



Macroeconomic Factors and Their Influences on Initial Public Offering (IPO) in Nepal

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Abstract

This paper examines the effect of macroeconomic factors such as interest rate, stock market index and remittance on the market share of initial public offerings (IPOs) in Nepal between 1993/94-2015/16. The factors such as stock market index and remittance have more significant relationship with the IPOs, whereas the interest rate had less significant effect. Also the issuance of larger amount of IPOs was related to growing secondary stock market activity, higher inflow of remittance in the economy and a falling interest rate in the market.

Key Words: Initial public offerings (IPOs), real gross domestic product, inflation, interest rate, stock market index, remittance

Introduction

Macroeconomic variables are the key indicators to understand the economic situation of a country. The variables are explanatory to multiple phenomena and changes observed in an economy. Macroeconomic conditions influence the industry-level and firm-level business performance and therefore the firm's decision to go public (Tran & Jeon, 2011). The decision to share the ownership of a company with the public is one of those critical decisions made by today's financial managers, which is influenced by multiple factors (Dayaratne & Wijethunga, 2015). The variation in the equity market returns is strongly associated with changes in the macroeconomic indicators in case of developed economies and is moderately associated in case of emerging countries (Bilson, Brailsford & Hooper, 2002). The study of Raheman and Sohail (2009) observed that the state of the economy had a significant influence on the short-term stock return on the equity offered in the Initial Public Offering (IPO) in Pakistan; the returns peaked to around 55.19 percent when the economy was in a boom.



Chen, Roll and Ross (1986) affirmed that macroeconomic variable like interest rate signaled useful information to the stock market participants and influenced their risk perception that in return affected the reward expectation resulting in price adjustments and volatile market activity. In terms of industry and firm-level activities, Fuerst (2006) found that an increase in the interest rate, caused businesses to increase the risk-adjusted discount rate of their planned investments resulting in cancelation of the projects, which in turn decreased their stock prices in the market as well as reduced their primary market activities. Similarly, money supply in the economy (macroeconomic variable tied to monetary policy), uses the interest rate channel and negatively influences the stock market, including the IPO (Chatziantoniou, Duffy & Fills, 2013). Kovandova and Zinecker (2015) concluded that the monetary policy of the central banks directly influences the IPO cycles in the emerging markets.

IPOs come in waves as per the movements of the stock market and the economy, and the financial managers opportunistically time their IPO to take advantage of strong industry and overall markets conditions (Brau & Fawcett, 2006; Ibbotson & Jaffe, 1975). Loughran and Ritter (1995) considered that firms IPO activities are timed to take advantage of the favorable market window in order to maximize their offering price. A bull market, as indicated by higher market and specific industrial returns, triggers firm managers and investment bankers to take decision to go public so that they can obtain attractive stock prices and maximize proceeds raised (Rajan & Servaes, 2002).

In the Nepal, the capital market — known as the 'barometer' or 'instant mirror' of the economy—is still at the developing phase and its stock market largely inefficient, with the reform efforts yet to be fully materialised (Kafle, 2005; Sthapit, & Dangol, 2006, Shrestha & Sthapit, 2009; Dangol, 2013). By the end of the fiscal year 2015/2016, Securities Exchange Board of Nepal (SEBON), the apex regulatory body of the Nepalese primary market, had completed around 280 rounds of IPO of various companies, worth around NRs. 30 billion in total to the ordinary public (SEBON, 2016). Kafle, (2005) had earlier noted that by the end of the fiscal year 2004/2005 capital issue amounting to NRs. 8.5 billion had been offered to the public by SEBON. Multiple studies (Vaidya, 2010; NEPSE, 2013; UNCDF, 2016; Niroula, 2015) have highlighted the reasons for companies to float IPOs to raise capital ranging from an under-developed and costly bond market, shortage of developed and diversified investment avenues, increase in the awareness level of the public, and key regulatory measures by governing bodies, to investors perceiving IPOs as safe-heaven investment with high rate of returns and oversubscription resulting from them. The primary market activity in the country, thus, has tripled within a decade (SEBON, 2016) indicating that the IPOs are attracting investors and that the market is developing at a pace with higher potential for future growth.

