiones y adquisiciones en la q de Tobin de las empresas como métrica de medición del rendimiento.

Originalidad/valor: El valor del estudio puede evaluarse por el hecho de que investiga la relación entre los anuncios de fusiones y adquisiciones y la q de Tobin como parámetro crucial para la valoración de las empresas, lo que constituye la primera de este tipo para las economías emergentes.

Palabras clave: Fusiones, Adquisiciones, q de Tobin, Valoración de Empresas, Empresas Cotizadas.

INTRODUCTION

Mergers and acquisitions have assumed a position of paramount relevance and pertinence in today's business environment, which is characterized by ruthless competition among businesses (Kapil & Dhingra 2021). Mergers and acquisitions are crucial business decisions (Fischer 2017). MM theory tells us that a firm's investment can always reach the optimal level. However, in reality, with imperfect capital markets, some companies face difficulty in raising external funds. Therefore, mergers or acquisitions can be a means to solve funding difficulties by creating an internal capital market or having greater direct access to the capital market. As a result of this, mergers and acquisitions have become increasingly popular in recent years (Duan & Jin 2019). Mergers and Acquisitions have a positive effect on the performance of the merged companies. (Santulli et al., 2021). Performance refers to how well a company is doing in comparison to its competitors in the market (Nababan et al., 2023). Authors connected the mergers and acquisitions with Indian firm's financial performance. A key metric of the market performance of a firm is Tobin's q (Paula et al., 2022).

In 1969, James Tobin, a Nobel prize laureate, and economist developed the "Q" ratio. He described the "Q" ratio as the market value of a company in relation to the cost of replacing its assets (Tobin, 1969). A high Tobin's q signifies that the company is capable of more rapid expansion, has more resources available, and undertakes more prudent financial decisions (Tampakoudis & Anagnostopoulou 2020). Greater q ratios indicate that the market attributes an exceptional level of performance to the company. Empirical evidence shows that Investment decisions and capital growth of a company are more responsive to Tobin's q in long horizons (Verona, F. 2020).

The present study investigated Tobin's q response to mergers and acquisitions announcements in the emerging economy named India. India is one of the 26 countries on the list of developing markets tracked by the Morgan Stanley Capital International (MSCI) index. Existing literature shows that the Tobin's q is used as a proxy measure for the market value of the European Union acquirers (Tampakoudis & Anagnostopoulou 2020). A study evaluated the claims that have been made against Tobin's q within the setting of a developing market such as Pakistan (Butt et al., 2021). Tobin's q is considered as a firm's valuation measure post mergers and acquisitions activity performed by Singaporean acquirers and Australian acquirers (Tran et al., 2022). The presented facts demonstrate that relatively few research studies examine Tobin's q in the context of emerging markets that are specific to a particular sector of the economy. Statistics indicate that 85 percent of the global population resides in emerging markets (Butt et al., 2021). Therefore, the purpose of the present comprehensive study is to

understand how Tobin's q reacts to mergers and acquisitions announcements by listed Indian financial service sector companies.

LITERATURE REVIEW

During the review of the past studies, keywords such as Mergers, Acquisitions, Tobin's q with the Firm's Performance, financial aspects, and stock valuation have been carried out. Subsequently, research papers were screened using the principle of inclusion and exclusion. Some of the relevant research works are discussed here in this section.

Numerous studies have been conducted on the merger phenomena in keeping with the rising Mergers and Acquisitions trends (Aggarwal & Garg 2022). Tobin's q is a measurement that was first presented by Brainard and Tobin in the year 1968 (Scharfenaker & Dos 2015). The accounting-based measure is Tobin's q (Alsmady 2023). Tobin's q is the ratio of the market value of assets to the book value of assets (Boyson et al., 2017). Tobin's q is a performance metric that is utilized by organizations. Tobin's q accounts for the firm's past and expected future performance. This represents an essential indicator of performance since it demonstrates the value that was generated for investors. Additionally, it can be utilized in the evaluation of long-term performance as well as in forecasting future growth (Hejazi et al., 2016). A few studies also reported on organizational commitment, business, and environment are significant factors for organizational performance (Aggarwal et al., 2018, Shashi C. et al., 2020).

There is no evidence to suggest that the level of financial leverage, ROAs, or Tobin's q of the firms has the capacity to motivate acquirers to carry out mergers and acquisitions (Okofodartey & Kwenda 2019) but there is a favorable correlation between the measures of firm's financial performance (Gigante et al., 2023). On the other hand, a research study revealed that acquirers involved in big-value transactions typically have high Tobin's q ratios. The significant finding is that companies that have bigger growth potential often have a higher Tobin's q and greater uncertainty regarding their growth rates and valuations. (Fich et al., 2018).

Tobin's q is one of the most popular and comprehensive financial indicators that can be used to define the performance of the firm; as a result, a number of studies make use of it to characterize the management of the organization (Minutolo et al., 2019). Organizations are acutely aware that they operate in an environment that is continuously changing, and thus understand the need to respond swiftly to the factors that influence their performance and potential for expansion (Hussein & Zoghلامي 2023). Therefore, mergers and acquisitions are ways for companies to improve their capital base in response to growth opportunities defined

by Tobin's q. Tobin's q is a standard determinant of mergers and acquisitions (Elnahas & Kim 2017).

