

The Hot Issue Market in Nepal

Jas Bahadur Gurung¹

Abstract

This paper aims at identifying the “hot issue” market in the Nepali primary stock market. Altogether, 202 initial public offerings of equity shares have been used as samples for examining the cyclical pattern of the market over the period from 2011/12 to 2022/23. It is found that the “microfinance sector” has been identified as the hot issue market in Nepal. Because the microfinance sector has met all three characteristics of the hot issue market which is above average mean and median values of IPO volume, initial returns, and subscription rates. Similarly, four fiscal years viz., 2014/15, 2020/21, 2021/22 and 2022/23 were identified as hot issue periods as they also met all there criteria to be considered as the hot issue markets. Additionally, the results reveal that the firms going public in hot issue market is influenced by underpricing, subscription rates, offer size, listing delay, sales, firm size, age of the firm and gross domestic product. Thus, it is concluded that the microfinance sector and the four fiscal years can be considered as hot issue markets that they attract greater investor interest and able to generate superior performance of IPOs compared to other sectors and fiscal years.

Keywords: Initial public offerings, IPO volume, initial returns, microfinance sector, subscription rates

Cite as: Gurung, J. B. (2026). The hot issue market in Nepal. *Journal of Business and Social Sciences Research*, 11(1), 35-53. <https://doi.org/10.3126/jbssr.v11i1.98998>

INTRODUCTION AND STUDY OBJECTIVES

The issue of securities to the public for the first time with the aim of raising capital and converting firm from private to public limited company is generally considered as initial public offerings (IPOs). The IPO market generally appears to follow a cycle with dramatic swings often referred to as hot and cold markets (Helwege & Liang, 2001; Ibbotson & Jaffe, 1975; Ritter, 1984). Hot issue market usually denotes periods with high average initial return as the first-day trading price is exclusively higher than

the offer price. Ibbotson and Jaffe (1975) argued that hot issues generally refer to particular stock issues that have risen from their offering prices to higher-than-average premia in the aftermarket. Du (2014) opined that “hot issue” markets usually denote periods with high average initial returns that appear to be followed by periods of high IPO volume in the UK. Loughran and Ritter (1995) describe the 1980s as a “hot issue” because most of that decade had much higher issuance volume than the 1970s in the US. Helwege and Liang (2004) state that a hot IPO market has been characterized in the literature by an unusually high volume

¹Dr. Gurung (<https://orcid.org/0000-0002-2783-7690>) is an Assistant Professor at the Department of Finance, Faculty of Management, Prithvi Narayan Campus, Trivhuvan University, Nepal. Email: gurung.jmk@gmail.com

of offerings, severe underpricing, frequent oversubscription of offerings, and, at times, concentrations in particular industries. In contrast, cold IPO markets have much lower issuance, less underpricing, and fewer instances of oversubscription. In “hot” markets, issuers all want to get through the window at the same time, while in “cold” markets, it is sometimes difficult for issuers to sell stock at any reasonable price (Derrien & Womack, 2003).

Ljungqvist et al. (2006) state that the first-day return is initially increasing and then decreasing with the expected length of the hot market. However, they also argued that a regular investor will invest in IPOs only if he does not expect to lose as a consequence of equilibrium. Helwege and Liang (2004) concluded that the up and down swings in the IPO market reflect changes in investor sentiment, and changes in factors that affect the decision to issue equity, such as asymmetric information between investors and the issuing company. They also viewed that the hot IPO market would be attributed to smaller on average.

The extant literature provides a marked cycles in the number of new issues and initial returns, along with subscription rates. To the best of author’s knowledge, there is little knowledge of examining cyclical pattern of IPOs in the context of Nepali primary market. There is no evidence on whether IPOs concentrate in particular sector or period known to be the new issue clustering. No literature is found examining theoretical explanations of hot issue markets in the primary market. Keeping this in mind, this paper seeks to: a) identification of hot and cold issue markets in the industry sector and period of issue; and b) examining theoretical explanations employing the Nepali data at hand.

LITERATURE REVIEW

Theoretical Explanation of Hot Issue Market

The anomaly associated with the IPO process is that cycles exist in both the volume and the average initial returns of IPOs (Ritter, 1991). Essentially, periods of unusually high initial returns associated with a high volume of IPOs are coined ‘hot issue’ periods (Agathee et al., 2012). However, the rational explanations for the existence of hot issue markets are not easy. The theoretical explanations of the hot issue market have been discussed in the following section.

Investors in the IPO market are various types. Rock (1986) explains the changing risk composition hypothesis, and categorizes investors into informed and uninformed. Rock argues that uninformed investors face the risk of an adverse selection when submitting a purchase order of IPO stocks. Ritter (1984) tested this explanation and found that the high average initial returns can be attributed to just one single industry namely natural resources like oil and gas stocks with 48.4 percent initial return during 1980. The firm characteristics such as the age of the firm, book value of equity and annual sales (Ritter, 1984), and issue characteristics like underwriter quality (Howe & Zhang, 2005), and premium per equity (Singh & Dhanda, 2021) have been used as proxies to explain the risk and initial returns associated with cyclical patterns of IPOs.

The realignment of incentive hypothesis (Ljungqvist & Wilhelm, 2003), argues that the management of issuing firms has increasingly agreed to leave money on the table while going public. Additionally, Loughran and Ritter (2002) argued that the underwriters promised to allocate hot IPO

shares to the personal brokerage accounts of the top executives of issuing firms. As such, corruption may occur due to agency problems, which lead to money being left on the table. Increasing fragmentation of ownership of senior managers' support for the realignment of incentives hypothesis as an explanation for changes in underpricing. Senior managers' shares, as a proxy for the realignment of incentives, positively affect first-day returns in China (Ma, 2005). The changing issuer objective function hypothesis states that holding managerial ownership and other characteristics of firms constant, issuing firms changed their willingness to accept underpricing. Loughran and Ritter (2003) contend that there are two reasons why issuers become willing to leave money on the table. The first reason is that hiring an underwriter without a reputation for heavy underpricing decreases first-day returns (Ma, 2005). The second reason is that the underwriters appeal to the executives of issuing firms by setting up personal brokerage accounts and allocating hot IPOs to those accounts. These payments create an incentive to seek, rather than avoid, underwriters with a reputation for severe underpricing, known as the corruption hypothesis.