The issues of how macroeconomic conditions influence IPO activities and, to what extent, each condition affects new equity issuance are of keen interest to the common investors, investment banks, and firms wishing to go public. Most previous literatures on IPO have focused on certain corporate-level factors that explain why companies go public. There are only limited literatures that have sought to establish empirical relationship between the macroeconomic variables and the IPO activities. In the context of Nepal, there are few studies related to IPO: Dahal, (2007); Niroula (2015); and Pradhan & Shrestha



(2016). These studies examined the performance of the Nepalese IPO in the secondary market and studied the impact of the firm levels factors like firm size, reputation of the issue manager and the stock market index on the IPO prices after the IPO issuance. It implies that the impact of macroeconomic factors on IPO is relatively under-researched in the Nepal.

Therefore, in the context of macroeconomic indicators the current study aims to assess the effects of five macroeconomic variables [viz., *real Gross Domestic Product (GDP)*, *Inflation proxy by Inflation rate (INF)*, *Interest rate proxy by bank lending Rate (BLR)*, *Stock Market Index proxy by Nepal Stock Exchange Index (NEPSE)*, and *Remittance (REM)*], on IPO [*proxy by number of IPOs (IPONUM)*]; *total IPO proceeds raised (IPOTP)*; and *average IPO proceeds raised (IPOAP)*] in the Nepalese context.

Literature Review

Entrepreneurs have to consider the full range of costs and benefits related to the public issue and its alternatives (Jargot, 2006). Academic theories suggest four motivations for going public: Minimizing the Cost of Capital, Creating Cash-out Opportunity for Insiders, Facilitating Takeover Activities and Making a Strategic move (Brau & Fawcett, 2006). IPO assists firms to diversify their capital sources, increase their bargaining power with financial intermediaries and thus decrease their cost of debt (Rajan, 1992). Further, Black and Gilson (1998) have argued that an IPO reduces the stake of venture capitalists in the firm and aids him/her to cash-out from the family-run enterprise and resolves the problem of succession. Insiders opportunistically float their shares to the public through the IPO to gain personal financial benefits (Ang & Brau, 2003). Companies opt to go public to acquire other firms by paying for the takeover using the proceeds raised through the IPO (Gleason, Madura & Wiggenhorn, 2006). Brau and Fawcett (2006) found that the single most important reason for managers in the US for choosing public issue was to create a public market, so that their firms had the currency of shares for acquisitions of other firms. Therefore, IPO can serve as a strategic move to the privately held firms: by reducing the risk exposure; by gaining publicity in the market; and by facilitating the valuation of private stocks. On the similar line, Chemmanur and Fulghieri (1999) argued that the floating of IPO diversifies the ownership structure of the firm and disperses the firm's risk among a larger pool of shareholders. The decision to go public exposes the firm to external analysts who critically investigate the firm thereby indicating the firm's quality to the market (Stoughton, Wong & Zechner, 2001) and providing investors' valuation of the firm to the owners (Maug, 2001).

Previous studies: In relation to the timing of IPO, i.e., choosing the right time to go public, Ritter (1991) developed the 'Window of Opportunity Theory' suggesting that entrepreneurs time their decisions to go public as per the market condition predicting a lower number of equity issuance when the prices are down in the market and vice-versa. Loughran, Ritter and Rydqvist (1994), and Rydqvist and Hogholm (1995) found a significant positive relationship between the number of IPOs issued and the stock price index movement. Ljungqvist (1995) in case of Germany and other 10 European countries found the number of IPOs was positively correlated to the level of stock market index and