Theoretical framework of Tobin's q

Tobin's q has its roots in the Q theory of investment propounded by James Tobin (1969). The q theory of investments begins with the premise that if investors value assets at prices that are higher than their costs of replacement, then there are powerful inducements for investors to invest their funds in real, reproducible capital. This idea is mentioned by Keynes, and serves as the foundation for Tobin's "q," which is the ratio of the financial market valuation of replicable real capital assets to the costs of replacing these assets. The q theory of investment emphasizes the function of adjustment costs associated with investments. The theory to be legitimate, it is required to acknowledge the possibility of a difference existing between the value of capital as determined by the financial markets and the price of capital goods (Yoshikawa 1980).

Many researchers have endeavored to establish a connection between the service markets and the capital markets by employing Tobin's q in both a theoretical and an empirical function. The theoretical usefulness of Tobin's q is due to the fact that it incorporates forward-looking behavior, reflects optimal choices, and contains estimated coefficients that can be easily identified. Tobin's q also contains readily identifiable estimated coefficients (Gonzalez et al., 1998).

According to the q theory of investment, there will be a significant correlation between a company's market value and its rate of investment. In point of fact, it is possible to characterize the q theory of investment as an empirically successful framework for Tobin's q (Andrei et al., 2019). Tobin's q is a standard determinant of mergers and acquisitions (Elnahas & Kim 2017). However, only a handful of literature is available on the linkage of Mergers and Acquisitions (M&A) deals and Tobin's q in the context of emerging economies like India, China, Russia, Saudi Arabia, and Indonesia. Especially in the context of Indian sectors, a few research works have examined the relationship between Tobin's q and merger and acquisition (Gupta et al., 2021). Moreover, the present study is focused on Indian Financial service sector firms. Accordingly, the authors have performed a novel research study that examines the alliance between M&A and Tobin's q of financial service sector firms listed on the Bombay Stock Exchange.

MATERIAL AND METHODOLOGY

The purpose of this paper is to examine the linkage of Merger & Acquisition deal announcements on firms' valuation with the help of Tobin's q. Tobin's q (Duan & Jin 2019) is a key parameter for firm's valuation. Tobin's q is the ratio between the market value of assets and the book value of assets (Daniliuc & Wee 2020).

Limited studies examine Tobin's q in the context of mergers and acquisitions in the financial service sector of the Indian economy. Hence, to examine the linkage of M&A deal announcements on firm's valuation, we develop a database of Tobin's q ratio's for the sample of 140 Bombay Stock Exchange listed financial service sector firms by using accounting data and financial markets data.

Sampling Design

This research work is based on secondary data. The Mergers and acquisitions announcements of the sample companies during the financial years 2011 to 2022 are considered for the study. To present a sectional analysis of M&A announcements' impact on the stock prices of companies, the financial service sector has been selected for the purpose of this study. The secondary data concerning M&A announcements are fetched from sources namely online databases i.e. ProwessIQ, Money control website, and BSE database.

ProwessIQ

The largest interactive, searchable database for financial performance information on 52,465 Indian companies listed on the Bombay Stock Exchange and National Stock Exchange is called ProwessIQ. ProwessIQ's queries are designed to locate businesses that meet a specified set of search criteria. The database is created using information from corporations' audited reports and information provided to the Ministry of Corporate Affairs. Continuous updates to the Prowess database are made by the Centre for Monitoring Indian Economy Pvt (CMIE).

Moneycontrol.com

It is the most well-known and complete online financial platform in India. In India, Moneycontrol is the top website for business and financial news. Moneycontrol.com has been the go-to resource for customers and observers due to its vast financial tools, thorough market coverage, in-depth research, and a variety of expert opinions. A subsidiary of Network18, Moneycontrol.com is widely regarded as the most important website for stock market information, business news, and news about the global and Indian economies.

Bombay Stock Exchange database

One of the most important exchange groups in India, the Bombay Stock Exchange was the first stock exchange in Asia and currently holds the record for the world's quickest stock exchange, with trades taking place in under 6 microseconds. Through the provision of an effective platform for the raising of capital over the past 143 years, BSE has been a significant contributor to the expansion of the corporate sector in India. The BSE facilitates transactions that involve equity, currencies, debt instruments, derivatives, and mutual funds in a market that is both efficient and transparent. The S&P BSE SENSEX, which measures the performance of popular stocks traded on the BSE, is the benchmark index for India's stock market that receives the most attention.

Sample determination for firms' performance

The method of sampling design yielded an initial tally of 1897 mergers and acquisitions announcements. These announcements have been reviewed to delete any announcements that were found to be redundant or irrelevant. The current study did not include 1363 merger and acquisition announcements involving companies that were not listed. This study additionally excluded 273 announcements in which more than two companies were to eliminate any association bias that may have been present. In addition, 121 mergers and acquisition (M&A) announcements were left out of this research because their associated data was missing from the database. The completed sample consists of one hundred and forty announcements.

Classification of all 140 Sampling firms of the financial service sector

Our unit of analysis is the individual firm i ($i = 1, \dots, 140$) observed in calendar years t ($t = 2011, \dots, 2022$). The Sampling firms of the financial service sector are divided into four major categories. The subcategories are Commercial Banks, Non-Banking Financial Companies, Investment Banks, Insurance Companies, Brokerage Firms, and Others.