Market timing theories states that firms prefer to issue new issues in a bull market instead of a bear market to get more favorable pricing (Lucas & McDonald, 1990). Derrien (2005) argues that individual investors in a bull market are over-optimistic, and firms respond by issuing equity as a window of opportunity (Ljungqvist & Wilhelm, 2002; Loughran et al., 1999; Ritter & Welch, 2002). Cook et al. (2003) find that IPO firms trade at higher valuations only in hot markets. Additionally, De Long et al. (1990) posited the existence of two types of traders in the stock market, rational and

noise traders. A sentiment investor is a noise trader with incomplete information, so investor sentiment can be to speculate in the market (Baker & Stein, 2004). Miller (1977) found that the stock price only reflects the expectations of optimistic investors, so the stock price is always higher than the fundamental value when there is a short-sell constraint and heterogeneous expectations in the market. Investor sentiment/optimism is one of the driving forces for the cyclical rise in initial returns, which is of course, difficult to measure (Dorn, 2009). The demand for capital hypothesis argues that firms will time their IPOs to take place when the market is performing well, so that the resulting costs of capital will be lower (Lucas & McDonald, 1990; Pastor & Veronesi, 2005).

Empirical Evidence on 'Hot Issue' Market

Table 1 presents the hot issue market phenomenon across the global markets. Ritter (1984) suggested that high-risk IPOs are underpriced more than low-risk offerings, which can be attributed almost entirely to just one industry, i.e. natural resource issues -oil and gas. Internet-stock IPOs had remarkably high initial returns with 76.43 percent in Europe and the amount of money left on the table by internet-stock IPOs is high, with more than 4.6 billion euros, but entrepreneurs did not suffer from this renunciation.

One of the major works on the "hot issue" market, internet-related stocks, conducted by Ofek and Richardson (2002) found a mean return on the first-day of the IPO was 148.40 percent, and median return of 125.40 percent, which was commonly known as "DotCom Mania". On the other hand, they found that when the lockup period expired, an extraordinary number of internet stocks were sold and internet stock prices

Table 1
Summary Evidence on Average Initial Return or Underpricing in the Hot Issue Market Phenomenon

Country	Author/s (Year)	Sample size	Total study period	Initial return (%)	Hot period	Abnormal return (%)	No. of IPO firms (Hot period)	Sector
United States	Ritter (1984)	1075	1977-1982	16.30	Jan 1980- Mar 1981	48.40	-	Natural resource issues (gas/oil)
Italy	Arosia et al. (2000)	-	-	-	Jan 1 1999 – May 1 2000	76.43	86	High-tech issues (Internet)
United States	Helwege & Liang (2005)	2972	1982-1993	-	1996-1997	-	-	Internet-related wave
United States	Ofek & Richardson (2002)	400	-	-	Jan 1 1998- Feb 29 2000	148.40	57.4%	High-tech issues (DotCom Mania)
United States	Ljungqvist & Wilhelm (2003)	2178	1996-2000	-	1999-2000	89.00	(1999)	High-tech issues: Dot-com Bubble
United States	Loughran & Ritter (2004)	3384	1980s 1990-1998	7.00 15.00	1999-2000	65.00	803	Internet Bubble
Mauritius	Agathe et al. (2012)	44	1989-2005	-	1989-1991	-	19	Hot issue
					1993-1994		13	Hot issue
					Rest period		12	Cold issue
					1996	11.29	-	Cold market
South Africa	Neneh & Smit (2013)	360	1996-2011	62.90	1997-1999	87.92		Hot market
					2000-2005	8.17		Cold market
					2006-2007	113.01		Hot market
					2008-2011	-1.04		Cold market
Pakistan	Alim et al. (2020)	77	2000-2015	25.31	2000-2002	13.05	7	Cold market
					2003-2005	50.32	25	Hot market
					2006	0	0	Cold market
					2007	87.72	7	Hot market
					2008-2013	12.29	20	Cold market
					2014-2015	26.69	17	Hot market
India	Singh & Dhanda (2021)	373	2017-2020	-	2017-2018	-	170	Hot market
					2018-2019	-	106	Hot market
					2019-2020	-	7	Cold market
					2020	-	16	Cold market

fell as much as 33 percent over six months relative to the index, “the internet bubble did eventually burst”. [Alim et al. \(2020\)](#), using a logit model, analyzed the cyclical patterns of hot and cold issue markets, and reported that the average initial return was 25.31 percent during 2000-2015. They found the hot issue market occurred in the years 2003 to 2005, 2007, and 2014 to 2015 in terms of initial return and number of IPOs in Pakistan.

Cross-section of IPO Underpricing during Hot and Cold Issue Markets

There are several studies on cross-section of IPO underpricing during hot and cold issue period. [Arosio et al. \(2000\)](#) found that the EU IPOs are severely underpriced which is positively related to internet-stock IPOs and negatively to the sales. The offer price and the IPO stock volatility were significantly related to the underpricing. [Helwege and Liang \(2001\)](#) documented that firm characteristics like firm’s market-to-book ratios range from 2.2 to 2.5, but they do not differ significantly between hot and cold market IPOs.

Another major study undertaken by [Ljungqvist and Wilhelm \(2003\)](#) on IPO pricing in the Dot-com bubble found that pre-IPO ownership in terms of venture capital stake, investment bank stake, and corporate stake, as well as ownership concentration, has a negative significant relation with initial returns. Similarly, the size of insider sales of IPOs, the size of CEOs, venture capital sales, and firm age have a negative relation with initial returns. However, price revision, high-tech industry, internet company, and bubble period have a positive relation with initial returns of IPOs in the US internet stocks. [Loughran and Ritter \(2004\)](#) further found that share overhang i.e., ratio of retained shares to issued shares, has a significant positive relation with the initial return, while

a negative coefficient of firm size (assets), age of the issuing firm, and the positive coefficient on the tech and internet dummies measuring changing risk composition hypothesis have a significant relation with initial returns. The bubble period showed a higher proportion of IPOs by young tech and internet firms than other periods. An increase in the market share of prestigious underwriters in the 1990s and the bubble period tested the changing objective function hypothesis. The negative coefficient on the pure primary dummy is not consistent with the realignment of incentives hypothesis, which was also insignificant.

[Agathee et al. \(2012\)](#) reported that the hot issue phenomenon is not a significant driving force in explaining the short-run underpricing and long-run performance of IPOs in Mauritian markets. The results also support the prediction of the changing risk composition hypothesis, suggesting that firms going public during hot markets are on average, relatively riskier. [Jain and Kanjilal \(2016\)](#) documented the presence of hot and cold issue markets and also found there is a bidirectional causality between IPO volume and initial returns for “hot” issuing periods. Further, [Alim et al. \(2020\)](#) reported that firms going public in a hot issue market are influenced by underpricing, post-IPO risk, industry clustering, stock market returns, and GDP growth rate. The findings support the signaling, changing composition, information spill-over, and capital demand hypotheses. However, the study findings did not support the windows of opportunity hypothesis. In an investigation of the risk cycles of IPO issuance, [Mumtaz and Smith \(2021\)](#) reported that there was no evidence of a lead-lag relationship between IPO volume and initial returns for the period of 1995 to 2018 in Pakistan.