to the gross national product (GNP) growth rate. Likewise, Rees (1997) examined the reasons for British firms to go public and found that the number of IPO and the volume of IPO were significantly positively associated with the level of the stock market in the UK; while the number of IPO was significantly positively related to GNP. Breinlinger and Glogova (2002) examined the effect of stock index return, changes in savings deposits, GDP and Interest rates, on the number of IPOs and IPO volume, and found that the stock index had significant positive relationship with both the proxy of IPO activities. Tran and Jeon (2011) found a significant positive relationship between the US stock market index with the number of IPOs; the Fed Funds rate and the 10 year U.S. Treasury bond yield were significantly and negatively related to the amount of total proceeds (i.e. the IPO volume) and average proceeds raised in the IPOs, apart from Inflation as represented by Consumer Price Index (CPI) having significant and positive relation with the above IPO proxies.

In the Malaysian context, Ameer (2012) noted that nominal interest rate and bank credit had significant negative relationship with the number of IPOs, while industrial production rate and stock market index had significant positive relationship. Kaya (2013) noted in the US the change in the level of interest rates over the previous four quarters described the size of the initial public offering by firms in the current quarter. Kovandova and Zinecker (2014) found that the reference interest rate affected the IPO number in case of Poland. In Sri Lankan context, Dayaratne and Wijethunga (2015) reported that GDP, 91-day interest rate, inflation and exchange rate, total IPO proceeds raised and average IPO proceeds raised had long run equilibrium relationship, however, only exchange rate and interest rate showed granger causality with the total IPO proceeds. Similarly, Rani and Kaurmann (2017) established GDP as a significant predictor of IPO number and IPO, and market interest rate had co-integration but no causal relationship with IPO proxies, in the Indian context.

In Nepalese scenario, Dahal (2007) found that Nepalese IPOs were heavily undersubscribed and underpriced (by about 53.25 percent) until 2006, while the IPO returns were significantly affected by the subscription times of issue amount and the Nepalese stock market index, NEPSE. Further, Niroula (2015) investigated the factors affecting the underpricing of IPOs and found it being significantly and positively affected by the subscription times of the issue amount; it also revealed that Nepalese IPOs were oversubscribed and Nepalese investors considered IPOs to be a safe investment providing higher returns, and hence it justified the higher oversubscription rate. Further, Pradhan and Shrestha (2016) revealed that the initial short-term returns of the Nepalese IPOs were highly influenced by subscription rate, reputation of the issue manager and firm size. Phuyal (2016) studied the long run and short-run dynamic relationship between NEPSE and six other macroeconomic variables and noted a significant negative relationship between CPI and NEPSE apart from a significant positive relationship between NEPSE and remittance.

Research Methods

The present study used secondary data collected from multiple sources for analyzing the variables. A proper primary market activity in Nepal started from the year 1993 A.D. with the establishment of the apex regulatory body SEBON (Adhikari, 2013). Thus, the study covered the yearly data related to IPOs (proxy by Number of IPOs, IPONUM; Total IPO Proceeds raised, IPOTP; and Average IPO Proceeds raised, IPOAP) and that of the macroeconomic variables: Gross Domestic Product (GDP), Inflation [proxy Inflation rate (INF)], Interest rate [proxy by Bank Lending Rate (BLR)], Stock Market Index [proxy by NEPSE], and Remittance (REM), from the fiscal year 1993/94 to 2015/2016 A.D. The data were analyzed using quantitative research techniques such as descriptive, correlational and multiple regression analysis. The sources of the data included Annual Reports of SEBON of multiple years, publications of the World Bank of multiple years, Quarterly economic bulletin of Nepal Rastra Bank (NRB), and Economic survey released by Ministry of Finance, Nepal.

The natural logarithm of all the variables' data is taken except that of the variables inflation and interest rate. Further, one order difference of the natural logarithmic transformed GDP data is taken for correlational and regression analysis in the study. Taking the first order difference of the variable GDP means that the impact of changes in previous year's GDP growth rate on current years IPOs is analyzed in the study. The log linear functional form means that the coefficients are interpretable as point elasticities (Goldstein, Rivers & Tomz, 2007). Pearson correlation coefficient is used for analyzing the correlation among the variables. In addition, multiple regressions were undertaken between the dependent variables and the proxies of the independent variables. Correlational and regression analysis were carried out on the transformed variables.