Calculation of Tobin's q

Tobin's q calculation is a predictor of future business profitability (Verona, F. 2020). To calculate Tobin's q of all stocks in sampling design, market capitalization and the book value of assets are required. The values of market capitalization and the book value of assets are obtained from Prowess IQ software monitored by the Centre for Monitoring Indian Economy (CMIE). These values are verified with annual reports of the sample companies. Tobin's q is

calculated as the Market capitalization of assets divided by the book value of assets (Chung & Pruitt 1994).

Data Collection

Data regarding the financial service sector is collected from the ProwessIQ database and re-arranged as per the sampling design. The final full sample of Merger and acquisition deal announcements is shown below in Table 1.

Table 1 The final sample of mergers and acquisitions announcements and Listed Indian firms on the Bombay Stock Exchange

S No.	Target Company	Announcement Date	Acquirer
1	Bank Of India	27-08-2015	Government Of India
2	Aditya Birla Capital Ltd.	09-05-2019	Jomei Investments Ltd.
3	Airtel Payments Bank Ltd.	29-01-2015	Kotak Mahindra Bank Ltd.
4	Apollo Hospitals Enterprise Ltd.	28-03-2012	P C R Investments Ltd.
5	Andhra Cements Ltd.	14-05-2014	Mahabhadra Constructions Ltd.
6	Asirvad Micro Finance Ltd.	23-12-2014	Manappuram Finance Ltd.
7	Auxilo Finserve Pvt. Ltd.	15-09-2017	Balrampur Chini Mills Ltd.
8	Bajaj Financial Securities Ltd.	19-07-2018	Bajaj Finance Ltd.
9	Balrampur Chini Mills Ltd.	26-07-2012	Barclays Capital Mauritius Ltd.
10	Bank Of Baroda	27-02-2012	Life Insurance Corp. Of India
11	Bank Of India	25-10-2015	Government Of India
12	Bank Of India	22-12-2015	Life Insurance Corp. Of India
13	Bank Of Maharashtra	27-02-2012	Government Of India
14	Belstar Microfinance Ltd.	27-07-2016	Muthoot Finance Ltd.
15	Canara Bank	11-12-2013	Government Of India
16	Canara Bank	28-04-2014	Life Insurance Corp. Of India
17	Canara Bank	13-02-2015	Government Of India
18	Canara Bank	02-06-2018	Government Of India
19	Dhanvarsha Finvest Ltd.	27-07-2017	Wilson Holdings Pvt. Ltd.
20	Educomp Solutions Ltd.	22-03-2012	Citigroup Global Markets Mauritius Pvt. Ltd.
21	Fortis Healthcare Ltd.	13-03-2018	Yes Bank Ltd.
22	Gayatri Infra Ventures Ltd.	27-11-2015	Gayatri Projects Ltd.
23	Gujarat N R E Coke Ltd.	24-12-2015	I C I C I Bank Ltd.
24	Gujarat N R E Coke Ltd.	05-02-2016	State Bank Of India
25	H D F C Credila Financial Services Ltd.	09-12-2019	Housing Development Finance Corp. Ltd.
26	Himadri Specialty Chemical Ltd.	23-02-2016	Himadri Coke & Petro Ltd.
27	Hindalco Industries Ltd.	20-09-2013	I G H Holdings Pvt. Ltd.
28	Alchemist Ltd.	14-02-2012	K D S Corporation Pvt. Ltd.
29	Hinduja Leyland Finance Ltd.	02-07-2020	Ashok Leyland Ltd.
30	I C I C I Bank Ltd.	08-02-2012	Goldman Sachs Invsts. (Mauritius) Ltd.
31	I D B I Bank Ltd.	02-03-2012	Government Of India
32	I L & F S Infra Asset Mgmt. Ltd.	27-08-2015	I L & F S Investment Managers Ltd.
33	India Cements Ltd.	05-07-2012	Prince Holdings (Madras) Pvt. Ltd.
34	India International Clearing Corpn. (I F S C) Ltd.	20-05-2019	I C I C I Bank Ltd.
35	Indiabulls Real Estate Ltd.	04-10-2012	Reliance Capital Ltd.
36	Indian Bank	01-10-2014	Government Of India
37	Indian Overseas Bank	22-02-2012	Life Insurance Corp. Of India
38	Indian Overseas Bank	30-01-2013	Government Of India
39	Indian Overseas Bank	21-08-2015	Government Of India
40	Indian Overseas Bank	16-08-2016	Government Of India