The extant literature demonstrated various findings of hot and cold issue markets along with their cross-sectional variations. The study of this kind is completely absent in the context of Nepal since no a single evidence is found in course of thorough review. Thus, to fulfil this gap and contribute to the Nepali literature the study seems quite consequential.

RESEARCH METHODOLOGY

Data and Sources

All the firms issuing new equity shares during the period of 2011/12 through 2022/23 is the population of the study. Altogether 246 IPO shares have been issued in this period. The samples for measuring initial returns have been taken based on the availability of firms' data with complete information. The samples thus comprised 202 IPO shares meeting the following criteria: (1) a fixed offer price¹; (2) the offering involved common stock only; (3) the company is listed and traded on the Nepal Stock Exchange Limited; (4) a merchant bank took the company public; and (5) an IPO firms having complete data.

The data employed in the study are quantitative and they have been obtained from various sources. Share sansar online financial portal viz. <https://www.sharesansar.com> and Nepali Paisa portal, <https://www.nepalipaisa.com> are the major sources of price data of IPOs. Prospectus information of the issuing firms have been collected from their respective websites up to October 2018, thereafter the website portal of SEBON has widely used.

The physical visit was paid to the merchant bankers like NMB Merchant Banking, Global IME Capital, Prabhu Capital, Sidhharth Capital, NIBLACE Capital, and so on, for the collection of prospectus information available in the print version. In order to collect NEPSE Index, annual report of NEPSE are extensively used. The macroeconomic data like gross domestic product and industrial production have been obtained from the economic surveys of Ministry of Finance.

Tools Used

The tools used in the paper are explained as follow:

Raw Initial Return: The return earned investing in new public issue of securities is termed as raw initial return. It is computed by comparing the offer price with the first-day closing price of IPOs. The empirical model is as follows:

$$IR_{it} = [P_{it} - P_{i0}] / P_{i0} \dots \dots \dots (i)$$

Where, IR_{it} = the subscriber's raw initial return of IPO_i on day one; P_{it} = the closing price of the IPO stock on the first-day of trading in the secondary market; and P_{i0} = the offer/issue price of the IPO stock i and the time index 0 refers to the last day of the offer period².

Market Return: Market return refers to the rate of return on market portfolio of common stocks as represented by Nepal Stock Exchange Limited Index (NEPSE Index) in the context of Nepal.

¹ Book building pricing was not in practice during study period, it came later.

² Securities Registration and Issue Regulation, 2016 article 10 states that the time period for public issuance of securities shall be at least four days. The fourth day of the offer period is considered as offer day denoted by time index "0". If the offerings are not completely sold in the stipulated days, issuing firm extends the offer period up to 15 days, in such case the last offer day is considered as the offer date. In case of unavailability of last offer day NEPSE index, the next NEPSE index to the last offer day is considered as the closing index level. In this study, the fourth day of the offer period is considered as offer day denoted by time index "0".

$$MR_{ml} = [NEPSE_{ml} - NEPSE_{m0}] / NEPSE_{m0} \dots \dots \dots (ii)$$

Where, MR_{il} = the total market return on day one; $NEPSE_{ml}$, = the closing index level of Nepal Stock Exchange Ltd. on the first-day of trading; and $NEPSE_{m0}$ = the closing index level of Nepal Stock Exchange Ltd. on the last IPO offer/issue day.

Market-adjusted Abnormal Return: In the empirical IPO literature, the market-adjusted abnormal return method is commonly used to measure the level and degree of underpricing of an IPO (Aussenegg, 2007).

$$AR_{il} = IR_{il} - MR_{ml} \dots \dots \dots (iii)$$

Where, AR_{il} = the market-adjusted abnormal return for IPO_i on day one; IR_{il} = the initial raw return; and MR_{ml} = the rate of return on the market (benchmark) returns on the first-day of trading.

Identification of Hot and Cold Issue Market

Following the studies by Loughran and Ritter (1995), Helewege and Liang (2004), Agathee et al. (2012), Alim et al. (2020), and others, hot issue and cold issue markets have been identified and segregated using the techniques of volume-based, initial return-based, and subscription rate-based in the context of Nepal. Both the mean and median of initial return, volume of issue (total number of IPOs), and subscription rate have been considered for identifying the hot and cold issue markets in the study. When the initial return, volume of issue, and subscription rate are higher and above their mean (Ibbotson & Jaffe, 1975) and median values (Ritter, 1984) for the total sample is considered a “Hot Issue” market and considered a “Cold Issue” market when

their mean and median values are lower than average.

Multivariate Logit of the Decision to Issue in a Hot or Cold Market

To estimate the probability of conducting public issues of securities in a hot market versus a cold market, a multivariate logit regression model has been employed in the study (Agathee et al., 2012; Alim et al., 2020; Helwege & Liang, 2001). In other words, the study uses the binary logit regression model to determine the IPO’s decision to go public in a hot issue market. The dependent variable of this analysis is the “Hot Issue” market. It is used as a dichotomous variable, which takes the value of “1” if the firm goes public in the hot issue market, and takes the value of “0” if the firm goes in the cold issue market.

The multivariate logit regression model is expressed as (Alim et al., 2020; Laughran & Ritter, 2003):

$$HOT_i = \alpha + \beta_1 (IR_{il} - MR_{ml})_{it} + \beta_2 (FirmSIZ)_{it} + \beta_3 (FirmAGE) + \beta_4 (lnOfferSIZ)_i + \beta_5 (SubsRAT)_{it} + \beta_6 (ListingDEL)_i + \beta_7 (lnSales)_{it} + \beta_8 (ROE)_i + \beta_9 (lnGDP)_{it} + \beta_{10} (lnIndusPRO)_{it} + \beta_{11} (IndMFI_DUM)_{it} + \beta_{12} (IssMGR_DUM)_{it} + e_{it} \dots \dots \dots (iv)$$

Variables and Measures

$IR_{il} - MR_{ml}$ = Market-adjusted abnormal return, aka underpricing, measured by the return from the IPO offer price to the first-day trading closing price less the market return, in percentage (Kim et al., 1993).

HOT = HOT, the period of high IPO volume and high initial returns is known as the hot issue market. The cold issue market is a period of low IPO volume and low initial returns (Alim et al., 2020). HOT is a dummy

variable, also a dependent variable, which is equal to “1” if a particular firm goes public in a hot phase or “0” if the firm goes public in a cold phase (Agathee et al., 2012; Alim et al., 2020; Helwege & Liang, 2001; Ritter, 1984).