Model Specification and Hypotheses

The functional form of the model used in the study is as follow:
Initial Public Offering = f (real gross domestic product, inflation, interest rate, stock market index, remittance).

More specifically, considering the proxies of the dependent variable and the natural logarithm transformation of the variables the given model has been segmented into following models:

$$\ln IPONUM = \alpha_1 + \beta_1 \ln dGDP + \beta_2 INF + \beta_3 BLR + \beta_4 \ln NEPSE + \beta_5 \ln REM + \varepsilon_1 \dots$$

Model (i)

$$\ln IPOTP = \alpha_2 + \beta_1 \ln dGDP + \beta_2 INF + \beta_3 BLR + \beta_4 \ln NEPSE + \beta_5 \ln REM + \varepsilon_2 \dots$$

Model (ii)

$$\ln IPOAP = \alpha_3 + \beta_1 \ln dGDP + \beta_2 INF + \beta_3 BLR + \beta_4 \ln NEPSE + \beta_5 \ln REM + \varepsilon_3 \dots$$

Model (iii)

Where,

$\ln IPONUM = \log(IPONUM)$; Natural logarithm form of the variable number of IPOs,
 $\ln IPOTP = \log(IPOTP)$; Natural logarithm form of the variable total IPO proceeds raised,
 $\ln IPOAP = \log(IPOAP)$; Natural logarithm form of the variable Average IPO Proceeds raised,
 $\ln dGDP = [\log(GDP_{t+1}) - \log(GDP_t)]$; First order difference of the Natural logarithm



form of the variable real gross domestic product, INF=Inflation rate, BLR=Bank Lending Rate, \ln NEPSE= \log (NEPSE); Natural logarithm form of the variable stock market index, \ln REM= \log (REM); Natural logarithm form of the variable remittance, ε =error terms, β =Coefficient of Individual variables

IPO: IPO refers to the first time offers and sells of a company stock to the general public. The company issuing the stocks raises the proceeds by selling its common stock to the public. In the current study, the term 'IPO' is proxy by: the number of IPO issued per year; Total IPO proceeds raised per year; and Average IPO Proceeds raised per year, which are also the dependent variable of the study. Tran and Jeon (2011); Dayaratne and Wijethunga (2015) have also used these proxies for measuring IPO in their researches.

Number of IPO: The number of IPO refers to the number of IPO issued by SEBON in a year. The number of IPOs in general measures the frequency of IPO issued per year in the capital market. Loughram et al. (1994), Ameer (2012) in their researches have considered No. of IPOs to be the proxy for IPO.

Total IPO Proceeds Raised: IPO proceeds refer to the capital amount collected by the company by selling its shares to the public. The total proceeds thus, refer to the sum total of all the proceeds raised by all the IPO issuing companies in a year. In the present study, the total amount of proceeds refers to the amount collected by all the IPOs issued in a year in the Nepalese capital market. This value represents the aggregate IPO value in the market per year. Breinlinger and Glogova (2002) have used the total IPO proceeds raised as their important proxy for IPO as it represents the monetary value and the volume of the IPO in the market.

Average IPO Proceeds Raised: Average IPOs are obtained by dividing the total IPO proceeds by the number of IPOs in a year. This value measures the average size of IPO activities in the market.

Gross Domestic Product: GDP represents the business cycle movements in the economy and positively represents the level of future business activity. Thus, a higher growth in the economy represented by higher GDP result in increased output and expansion in the economy influencing more firms to issue IPO to fund their expansions. La Porta, Lopez-De-Silanes, Shleifer and Vishny (1997), and Ljungqvist (1995) have reported a strong positive effect of GDP growth rates, on the Number of IPOs in the case of evolving markets. Similarly, Rees (1997) reported a positive relationship between GNP growth rate and the volume of IPO i.e. the total IPO proceeds raised. Based on it, this study develops the following hypothesis:

H₁: There is a significant positive, causal relationship between gross domestic product (GDP) and the IPO, and between GDP and all the proxies of the IPO.