41	Indraprastha Gas Ltd.	02-09-2012	H D F C Life Insurance Co. Ltd.
42	Karnataka Bank Ltd.	30-03-2012	Haritha Bathinda
43	Karur Vysya Bank Ltd.	23-03-2012	Kent Resorts Pvt. Ltd.
44	Kfin Technologies Pvt. Ltd.	21-09-2020	Kotak Mahindra Bank Ltd.
45	L & T Finance Holdings Ltd.	21-09-2015	B C Investments Vi Ltd.
46	Manappuram Asset Finance Ltd.	16-05-2019	Manappuram Finance Ltd.
47	Max Financial Services Ltd.	04-04-2012	J M Financial Products Ltd.
48	McLeod Russel India Ltd.	09-11-2019	Ichamati Investments Ltd.
49	Metalyt Forgings Ltd.	09-06-2017	Assets Care & Reconstruction Enterprise Ltd.
50	Motilal Oswal Financial Services Ltd.	10-05-2012	Passionate Investment Mgmt. Pvt. Ltd.
51	Multi Commodity Exchange Of India Ltd.	21-07-2014	Kotak Mahindra Bank Ltd.
52	Paisalo Digital Ltd.	24-12-2020	S B I Life Insurance Co. Ltd.
53	Paul Merchants Finance Pvt. Ltd.	15-11-2017	Paul Merchants Ltd.
54	Punjab & Sind Bank	16-02-2012	Life Insurance Corp. Of India
55	Punjab & Sind Bank	01-01-2013	Government Of India
56	Punjab & Sind Bank	13-08-2014	Life Insurance Corp. Of India
57	Punjab National Bank	22-02-2012	Life Insurance Corp. Of India
58	Punjab National Bank	17-01-2013	Government Of India
59	Shriram Transport Finance Co. Ltd.	27-03-2014	P H L Capital Pvt. Ltd.
60	Simto Investment Co. Ltd.	31-08-2012	Tata Investment Corp. Ltd.
61	State Bank of India	18-01-2013	Government Of India
62	State Bank of Travancore	26-03-2014	State Bank Of India
63	Uco Bank	21-02-2012	Life Insurance Corp. Of India
64	Union Bank of India	15-02-2012	Life Insurance Corp. Of India
65	Yes Bank Ltd.	26-04-2012	Citigroup Global Markets Mauritius Pvt. Ltd.
66	Yes Bank Ltd.	13-03-2020	Federal Bank Ltd.
67	I D B I Bank Ltd.	10-04-2018	Life Insurance Corp. Of India
68	Welspun India Ltd.	24-05-2012	Krishiraj Trading Ltd.
69	A B G Shipyard Ltd.	08-11-2016	State Bank of India
70	Akzo Nobel India Ltd.	25-07-2012	I C I C I Securities Ltd.
71	D B Corp Ltd.	26-06-2012	Nalanda India Equity Fund Ltd.
72	Federal Bank Ltd.	28-08-2012	I C I C I Prudential Mutual Fund A/C Dynamic Plan
73	Finkurve Financial Services Ltd.	25-11-2019	Muthoot Bankers (Trivandrum)
74	I F C I Ltd.	17-02-2012	Nippon Investment & Finance Co. Pvt. Ltd.
75	India Home Loan Ltd.	20-10-2016	J M Financial Products Ltd.
76	L I C Housing Finance Ltd.	03-09-2012	Bank Muscat India Fund
77	L I C Housing Finance Ltd.	15-06-2020	Life Insurance Corp. Of India
78	P T C India Financial Services Ltd.	30-09-2016	P T C India Ltd.
79	Punjab & Sind Bank	02-12-2018	Government Of India
80	R E C Ltd.	20-03-2019	Power Finance Corp. Ltd.
81	Royal Sundaram Alliance Insurance Co. Ltd.	18-02-2015	Sundaram Finance Ltd.
82	Shriram Transport Finance Co. Ltd.	04-10-2013	Piramal Enterprises Ltd.
83	L I C Mutual Fund Asset Mgmt. Ltd.	30-12-2015	G I C Housing Finance Ltd.
84	Bajaj Housing Finance Ltd.	11-03-2014	Bajaj Finance Ltd.
85	Muthoot Insurance Brokers Pvt. Ltd.	29-10-2015	Muthoot Finance Ltd.
86	Stampede Capital Ltd.	11-02-2015	Preferential Allotment
87	C S C E-Governance Services India Ltd.	28-02-2019	H D F C Bank Ltd.
88	Central Bank Of India	30-01-2013	Government Of India
89	Central Bank Of India	05-12-2014	Life Insurance Corp. Of India
90	Housing Development Finance Corp. Ltd.	24-02-2012	I C I C I Prudential Life Insurance Co. Ltd.
91	I D B I Bank Ltd.	18-01-2013	Government Of India
92	I D B I Bank Ltd.	24-10-2013	Government Of India
93	I D B I Bank Ltd.	19-02-2016	Life Insurance Corp. Of India
94	Indian Bank	09-02-2015	Government Of India
95	Indian Bank	08-08-2016	HSBC Global Invst. Fund Indian Entity
96	Indian Overseas Bank	26-02-2018	Government Of India
97	Mangal Credit & Fincorp Ltd.	15-03-2013	Mr. Meghraj Jain & Mr. Ajit Jain