FirmAGE = Age of the firm, defined as the difference between the offer date of the IPO and the date of business operation of the issuing firm. The age variable is used as the natural logarithm of firm age (*lnFirmAGE*), in percentage (Croes, 2017).

FirmSIZ = Size of the firm, defined as the natural logarithm of total assets of the firm (*lnFirmSIZ*) at the time of IPO, in percentage.

OfferSIZ = Offer/issue size, defined as the gross proceeds from the IPO, which is the number of shares offered multiplied by the offer price. The issue size is used natural logarithm of gross proceeds (*lnOfferSIZ*), in percentage (Croes, 2017).

SubsRAT = Subscription rate, measured as the number of IPOs subscribed divided by the number of IPOs issued, in times.

ROE = Return on equity, measured as the company’s net income divided by its shareholders’ equity, in percentage.

ListingDEL = Listing delay measured as the natural logarithm of time elapse between the the IPO offer date and listing date (*LnListingDEL*) in the stock exchange³, in percentage (Matharu, 2021).

Sales = *Sales* is measured as the natural logarithm of the firm’s annual sales (*lnSales*) prior to going public, in percentage.

GDP = Gross domestic product, measured as the natural logarithm of the nominal gross domestic production of a country (*lnGDP*) prior to going public, in percentage.

IndusPRO = Industrial production growth is measured as the natural logarithm of the total industrial production of a country (*lnIndusP*) proxied by the amount of production in manufacturing companies prior to going public, in percentage.

IndMFI_DUM = Binary-variable, which takes a value of “1” if IPO firms are in the microfinance sector, and “0” otherwise.

IssMGR_DUM = Binary-variable, representing the size of the underwriter which takes a value of “1” for the top seven large issue managers (merchant bankers) in Nepal based on the number of offers and the market share of gross proceeds from IPO of firms going public, and “0” otherwise.

e = Refers to the unexplained residual error terms.

Similarly, α is the intercept term, and $\beta_1, \beta_2, \dots$, and β_{12} are the respective parameters of the explanatory variables to be estimated.

RESULTS AND DISCUSSION

Aggregate IPO Volume, Initial Returns and Subscription Rates

Table 2 shows the descriptive statistics of IPO volume, initial returns, and their subscription rates during the sample period of 2011/12–2022/23.

³ Securities Enlistment By-laws, 2018 stated that the enlistment of securities should generally complete within 30 days from the date of receipt of application in the NEPSE.

Table 2
Descriptive Statistics of IPO Volume, Initial Return, and Subscription Rates

	Mean	Median	Std. Dev	Min	Max	n
IPO volume	16.83	16.50	6.28	9.00	26.00	202
Raw initial return	202.97	187.10	188.82	-27.90	1558.00	202
Market-adjusted abnormal return	195.59	183.74	196.28	-449.41	1562.42	202
Subscription rates	39.16	14.15	63.86	0.27	405.40	202

Table 2 reveals that, on average, 17 firms per year went public, with a maximum of 26 firms. Thus the IPO sector and the year where the number of IPOs is above the mean (i.e., 16.83) and median (i.e., 16.50) is characterized as a hot issue market, and where they are less than the mean and median is termed as a cold issue market. Similarly, the sector or year where initial returns, and subscription rates per sector and year are greater than their mean and median values are categorized as hot issue markets.

Identification of Hot and Cold Issue Markets

Table 3 provides the IPO volume or number of IPOs per sector in Panel A and per year in Panel B during 2011/12–2022/23. The sector where the number of IPOs is greater than the overall mean (16.83) and median volume (16.50) is considered the hot issue market.

Table 3 Panel A reveals that in sectors such as hydropower, microfinance, and development banks, IPO activity is found to be high as the IPO volume in these sectors is higher than the mean and median IPO volume, indicating these sectors may be classified as the hot issue sectors/markets. It also indicates that IPOs have been clustered only in these three sectors during the study period. While the mean and median IPO activity like IPO volume, raw initial return, market-adjusted abnormal return, and subscription rates has remained less

in other sectors. This indicates that these sectors may be classified as cold issue sectors/markets. Similarly, Panel B of Table 3 presents that in FYs 2012/13, 2014/15, 2018/19, 2020/21, 2021/22, and 2022/23, the IPO issuing activity remained high as the number of IPOs per year is higher than the mean and median indicating these periods may be classified as the hot issue periods. While all other periods have a smaller number of IPOs than the mean and median, which could be classified as the cold issue periods. This result is in line with the study of [Loughran and Ritter \(1995\)](#) in which they found that the 1980s were a “hot issue” because most of that decade had much higher issuance volume than the 1970s in the US. Similarly, in the FY 2012/13, the hot issue market is attributed to a bunch of IPO issues only from development bank sector, 12 issues out of 21. Similarly, microfinance and hydropower sectors have been dominating in the IPO markets. [Benveniste et al. \(2002\)](#) argued that when a bunch of similar firms within the industry go public is called industry clustering, which determines the hot and cold markets. Thus, the results of the study, namely IPO firms from microfinance, hydropower, and development banks, support the *industry clustering/concentration hypothesis* of IPOs. There is also some evidence that the hot issue markets are more likely to be small-sized start-ups ([Helwege & Liang, 2001](#)). Based on this, it can be inferred that

Table 3

Hot and Cold Issue Markets based on IPO Volume (Number of IPOs)

<i>Panel A: Hot and Cold Issue Markets by Sector</i>			<i>Panel B: Hot and Cold Issue Markets by Fiscal Year</i>		
Sector	Number of offers or Volume of IPO issuance	Hot/Cold Market	FY	Number of offers or Volume of IPO issuance	Hot/Cold Market
Commercial Banks	6	Cold Market	2011/12	13	Cold Market
Development Banks	32	Hot Market	2012/13	21	Hot Market
Finance Companies	4	Cold Market	2013/14	15	Cold Market
Microfinance	65	Hot Market	2014/15	18	Hot Market
Hydropower	77	Hot Market	2015/16	9	Cold Market
Hotel and Tourism	3	Cold Market	2016/17	10	Cold Market
General Insurance	4	Cold Market	2017/18	12	Cold Market
Life Insurance	5	Cold Market	2018/19	22	Hot Market
Investment Com.	4	Cold Market	2019/20	9	Cold Market
Others#	2	Cold Market	2020/21	22	Hot Market
			2021/22	26	Hot Market
			2022/23	25	Hot Market

Note. Data is available with the author on request.

similar firms from certain sectors tend to go public in a hot issue market due to the information spillover effect (Alim et al., 2020).