Inflation: Inflation rate is used as a proxy for inflation in the present study. Omran and Pointon (2001) has used inflation rate as a proxy for Inflation in their study. A higher

inflation means investors also expect higher rate of return for new investments meaning higher cost for firms, which discourages firms to go public. Rise in the risk premium by any means raises the hurdle rate that firms use to assess the new investments discouraging them from any of the future investments and thus requirements for funds (Ameer, 2012). Based on it, this study develops the following hypothesis:

H₂: There is a significant causal relationship between Inflation (INF) and IPO; and between INF and all the proxies of the IPO.

Interest Rate: In the present study, the interest rate means the bank lending rate. This variable represents the market condition in the current study. Ameer (2012) noted that the monetary policy instruments like the interest rate impacted the capital market and propagated the IPO cycle and showed it had a strong negative relationship with IPO number. A higher level of interest rate discourages the firms to issue IPO as the future income levels of the firms are discounted heavily with the higher rate. Kaya (2013) noted in the US context that the change in the level of interest rates over the previous four quarters described the size of the initial public offering by firms in the latest quarter and further stated that firms issue a bigger IPO when interest rates are low compared to the rates in previous period. Based on it, this study develops the following hypothesis:

H₃: There is a significant causal relationship between Interest rate (BLR) and IPO; and between BLR and all the proxies of the IPO.

Stock Market Index: The stock market index is an aggregate value produced by combining several stocks or other investment vehicles. The present study used the Nepal Stock Exchange Index (NEPSE) as its proxy for stock market index performance measure. The window of opportunity theory and the market timing hypothesis state that a stock index reflects investors' sentiments, which affects the costs of floating equity, ultimately causing the IPO volume to fluctuate over time. This means firms find it optimal to go public as stock prices in the market rise as the cost of going public is relatively low during these periods (Ameer, 2012). Loughran et al. (1994) have noted a significant positive relationship of stock index on IPO number. Based on it, this study develops the following hypothesis:

H₄: There is a significant positive, causal relationship between stock market index (NEPSE) and the IPO; and between NEPSE and all the proxies of the IPO.

Remittance: Khan and Islam (2013) noted that remittance increases the aggregate demand in the economy and increases consumption resulting in increased productivity of the firms, which in return increases the demand for funds by the firms. Similarly, Phuyal (2016) in the Nepalese scenario has noted a significant positive relationship between remittance and stock market prices represented by NEPSE. Thus, remittance is expected to have positive relationship with the dependent variables in the current study and the proposed hypothesis is as follows:

H₄: There is a significant positive causal relationship between Remittance (REM) and the IPO, and between REM and all the proxies of the IPO

Results and discussion

Table 1 presents the descriptive statistics of selected dependent and independent variables covering the period 1993/94 to 2015/16.

Table 1

The table shows the descriptive statistics of the dependent and independent variables

Variables	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
IPONUM (in number)	26.0	2.0	28.0	11.7	6.1	37.7
IPOTP (in million rupees)	3,130.4	57.0	3,187.4	867.5	904.0	817,268.8
IPOAP (in million rupees)	253.8	14.9	268.7	68.3	58.3	3,400.7
GDP (in million rupees)	462,220.9	297,693.7	759,914.7	500,872.8	138,181.7	1,909,4172,732.7
INF (in percent)	8.8	2.5	11.2	7.2	2.7	7.1
BLR (in percent)	6.7	3.6	10.30	6.65	2.25	5.07
NEPSE (index number)	1,554.8	163.4	1,718.2	480.9	382.7	146467.4
REM (in million rupees)	678,777.0	223.0	679,000.0	168,998.4	213,005.9	45,371,511,876.1

Source: Author's Calculation using SPSS v.21

Correlation Analysis. The Pearson's correlation coefficients among the dependent and the independent variables are presented in the table 2.