98	McNally Bharat Engg. Co. Ltd.	3/31/2018	Williamson Financial Services Ltd.
99	Punjab & Sind Bank	24-09-2019	Government Of India
100	Punjab National Bank	02-09-2015	Government Of India
101	Punjab National Bank	28-07-2016	Government Of India
102	State Bank of India	13-02-2015	Government Of India
103	UCO Bank	23-01-2013	Government Of India
104	UCO Bank	16-01-2020	Government Of India
105	Union Bank of India	30-10-2013	Government Of India
106	Union Bank of India	18-09-2015	Government Of India
107	Union Bank of India	20-01-2017	Government Of India
108	Yes Bank Ltd.	03-12-2020	State Bank Of India
109	Yes Bank Ltd.	13-03-2020	I C I C I Bank Ltd.
110	Yes Bank Ltd.	13-03-2020	Axis Bank Ltd.
111	Yes Bank Ltd.	13-03-2020	Bandhan Bank Ltd.
112	Yes Bank Ltd.	13-03-2020	Housing Development Finance Corp. Ltd.
113	Yes Bank Ltd.	13-03-2020	Kotak Mahindra Bank Ltd.
114	A B G Shipyard Ltd.	08-11-2016	I F C I Ltd.
115	Bank Of Baroda	02-09-2015	Government Of India
116	Bank Of Baroda	28-03-2019	Government Of India
117	Bank Of Maharashtra	24-03-2017	Government Of India
118	Bank Of Maharashtra	26-02-2019	Government Of India
119	Ratnakar Bank Ltd. RBL bank ltd.	02-11-2011	HDFC Bank ltd.
120	L K P Finance Ltd.	14-05-2018	Dakshin Mercantile Pvt. Ltd.
121	I M + Capitals Ltd.	10-01-2012	Nusarwar Merchants Pvt. Ltd.
122	Super Sales India Ltd.	03-05-2014	Golden Lake Merchants Pvt. Ltd.
123	Ashika Credit Capital Ltd.	15-01-2013	Preferential Allotment
124	B F Invst. Ltd.	28-01-2014	Sundaram Trading & Invst. Pvt. Ltd.
125	Banas Finance Ltd.	02-12-2013	Preferential Allotment
126	C S L Finance Ltd.	10-08-2017	Preferential Allotment
127	Capital India Finance Ltd.	03-05-2018	Preferential Allotment
128	Hasti Finance Ltd.	03-09-2012	Sonal Nitin Somani and Nitin Prabhudas Somani
129	Intec Capital Ltd.	13-08-2013	India Business Excellence Fund-Ii
130	Kalyani Investment Co. Ltd.	28-01-2014	Sundaram Trading & Invst. Pvt. Ltd.
131	Niyogin Fintech Ltd.	30-05-2017	Preferential Allotment
132	Sarsan Securities Pvt. Ltd.	09-10-2015	One life Capital Advisors Ltd.
133	Dhanlaxmi Bank Ltd.	08-12-2011	Dewan Housing Finance Corpn. Ltd.
134	Muthoot Capital Services Ltd.	08-09-2017	Qualified Institutional Placement
135	P N B Housing Finance Ltd.	03-03-2020	Qualified Institutions Placement-Qip
136	Reliance Mediaworks Ltd.	20-01-2014	Reliance Capital Ltd.
137	RepcO Home Finance Ltd.	17-07-2014	Small cap world Fund Inc.
138	Central Bank of India	03-01-2012	Life Insurance Corp. of India
139	Cholamandalam Investment & Finance Co. Ltd.	09-02-2015	Dynasty Acquisition (Fdi) Ltd.
140	Investment Trust of India Ltd.	15-07-2013	Crest Ventures Ltd.

Source: Prepared by the authors (2022)

RESULTS AND DISCUSSION

Empirical Analysis and interpretation of Tobin's Q for all stocks of mergers and acquisition announcements

Table 2 Setting Benchmark for financial service industry

Industry	Sample Size	Average of Tobin's q for all 140 firms
Financial Service sector	140	1.352

Source: Prepared by the authors (2022)

To empirically analyse and interpret the calculated values of Tobin's q for all stocks of mergers and acquisitions announcements, a benchmark for the financial service industry is computed by taking the average of Tobin's q ratio for full sample of 140 firms. This allows for evidence-based analysis and interpretation of the calculated values of Tobin's q for all stocks of mergers and acquisitions announcements. The calculated benchmark for all 140 financial service companies' stock's is 1.352.

Analysis and Interpretation of Tobin's q for Commercial Banks

Table 3 depicts the analysis of Tobin's q for commercial banks. It is clear from the table that majority of the banks have a low tobins q ratio which is less than standard benchmark of financial service sector. This suggests that the share price is too low and stocks are undervalued. The logic behind this is that corporate raiders and other possible buyers may be interested in purchasing an undervalued company rather than starting their own business of a similar nature. This makes an undervalued company an interesting investment target which leads to mergers and acquisitions events (Danzon et al., 2007). Only 2 commercial banks have higher Tobin's q ratio which means that their stocks are overvalued. It implies that stocks of Kotak Mahindra Bank Ltd. and HDFC Bank Ltd. have performed efficiently in the year of the M&A announcement. It is explicit from table 3 that Kotak Mahindra Bank Ltd. has the highest ratio which is 3.39 among all the commercial banks. It means that Kotak Mahindra Bank Ltd. has performed in a profitable manner and earned significant abnormal returns in the year of M&A. In a nutshell, the M&A deal announcement does not affect the firm's valuation of listed commercial banks in India because the majority of commercial banks have a low Tobin's q ratio as compared to benchmark.