Panel A of Table 4 reveals that in sectors such as microfinance, general insurance, life insurance, and investment companies, IPO activity is found to be high as the raw initial return and market-adjusted abnormal return are higher than the mean and median returns, indicating these sectors may be classified as hot issue sectors/markets. Similarly, Panel B of Table 4 shows that the period between 2014/15 to 2017/18, and 2019/20 to 2022/23 could be classified as hot issue periods as the initial returns are greater than the mean and median initial returns. These results are consistent with Ibbotson and Jaffe (1975), who argued that hot issues generally refer to

particular stock issues that have risen from their offering prices to higher-than-average premia in the aftermarket.

Panel A of Table 5 shows that in sectors like commercial banks, development banks, microfinance, hydropower, and investment companies, IPO activity is found to be high as the subscription rates in these sectors are higher than the mean and median subscription rates, indicating these sectors may be classified as hot issue sectors/markets. While in other sectors such as finance companies, hotels and tourism, general insurance, life insurance, and others, the IPO activity remains low as the subscription rates are less than the mean and median, indicating these sectors may be classified as cold issue sectors/markets. Panel B presents that in FYs between 2013/14 and 2018/19, and

2020/21 to 2022/23, the IPO activity has been found high as the subscription rates per year are higher than the mean and median subscription rates, indicating these years may be classified as hot issue periods over the period under study.

Table 6 presents hot and cold issue markets more vividly based on the combined characteristics

of IPO firms such as IPO volume, initial returns, and subscription rates suggested by [Helwege and Liang \(2005\)](#). As per Panel A of Table 6, only the microfinance sector, among all, has been found to meet all three characteristics of IPO firms, where IPO volume, initial return, and subscription rates of this sector is greater than its mean and median values. Thus, the microfinance sector could be considered as

Table 4
Hot and Cold Issue Markets based on Initial Return

Panel A: Hot and Cold Issue Markets by Sector			
Sector	IR(RW)	AR(IR-M)	Hot/Cold Market
Commercial Banks	90.50	88.12	Cold Market
Development Banks	78.47	65.58	Cold Market
Finance Companies	40.50	-7.88	Cold Market
Microfinance	324.15	310.05	Hot Market
Hydropower	173.61	165.52	Cold Market
Hotel and Tourism	41.97	42.14	Cold Market
General Insurance	218.00	218.98	Hot Market
Life Insurance	214.34	212.68	Hot Market
Investment Com.	239.03	224.63	Hot Market
Others#	160.67	162.75	Cold Market
Panel B: Hot and Cold Issue Markets by Year			
FY	IR(RW)	AR(IR-M)	Hot/Cold
2011/12	61.15	49.94	Cold Market
2012/13	93.40	46.77	Cold Market
2013/14	194.13	182.96	Cold Market
2014/15	214.83	191.09	Hot Market
2015/16	272.56	272.66	Hot Market
2016/17	438.60	432.92	Hot Market
2017/18	212.61	216.96	Hot Market
2018/19	138.96	117.52	Cold Market
2019/20	222.67	217.75	Hot Market
2020/21	231.79	230.09	Hot Market
2021/22	251.84	253.75	Hot Market
2022/23	215.86	215.08	Hot Market

Note. IR(RW)=Raw initial return and AR(IR-M)=Market-adjusted abnormal return.

Table 5

Hot and Cold Issue Markets based on Subscription Rates

Panel A: Hot and Cold Issue Markets by Sector			Panel B: Hot and Cold Issue Markets by Year		
Industry	Subscription rate	Hot/Cold Market	FY	Subscription rate	Hot/Cold Market
Commercial Banks	30.85	Hot Market	2011/12	4.50	Cold Market
Development Banks	15.27	Hot Market	2012/13	8.05	Cold Market
Finance Companies	2.95	Cold Market	2013/14	50.31	Hot Market
Microfinance	86.19	Hot Market	2014/15	82.77	Hot Market
Hydropower	18.71	Hot Market	2015/16	170.09	Hot Market
Hotel and Tourism	13.95	Cold Market	2016/17	73.72	Hot Market
General Insurance	7.08	Cold Market	2017/18	34.80	Hot Market
Life Insurance	5.36	Cold Market	2018/19	14.32	Hot Market
Investment Companies	19.75	Hot Market	2019/20	6.60	Cold Market
Others#	2.47	Cold Market	2020/21	28.09	Hot Market
			2021/22	39.31	Hot Market
			2022/23	29.48	Hot Market

the hot issue sector/market in Nepal. A study by Ritter (1984) documented that there was a high average initial return attributed to just one industry, i.e. natural resource sector like oil and gas, during the six years 1977-1982 in the US market. Particularly, this happened in 15 months period starting from January 1980 through March 1981, which was recognized as a “Hot Issue” market. The present study also shows that the microfinance sector is, on average, smaller in issue size, which is consistent with the findings of Helwege and Liang (2001), who reported that hot IPOs are smaller on average.

Similarly, Pane B reveals that the period 2014/15 is found to be a hot issue period/market as IPO volume, initial return, and subscription rates are greater than its mean and median values. This period is also marked as the year of announcing the new constitution called “Constitution of the Federal Republic of Nepal 2072”. Similarly, the periods between 2020/21 to 2022/23 are also categorized as

a hot issue periods, which might be due to the recovery phase of the economy after the huge loss from COVID-19 shock. On the other hand, the period in between 2011/12 to 2013/14, and 2015/16 to 2019/20, IPO issuing activity remained low as the IPO volume, initial return, and subscription rates are less than their mean and median values indicating that these periods may be classified as cold issue periods. These results are in line with the studies by Loughran and Ritter (1995), Helwege and Liang (2005) and Alim et al. (2020).

The Logistic Regression Model

In this section, the probability of a new issue of securities in a hot market has been examined using a binary logistic regression.

Test of Key Assumptions of Binary Logistic Regression

Binary logistic regression analysis should meet certain assumptions. The first one is that the dataset used should not have

extreme outliers among the predictors. This assumption has been checked by analyzing “Casewise listing of residuals” with outliers outside 2.5, the result did not produce the case-wise plot, which indicates that there might not be a problem of outliers in the dataset. Next, the normalized residual under residual analysis showed that the valid

absolute values above two $|2|$ are seven out of 202 observations, which indicated that there might be a problem with this assumption. However, the scatter plot did not show any exponential pattern, which showed there is no serious problem regarding the assumption. This could be considered acceptable, though not comfortable, to run logistic regression.

Table 6

Hot and Cold Issue Markets based on IPO Volume, Initial Return and Subscription Rates

<i>Panel A: Hot and Cold Issue Markets by Sector</i>					
Sector	IPO volume	Initial return		Subscription rate	Hot/cold market
		IR(RW)	AR(IR-M)		
Commercial Banks	6	90.5	88.12	30.85	Cold market
Development Banks	32	78.47	65.58	15.27	Cold market
Finance Companies	4	40.5	-7.88	2.95	Cold market
Microfinance	65	324.15	310.05	86.19	Hot market
Hydropower	77	173.61	165.52	18.71	Cold market
Hotel and Tourism	3	41.97	42.14	13.95	Cold Market
General Insurance	4	218	218.98	7.08	Cold market
Life Insurance	5	214.34	212.68	5.36	Cold market
Investment Companies	4	239.03	224.63	19.75	Cold market
Others#	2	160.67	162.75	2.47	Cold market
<i>Panel B: Hot and Cold Issue Markets by Year</i>					
FY	IPO volume	Initial return		Subscription rate	Hot/cold market
		IR(RW)	AR(IR-M)		
2011/12	13	61.15	49.94	4.5	Cold market
2012/13	21	93.4	46.77	8.05	Cold market
2013/14	15	194.13	182.96	50.31	Cold market
2014/15	18	214.83	191.09	82.77	Hot market
2015/16	9	272.56	272.66	170.09	Cold market
2016/17	10	438.6	432.92	73.72	Cold market
2017/18	12	212.61	216.96	34.8	Cold market
2018/19	22	138.96	117.52	14.32	Cold market
2019/20	9	222.67	217.75	6.6	Cold market
2020/21	22	231.79	230.09	28.09	Hot market
2021/22	26	251.84	253.75	39.31	Hot market
2022/23	25	215.86	215.08	29.48	Hot market

Table 7
Maximum Likelihood of Hot Issue Market

Predictor	β	Wald χ^2	p-value	Odds ratio
Constant	-207.562	22.918	0.000	0.000
$IR_{it} - MR_{mt}$	0.011	10.538	0.001	1.011
lnFirmSIZ	0.234	0.434	0.510	1.263
FirmAGE	0.215	2.847	0.092	1.240
lnOfferSIZ	0.147	0.182	0.669	1.159
SubsRAT	0.035	9.455	0.002	1.035
lnListingDEL	1.964	8.203	0.004	7.128
lnSales	0.130	2.833	0.092	1.139
ROE	-0.027	1.076	0.300	0.973
lnGDP	12.967	21.591	0.000	42.791
lnIndusPRO	-0.228	7.033	0.008	0.796
IndMFI_DUM	-3.186	8.846	0.003	0.041
IndHPR_DUM	-1.811	3.391	0.066	0.164
IssMGR_DUM	-0.591	0.800	0.371	0.554

Dependent variable (Binary): Hot_Cold = Hot

Omnibus tests: Chi square = 177.541, p-value = 0.000

Cox and Snell R-square = 58.5%, Nagelkerke R-square = 80.5%

Hosmer and Lemeshow test: Chi-square = 1.914, p-value = 0.984

Overall percentage (Correct) = 90.6%

Note. ***Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.

The second assumption is that there should be little or no multicollinearity among the explanatory variables. This assumption has been tested with Spearman's Bivariate Correlation and OLS regression under 'Collinearity diagnostic'. Spearman's Bivariate Correlation run for explanatory variables of the model found that there is no multicollinearity among explanatory variables since correlation coefficients are less than 0.50 (should not be greater/equal to 0.70) in all cases. To be confirmed, OLS regression has been conducted next. The result of the collinearity diagnostic shows that the variance inflation factor (VIF) of all the explanatory variables is less than

3.5 (should be less than 10). The tolerance level is found to be more than 0.1 for all predictors. All these results support that there is no problem of multicollinearity among explanatory variables.

The third assumption is that the observations should be independent of each other. This assumption has been met since the data have been extracted from various sources for each of the independent sample IPO firms separately. This means the observations do not come from repeated measurements or matched data. The fourth assumption of linearity has been examined by using a scatter plot. The scatter plot is found symmetric

both above and below a straight line, with observations equally spaced along the line, then the assumption of linearity can be made.

Binary logistic regression is used to identify the likelihood of a hot issue market of IPOs in the primary market based on the various issue-, firm-, and market-specific explanatory variables. A higher likelihood score of explanatory variables indicates that there is a greater influence of explanatory variables in the hot issues market than in the cold issues market. The cold issue market served as a reference category and is compared to the likelihood of the hot issue market.

Table 7 presents the results of binary logistic regression. Omnibus tests of model coefficients show that the chi-square is significant at a 1 percent level, thus the model should be further interpreted. Model summary presents multiple correlations in terms of Cox and Snell R-square by 58.5 percent, and Nagelkerke R-squared by 80.5 percent. Hosmer and Lemeshow's test shows that the chi-square value is insignificant, indicating the model does fit the data and should be further interpreted. The percentage correct in the overall percentage row is above 80 percent, indicating the total accuracy of the model for the regression.

One of the explanatory variables *market-adjusted abnormal initial return* also known as underpricing is positively related to the unstandardized beta coefficient and significant at 1 percent level with an odds ratio of 1.011. The result is explained as IPOs that increase one unit in market-adjusted abnormal return, led to 1.011 times more chances in the hot issue market. It indicates that the presence of sentiment investors, especially noise traders, having incomplete information, tends to speculate

more, and the stock price is always higher than the fundamental value, leading to higher chances of above-average initial return (Miller, 1977). Similarly, *subscription rates*, is also associated with a 1.035 times increase in the probability of a hot issue market compared to a cold issue. It indicates that the higher the rate of subscription, investors tend to perceive the maximum likelihood of higher initial returns of IPOs. These results support the *investor sentiment hypothesis* of the hot issue market suggested by Ritter (1984) and DeLong et al. (1990), where they posited that existence of noise traders can be to speculate. Ritter (1984) further argues that the impact of investor sentiment is acute in hot markets, consequently, IPOs underperform in the long run.

Age, listing delay and sales of the firm, are associated with 1.240 times, 7.128 times, and 1.137 times respectively indicating maximum likelihood to influence hot issue markets and they are statistically significant. This result is consistent with the finding of Loughran and Ritter (2004), who employed firm age, time elapsed, and sales as proxies of changing risk composition, which can explain the unusually high average initial returns during the hot issue period. Moreover, riskier firms are difficult to value, and uninformed investors are more uncertain of the aftermarket price, leading to higher initial returns (Ritter, 1984). On the other hand, explanatory variables such as firm size and offer size, employed as proxies of changing risk composition hypotheses by Loughran and Ritter (2004), had more chances to explain unusually high initial returns during the hot issue period. These results, thus, support the *changing risk composition hypothesis* of hot issue markets. However, the results reveal that industry dummies, used as proxies of the changing risk composition hypothesis by Loughran and Ritter (2004),

like microfinance and hydropower sector, are less likely to influence the hot issue market by 95.9 percent (i.e., $1.000 - 0.041 = 0.959$), and 83.6 percent (i.e., $1.000 - 0.164 = 0.836$), and they are also statistically significant.