Table 3 Calculation of Tobin's Q for Commercial Banks

S. no.	Commercial Banks	Year of M&A	Market Capitalization	Book Value of Assets	Tobin's Q
			Rs. Million	Rs. Million	
1	Axis Bank Ltd.	Mar-20	2895194.40	9278718.06	0.312025258
2	Bank of Baroda	Feb-12	918175.35	1278617.10	0.718100321
3	Bank of Baroda	Sep-15	915848.24	2274953.60	0.402578866
4	Bank of India Ltd.	Aug-15	130222.30	6186977.57	0.021047805
5	Bank of India Ltd.	Dec-15	130222.30	6186977.57	0.021047805
6	Bank of India Ltd.	Oct-15	130222.30	6186977.57	0.021047805
7	Bank of Maharashtra	Feb-12	201241.84	880174.00	0.228638701
8	Bank of Maharashtra	Mar-17	202251.42	1593240.00	0.126943474
9	Bank of Maharashtra	Feb-19	205280.14	1645355.00	0.124763434
10	Canara Bank	Dec-13	565736.52	4919219.00	0.115005353
11	Canara Bank	Apr-14	528728.26	4919219.00	0.107482155
12	Canara Bank	Feb-15	552856.19	5480006.00	0.100886056
13	Canara Bank	Jun-18	582335.81	6947667.00	0.083817461
14	Central Bank of India	Jan-12	294283.85	2297997.00	0.128061024
15	Central Bank of India	Jan-13	283432.67	2681295.00	0.10570738
16	Central Bank of India	Dec-14	255219.62	3119405.00	0.081816763
17	Federal Bank Ltd.	Aug-12	276537.63	710496.00	0.389217716
18	H D F C Bank Ltd.	Feb-19	9075054.06	12445407.00	0.729189014
19	I C I C I Bank Ltd.	Feb-12	6225403.89	4736471.00	1.314354905
20	I C I C I Bank Ltd.	Dec-15	6225999.56	7206951.00	0.863888149
21	I C I C I Bank Ltd.	May-19	6216179.79	10983651.00	0.565948407
22	I D B I Bank Ltd.	Mar-12	578479.24	2903163.00	0.199258271
23	I D B I Bank Ltd.	Jan-13	556974.43	3227685.00	0.172561582
24	I D B I Bank Ltd.	Oct-13	556974.43	3289966.00	0.169294889
25	I D B I Bank Ltd.	Feb-16	568802.08	3743721.00	0.151934955
26	I D B I Bank Ltd.	Apr-18	579016.86	3202845.00	0.180782042
27	Indian Bank	Oct-14	337390.00	1928360.00	0.174962144
28	Indian Bank	Feb-15	360243.85	1928360.00	0.186813588
29	Indian Bank	Aug-16	359122.95	2182331.00	0.16455934
30	Indian Overseas Bank	Feb-12	593535.74	2196371.00	0.270234737
31	Indian Overseas Bank	Jan-13	579358.94	2446560.00	0.236805531
32	Indian Overseas Bank	Aug-15	594480.87	2744368.00	0.216618496
33	Indian Overseas Bank	Aug-16	629450.33	2471675.00	0.254665492
34	Indian Overseas Bank	Feb-18	593535.74	2479681.00	0.239359716
35	Karur Vysya Bank Ltd.	Mar-12	87423.78	376349.00	0.232294439
36	Kotak Mahindra Bank Ltd.	Jan-15	3598191.28	1060121.00	3.394132632
37	Kotak Mahindra Bank Ltd.	Mar-20	3626294.39	3602517.00	1.006600216
38	Kotak Mahindra Bank Ltd.	Sep-20	3626294.39	3834886.00	0.945606829
39	Karnataka Bank Ltd.	Mar-12	47725.97	363216.00	0.131398314
40	Punjab National Bank	Feb-12	585235.48	4581940.00	0.12772657
41	Punjab National Bank	Jan-13	591842.09	4788770.00	0.123589584
42	Punjab National Bank	Sep-15	589639.88	6673905.00	0.088350056
43	Punjab National Bank	Jul-16	596797.04	7203305.00	0.082850447
44	Punjab & Sind Bank	Feb-12	235528.08	729053.00	0.323060299
45	Punjab & Sind Bank	Jan-13	224005.84	804779.00	0.278344539
46	Punjab & Sind Bank	Aug-14	212822.49	977534.00	0.217713645
47	Punjab & Sind Bank	Dec-18	219939.17	1089820.00	0.201812382
48	Punjab & Sind Bank	Sep-19	229766.96	1005038.00	0.228615197
49	State Bank of India	Jan-13	5295418.37	15662610.00	0.338092972
50	State Bank of India	Mar-14	5122280.90	17927483.00	0.285722257
51	State Bank v India	Nov-16	5371277.57	27059663.00	0.198497578
52	State Bank of India	Feb-15	5325762.05	20480798.00	0.260036843
53	State Bank of India	Feb-16	5371277.57	23576175.00	0.227826506
54	UCO Bank	Feb-12	381395.07	1804984.00	0.211301081

55	UCO Bank	Jan-13	390959.83	1986514.00	0.196806984
56	UCO Bank	Jan-20	374819.29	2359082.00	0.158883536
57	Union Bank of India	Oct-13	520807.76	3537809.00	0.14721195
58	Union Bank of India	Sep-15	549171.96	4046959.00	0.135699907
59	Union Bank of India	Feb-12	556006.71	2622114.00	0.212045209
60	Union Bank of India	Jan-17	544045.90	4527044.00	0.120176853
61	Yes Bank Ltd.	Apr-12	572191.21	991041.00	0.577363812
62	Yes Bank Ltd.	Mar-20	622509.54	2578269.00	0.24144476
63	Yes Bank Ltd.	Mar-20	622509.54	2578269.00	0.24144476
64	Yes Bank Ltd.	Mar-20	622509.54	2578269.00	0.24144476
65	Yes Bank Ltd.	Dec-20	622509.54	2735428.00	0.227572994
66	H D F C Bank Ltd.	Nov-11	9098197.59	3379095.00	2.692495355
67	Bank of Baroda	Mar-19	960063.39	7809874.05	0.122929433
68	Dhanlaxmi Bank Ltd.	Dec-11	5578.92	146765.00	0.038012605