Similarly, explanatory variable *gross domestic product* shows a positive relationship between gross domestic product and going public decision in hot issue market, and is significant at 1 percent level. IPO firms are more likely to go public in a hot issue market at a time of a better economic environment since a better economic environment provides more business opportunities and lowers the cost of capital compared to debt financing (Alim et al., 2020; Lowry, 2003). The result supports the capital demand hypothesis of the hot issue market. The demand for capital hypothesis argues that firms will time their IPOs to take place when the market is performing well simply resulting in costs of capital being lower (Lucas & McDonald, 1990; Pastor & Veronesi, 2005). However, another covariate, *industrial production*, measured by the natural logarithm of the total industrial production of a country proxied by the amount of production in manufacturing companies prior to going public, is less likely to influence hot issue markets.

Issue manager dummy, *IssMGR_DUM*, does not show a significant association going public decision during the hot issue market. It indicates that issuers are not interested in accepting heavy underpricing hiring reputed issue managers (Ma, 2005) because IPO is valued based on the fixed price method. Thus, the result is difficult to reconcile with the *changing issuer objective function hypothesis* developed by Loughran and Ritter (2003) which explains the decision to go public, particularly in the Nepali market.

CONCLUSION AND IMPLICATION

There is a presence of 'hot issue' markets in the Nepali IPO market. Sectoral analysis identifies that the 'microfinance sector' is observed as a 'hot issue' sector/market in Nepal. It implies that there is exceptionally strong investor demand and favorable market reception for microfinance offerings. This sector can be considered predominantly the hot issue market attracting greater investor interest and generating superior IPO performance compared to other sectors. Additionally, the offer size in microfinance sector is relatively smaller in Nepal and studies in developed markets also reported that hot IPOs are smaller on average. Further, issuing firms are clustered, in terms of IPO volume, in three sectors such as microfinance, hydropower, and development banks. The sectoral clustering indicates that these sectors are the major contributors to IPO volume and play a dominant role in the country's primary capital market. The study also concludes that the some years are also identified as 'hot issue' periods in Nepal. Further results indicate that underpricing and subscription rates having an odds ratio above one suggested that investors become sentimental/optimistic during hot issue periods and thus, issuers time their IPOs to take advantage of the 'window of opportunity' of excessive optimism. Simply, higher levels of underpricing, and investor subscription increase the probability of strong IPO market performance and investor interest. Growth of economy, firm age, sales, listing delay, offer size, and firm size are also likely to influence the firms going public in 'hot issue' markets.

These empirical results offer several practical implications for prospective investors,

issuers, and the regulator. Investors could try to attempt their investments during the periods of higher initial returns. When IPOs begin to substantially outperform in the market, it indicates the state of hot issue markets and new issues generate premium returns to the investors during the initial trading days. However, aftermarket low IPO performance implies a cold issue market state, and investors may possibly avoid fresh IPO shares in the subsequent periods (Ibbotson & Jaffe, 1975). From issuers perspective, firms should 'time' their IPOs during heavy-volume periods following the hot issue markets (Ibbotson

et al., 1988). Going public ensures sufficient subscription of their new issues and attain a successful public issue. Even it is possible for firms having high-risk to raise more proceeds during hot periods compared to cold periods. As there is high chance of speculative offerings at hot issue markets because of heavy underpricing of new issues, the critical role of the market regulators can limit the degree of occurrence of these cyclical patterns (Jain & Kanjilal, 2016). To control unusual IPO waves, the regulator -Securities Board of Nepal, can formulate appropriate policies, and hence lessen the volatility in the IPO market.

Funding

The author declare that they have received no financial support for this study.

Conflict of interest

The author declare that they have no conflict of interest.

REFERENCES

- Agathee, U. S., Sannassee, R. V., & Brooks, C. (2012). The underpricing of IPOs on the stock exchange of Mauritius. *Research in International Business and Finance*, 26, 281-303. <https://doi.org/10.1016/j.ribaf.2012.01.001>
- Alim, K., Khan, S., Iqbal, J., & Haider, M. (2020). Does going-public decision of the initial public offerings in Pakistan's hot issue market matter? *Abasyn Journal of Social Sciences*, 13(1), 430-445. <https://doi.org/10.34091/AJSS.13.1.32>
- Arosio, R., Giudici, G., & Paleari, S. (2000). Why do (or did?) internet-stock IPOs leave so much money on the table? *Unpublished Politecnico di Milano (Italy) working paper*. https://www.underpricing.de/en/files/Arosio_Internet-IPOs.pdf
- Aussenegg, W. (2007). *Underpricing and the aftermarket performance of initial public offerings: The case of Austria*. In G. N. Gregoriou (Ed.), *Initial public offerings: An international perspective* (pp. 187-213). Butterworth-Henemann. <https://doi.org/10.1016/B978-075067975-6.50016-5>
- Baker, M., & Stein, J. C. (2004). Market liquidity as a sentiment indicator. *Journal of Financial Markets*, 7(3), 271-299. <https://doi.org/10.1016/j.finmar.2003.11.005>
- Benveniste, L.M., Busaba, W.Y., & Wilhelm, W.J. (2002). Information externalities and the role of underwriters in primary equity markets. *Journal of Financial Intermediation*, 11(1), 61-86. <https://doi.org/10.1006/jfin.2000.0310>
- Cook, D. O., Jarrell, S. L., & Kieschnick, R. (2003). *Investor sentiment and IPO cycles* [Unpublished working paper]. University of Texas.