Source: Prepared by the authors (2022)

Analysis and interpretation of Tobin's Q for Non-banking Financial Companies

Table 4 shows the analysis of Tobin's q ratio for non-banking financial companies. A Non-Banking Financial Company (NBFC) is a company engaged in the business of loans and advances, the acquisition of shares, stocks, bonds, and debentures. NBFCs are registered under the Companies Act, 1956 (Reserve Bank of India, 2017). To examine the linkage of M&A deal announcements on firm valuation, Tobin's q is calculated for NBFCs. It can be seen in table 4 that the majority of the stocks have a high q ratio that is greater than the benchmark. More specifically 17 NBFCs out of 43 NBFCs have q ratio which is greater than 1.352 and it means that their stocks are over-valued. It implies that these firms are performing efficiently and earning a rate of return that is higher than their asset's replacement cost. Bajaj Finance ltd. has the highest ratio which is 15.66 followed by TruCap Finance ltd. (Dhanvarsha Finvest ltd.) Tobin q ratio 15.15. It implies that these firms performed expeditiously. These firms have more growth opportunities and competent managerial capabilities (Boateng & Bi 2014). In essence, M&A announcement information significantly impacts 39.53% of NBFCs.

Table 4 Calculation of Tobin's q for Non-banking Financial Companies

Non-Banking Financial Companies	Year of M&A	Market Capitalization	Book Value of Assets	Tobin's Q
		Rs. Million	Rs. Million	
Aditya Birla Capital Ltd.	Sep-19	362786.53	96264.00	3.768662532
Ashika Credit Capital Ltd.	Jan-13	415.80	605.00	0.687272727
Bajaj Finance Ltd.	Mar-14	3856190.69	246180.00	15.66411037
Bajaj Finance Ltd.	Jul-18	3940193.99	1084999.00	3.631518545
Banas Finance Ltd.	Dec-13	759.13	469.00	1.618614072
Housing Development Finance Corporation Ltd.	Mar-20	4845685.43	5240936.00	0.924583973
Housing Development Finance Corporation Ltd.	Feb-12	4846554.04	1675199.00	2.893121378
Industrial Finance Corporation of India	Feb-12	10016.80	298603.40	0.033545499
Industrial Finance Corporation of India	Nov-16	19258.80	316744.40	0.060802338

L I C Housing Finance Ltd.	Sep-12	226048.39	805602.00	0.280595617
L I C Housing Finance Ltd.	Jun-20	233446.74	2356333.00	0.09907205
Muthoot Finance Ltd.	Oct-15	427119.85	270487.00	1.579077183
Capital India Finance Ltd.	May-18	7489.70	6625.00	1.130520755
Manappuram Finance Ltd.	Dec-14	91579.91	113322.00	0.808138843
Manappuram Finance Ltd.	May-19	98351.07	238026.00	0.413194651
Crest Ventures Ltd.	Jul-13	5682.84	3436.00	1.653911525
C S L Finance Ltd.	Aug-17	4936.44	2878.00	1.715232801
Hasti Finance Ltd.	Sep-12	42.60	269.00	0.158364312
Muthoot Finance Ltd.	Jul-16	427722.02	307131.00	1.392637083
H D F C Credila Financial Services Ltd.	Dec-19	9864.63	70011.38	0.140900345
I M + Capitals Ltd.	Jan-12	606.65	537.14	1.129407603
Dhanvarsha Finvest Ltd.	Jul-17	8315.16	548.84	15.15042635
L & T Finance Holdings Ltd.	Sep-15	209891.35	59549.00	3.524683034
Multi Commodity Exchange of India Ltd.	Jul-14	78754.23	18243.00	4.316956093
L K P Finance Ltd.	May-18	1093.47	2094.00	0.522191977
Mangal Credit & Fincorp Ltd.	Mar-13	2192.14	404.00	5.426089109
Paul Merchants Finance Pvt. Ltd.	Nov-17	10.28	4667.13	0.002202637
Motilal Oswal Financial Services Ltd.	May-12	105620.87	7531.00	14.02481344
Shriram Transport Finance Co. Ltd.	Mar-14	487092.44	522533.02	0.932175434
Shriram Transport Finance Co. Ltd.	Oct-13	501358.12	522533.02	0.959476446
Tata Investment Corpn. Ltd.	Aug-12	105435.54	20938.00	5.03560703
G I C Housing Finance Ltd.	Dec-15	9878.98	80214.00	0.123157803
Intec Capital Ltd.	Aug-13	413.24	7429.00	0.055625252
Muthoot Capital Services Ltd.	Sep-17	4560.90	19778.00	0.230604712
Niyogin Fintech Ltd.	May-17	3499.99	2641.00	1.325251799
P N B Housing Finance Ltd.	Mar-20	96651.02	788742.00	0.122538194
Power Finance Corpn. Ltd.	Mar-19	372383.48	3447257.00	0.108023127
Reliance Capital Ltd.	Jan-14	2976.91	365150.00	0.008152567
Repc Home Finance Ltd.	Jul-14	13031.53	60757.00	0.214486067
Williamson Financial Services Ltd.	Mar-18	57.26	4929.00	0.011616961
Finkurve Financial Services Ltd.	Nov-19	8474.13	2056.00	4.12165856
P T C India Financial Services Ltd.	Sep-16	10308.65	107522.00	0.095874798
Sundaram Finance Ltd.	Feb-15	255388.89	167612.00	1.523690965

Source: Prepared by the authors (2022)

Analysis and Interpretation of Tobin's q for Investment banks

Table 5 shows the Calculation of Tobin's q for Investment banks. Investment banks assist individuals and companies in raising capital and provide financial consultancy services (Stowell 2017). It is clear from table 5 that only 1 firm has Tobin's q ratio which is greater than 1.352(benchmark) and it means that this firm is gaining optimum returns in the financial markets. Kalyani Investment Co. ltd. has a higher ratio of 2.60 and Cholamandalam Investment & Finance Co. ltd. has the lowest ratio of 0.13 in contrast to set the benchmark. It implies that firms having a high Tobin's q ratio make better acquisitions and more value can be created by acquiring firms having a low Tobin's q ratio (Danzon et al., 2007).

Table 5 Calculation of Tobin's Q for Investment banks

Investment Banks	Year of M&A	Market Capitalization	Book Value of Assets	Tobin's Q
BF Investment Ltd.	Jan-14	7539.42	6654.62	1.13296056
Cholamandalam Investment & Finance Co. Ltd	Feb-15	31737.00	238680.00	0.132968829
I L & F S Investment Managers Ltd.	Aug-15	2245.33	1797.00	1.249488036
J M Financial Products Ltd.	Oct-16	33193.00	165450.00	0.200622545
Kalyani Investment Co. Ltd.	Jan-14	7715.68	2959.00	2.607529571
Onelife Capital Advisors Ltd.	Oct-15	193.05	491.00	0.393177189

Source: Prepared by the authors (2022)

Analysis and interpretation of Tobin's q for Insurance companies, brokerage firms, and others

Table 6 shows the calculation of Tobin's q for Insurance companies, brokerage firms, and others. Table 6 depicts that 11 firms have Tobin's q ratio greater than the benchmark. It implies that management performance is efficient. Firms having a high q ratio gain significant abnormal returns as compared to low q firms. 47.8% of the companies in this category experienced the greater market value of assets by using their internally generated funds productively. It also means that firms having high q have good investment opportunities and optimum cash flows. On the other hand, firms having q ratio less than the industry benchmark encounter difficulties in generating optimum returns in financial markets.

Table 6 Calculation of Tobin's Q for Insurance companies, brokerage firms and others.

Company's Names	Year of M&A	Market Capitalization	Book Value of Assets	Tobin's Q
		Rs. Million	Rs. Million	
D B Corp Ltd.	Jun-12	21148.03	16727.00	1.264305016
Educomp Solutions Ltd.	Mar-12	297.60	31577.00	0.009424581
Fortis Healthcare Ltd.	Mar-18	211312.79	50157.00	4.213026896
Gayatri Projects Ltd.	Nov-15	1621.14	38868.00	0.041708861
Hindalco Industries Ltd.	Sep-13	1023934.21	737699.00	1.388010842
Himadri Speciality Chemical Ltd.	Feb-16	39382.34	20340.00	1.936201573
Indraprastha Gas Ltd.	Sep-12	306495.35	26280.00	11.66268455
Indiabulls Real Estate Ltd.	Oct-12	44173.62	68844.00	0.641648074
India Cements Ltd.	Jul-12	69866.32	88029.00	0.793673903
McLeod Russel India Ltd.	Nov-19	3091.89	44302.00	0.069791206
Metalyt Forgings Ltd.	Jun-17	176.38	36542.00	0.004826775
Super Sales India Ltd.	May-14	2371.81	2056.00	1.153604086
Welspun India Ltd.	May-12	73264.54	33591.00	2.181076479
Akzo Nobel India Ltd.	Jul-12	99913.17	23052.00	4.334251692
Alchemist Ltd.	Feb-12	50.04	259.00	0.193204633
Andhra Cements Ltd.	May-14	2013.55	13691.00	0.147071069
Apollo Hospitals Enterprise Ltd.	Mar-12	685845.62	37583.00	18.2488258
Ashok Leyland Ltd.	Jul-20	436308.51	184499.00	2.36482859
Balrampur Chini Mills Ltd.	Jul-12	82171.43	42262.00	1.94433368
Balrampur Chini Mills Ltd.	Sep-17	81212.75	36621.00	2.217655171
Max Financial Services Ltd.	Apr-12	237956.63	33910.00	7.017299617
S B I Life Insurance Co. Ltd.	Dec-20	1241280.88	2268304.00	0.547228625
Stampede Capital Ltd.	Feb-15	153.44	602.00	0.254883721

Source: Prepared by the authors (2022)

CONCLUSION

Tobin's Q is an important indicator that determines how well a company does in the market. Stock markets react significantly to the valuation of Indian firms due to M&A announcements in the category of non-banking financial companies. The present investigation has certain limitations, despite the fact that it is a significant step forward in empirically analyzing the usefulness of Tobin's Q. First, we use the dataset of only a single emerging economy named as India. The theoretical and empirical results reveal that our findings can be generalized to other developing and emerging economic markets. Second, we have taken only the financial service sector of the Indian economy. Other significant industries of emerging economies can be studied in future research endeavors. The authors suggest that in the future, numerous metrics of a company's performance evaluation, such as return on capital employed, value creation, return on equity, and price-earning ratio, might be researched and evaluated in the context of mergers and acquisitions along with multiple industries. An investigation that addresses this matter has the potential to provide significant new knowledge and would yield useful new insights.

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