- Croes, L. (2017). *IPO underpricing in the US: The impact of information asymmetry on today's IPO market* [Unpublished bachelor's thesis]. Erasmus School of Economics, Erasmus University Rotterdam.
- De Long, J. B., Shleifer, A., Summers, L.H., & Waldmann, R. J. (1990). Noise trader risk in financial markets. *Journal of Political Economy*, 98, 703–738. <https://www.journals.uchicago.edu/doi/epdf/10.1086/261703>
- Derrien, F. (2005). IPO pricing in “Hot” market conditions: Who leaves money on the table? *The Journal of Finance*, 60, 487-521. <https://doi.org/10.1111/j.1540-6261.2005.00736.x> Digital Object Identifier (DOI)
- Derrien, F., & Womack, K. L. (2003). Auctions vs. bookbuilding and the control of underpricing in hot IPO markets. *The Review of Financial Studies*, 16, 31-61. <https://doi.org/10.1093/rfs/16.1.0031>
- Dorn, D. (2009). Does sentiment drive the retail demand for IPOs? *Journal of Financial and Quantitative Analysis*, 44(1), 85-108.
- Du, L. (2014). *What explains the IPO cycle?* [Unpublished post-graduate research project]. National Stock Exchange of India Limited.
- Helwege, J., & Liang, N. (2001). Initial public offerings in hot and cold markets. *Journal of financial and quantitative analysis*, 1-36. <https://www.federalreserve.gov/Pubs/Feds/1996/199634/199634pap.pdf>
- Helwege, J., & Liang, N. (2004). Initial public offerings in hot and cold markets. *Journal of Finance and Quantitative Analysis*, 39, 541-569. <https://doi.org/10.1017/S002210900004026>
- Howe, J.S., & Zhang, S. (2010). SEO Cycles. *Financial Review*, 45, 729-741. <https://doi.org/10.1111/j.1540-6288.2010.00268>
- Ibbotson, R. G., & Jaffe, J. F. (1975). “Hot Issue” markets. *The Journal of Finance*, 30(4), 1027-1042. <https://doi.org/10.1111/j.1540-6261.1975>
- Ibbotson, R.G., Sindelar, J. L., & Ritter, J.R. (1988). Initial public offerings. *Journal of Applied Corporate Finance*, 1(2), 37–45. <https://doi:10.1111/jacf.1988.1.issue-2>
- Jain, M., & Kanjilal, K. (2016). Non-linear dynamics of hot and cold cycles in Indian IPO markets: Evidence from Markov regime-switching vector autoregressive model. *Macroeconomics and Finance in Emerging Market Economies*. <https://doi.org/10.1080/17520843.2016.1244093>
- Kim, J-B., Krinsky, I., & Lee, J. (1993). Motives for going public and underpricing: New findings from Korea. *Journal of Business Finance & Accounting*, 20(2), 195-211. <https://doi.org/10.1111/j.1468-5957.1993.tb00659.x>
- Ljungqvist, A., & Wilhelm, W. (2003). IPO pricing in the dot-com bubble: complacency or incentives? *The Journal of Finance*, 58(2), 723-752. <https://archive.nyu.edu/bitstream/2451/27205/2/S-FI-01-12.pdf>
- Ljungqvists, A. P., Jenkinson, T., & Wilhelm, J. W. J. (2003). Global integration in primary equity markets: The role of US banks and US investors. *The Review of Financial Studies*, 16(1), 63-99. <https://doi.org/10.1093/rfs/16.1.0063>
- Loughran, T., & Ritter, J. R. (2002). Why don't issuers get upset about leaving money on the table in IPOs? *Review of Financial Studies*, 15, 413-443. <https://doi.org/10.1093/rfs/15.2.413>
- Loughran, T., & Ritter, J. R. (2004). Why has IPO underpricing changed over time? *Financial Management*, 33(3), 5-37. <https://www.haas.berkeley.edu/wp-content/uploads/Whynew.pdf>
- Loughran, T., Ritter, J. R., & Rydqvist, K. (1994). Initial public offerings: International insights. *Pacific-Basin Finance Journal*, 2(2-3), 165-199. <https://site.warrington.ufl.edu/ritter/files/IPOs-International.pdf>
- Lowry, M. (2003). Why does IPO volume fluctuate so much? *Journal of Financial Economics*, 67, 3–40.

- Lowry, M., & Shu, S. (2002). Litigation risk and IPO underpricing. *Journal of financial Economics*, 65(3), 309-335.
- Lucas, D. J., & McDonald, R. L. (1990). Equity issues and stock price dynamics. *The Journal of Finance* 45(4), 1019-1043. https://www.nber.org/system/files/working_papers/w3169/w3169.pdf
- Ma, S. (2005). *Why are the first day returns of China's IPOs so high?* [Proceedings of the 4th Global Conference on Business and Economics]. University of Wollongong.
- Matharu, J. S. (2021). Initial performance of Indian IPOs before the financial crisis. *BIMTECH Business Perspective (BSP)*, 1-10. https://www.bimtech.ac.in/Uploads/image/1634imguf_Matharu_BSP_2ndproofs.pdf
- Miller, E. M. (1977). Risk, uncertainty, and divergence of opinion. *The Journal of Finance*, 32(4), 1151-1168.
- Mumtaz, M. Z., & Smith, Z. A. (2021). *The blueness index, investment choice, and portfolio allocation* [ADB Working Paper 1230]. Asian Development Bank Institute. <https://www.adb.org/publications/blueness-index-investment-choice-portfolio-allocation>
- Neneh, B. N., & Smit, A.V.A. (2013). Underpricing of IPOs during hot and cold market periods on the South Africa Stock Exchange. *International Journal of Social, Human Science and Engineering*, 7(7), 112-119.
- Ofek, E., & Richardson, M. (2002). The valuation and market rationality of internet stock prices. *Oxford Review of Economic policy*, 18(3), 265-287. <https://doi.org/10.1093/oxrep/18.3.265>
- Pastor, L., & Veronesi, P. (2005). Rational IPO Waves. *The Journal of Finance*, 60(4), 1713-1757. <https://people.bath.ac.uk/mnsrf/Teaching%202011/teaching%202010/IB/Literature/L4-underpricing/IPO/pastor.pdf>
- Ritter, J. R. (1984). The “hot issue” market of 1980. *The Journal of Business*, 57(2), 215-240. <https://www.jstor.org/stable/2352736>
- Ritter, J. R. (1991). The long run performance of initial public offerings. *The Journal of Finance*, 46(1), 3-27. https://www-2.rotman.utoronto.ca/~kan/3032/pdf/TestsOfMarketEfficiency/Ritter_JF_1991.pdf
- Ritter, J. & Welch, I. (2002). A review of IPO activity, pricing, and allocations. *The Journal of Finance*, 46(4), 1795–1828. https://www.nber.org/system/files/working_papers/w8805/w8805.pdf
- Rock, K. (1986). Why new issue are underpriced? *Journal of Financial Economics*, 15(1-2), 187-212. [https://doi.org/10.1016/0304-405X\(86\)90054-1](https://doi.org/10.1016/0304-405X(86)90054-1)
- Singh, S., & Dhanda, S. (2021). Hot and cold IPO markets. Evidence from India. *Vidyabharati International Interdisciplinary Research Journal* 13(1), 39-51. <https://www.viirj.org/vol13issue1/7.pdf>