Table 2

The correlation coefficients among the dependent and independent variables

Variable	lnIPONUM	lnIPOTP	lnIPOAP	lnGDP	INF	BLR	lnNEPSE	lnREM
lnIPONUM	1							
lnIPOTP	0.724**	1						
lnIPOAP	0.186	0.812**	1					
lnGDP	0.059	0.285	0.355	1				
INF	0.147	0.326	0.340	0.356	1			
BLR	-0.514*	-0.509*	-0.290	-0.048	0.227	1		
lnNEPSE	0.440*	0.727**	0.664**	0.383	0.273	-0.576**	1	
lnREM	0.516*	0.839**	0.759**	0.281	0.148	-0.649**	0.761**	1

Note: Author's Calculations using SPSS; ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

The correlation analysis shows that the independent variables stock market index and remittance show a significant positive correlation with all the proxy of the dependent

variable initial public offering. In addition, the variable bank lending rate also shows a significant negative relationship with all the proxies of the dependent variable. It shows that a positive change in the stock market index and a positive percentage change in the remittance inflow also indicate a positive percentage change in the number of initial public offerings issued and the volume of initial public offerings issued. Further, an incremental change in bank lending rate indicates a decreasing trend in the number of initial public offerings issued and the volume of initial public offerings issued. All the relationships are statistically significant at 5 percent level of significance.

Regression Analysis. The regression analysis between the proxies of the dependent variable and independent variables are presented in the table 4.

Table 3

Regression analysis between IPO number and the independent variables.

Model	Intercept	Regression coefficients of					Adj R ²	SEE	F
		IndGP	INF	BLR	lnNEPE	lnREM			
1	1.1903 (-0.295)	0.0467 (-0.2731)					-0.044	0.668	0.075
2	2.0321 (5.0187)**		0.036 (-0.6813)				-0.025	0.662	0.464
3	3.284 (8.636)**			-0.149 (-2.749)*			0.229	0.573	7.559
4	-0.2618 (-0.2287)				0.4298 (2.2439)*		0.155	0.601	5.035
5	-1.492 (-1.0834)					0.1544 (2.7579)**	0.2309	0.573	7.606
6	1.8222 (-0.4927)	-0.1005 (-0.5936)			0.4778 (2.2678)*		0.1281	0.61	2.616
7	0.0377 (-0.9916)	-0.073 (-0.6446)				0.1622 (2.7286)**	0.2012	0.584	3.771
8	-1.5407 (-1.0910)		0.0176 (-0.3737)			0.1512 (2.6155)**	0.1981	0.585	3.717
9	2.519 (-1.446)		0.062 (-1.133)	-0.155 (-2.049)*	0.061 (-0.235)		0.236	0.569	3.313
10	2.1427 (-0.547)	-0.1165 (-0.6452)	0.017 (-0.3141)		0.4669 (2.1383)*		0.0869	0.624	1.698
11	4.341 (-1.185)	-0.062 (-0.392)	0.075 (-1.498)	-0.171 (-3.051)*			0.236	0.571	3.263
12	3.073	-0.089	0.062	-0.125	-0.023	0.0743	0.184	0.59	1.994

(-0.753) (-0.545) (-1.079) (-1.445) (-0.069) (-0.76)

Notes: Figures in parentheses are t-value; asterisk signs (**) and (*) indicate that the results are significant at 1 per cent and 5 per cent levels, respectively.

The results of model 1 shows that the changes in the stock market index and that in the inflow of remittance have significant positive causal relationship with changes in the number of initial public offerings issued per year, while the other variables inflation and gross domestic product do not affect the number of initial public offerings issued in the stock market. The model is significant 10 percent level, and explains 18.40 percent changes in the dependent variable as indicated by the adjusted R² value.

Table 4

Regression analysis between total IPO proceeds raised and the independent variables

Model	Intercept	Regression coefficients of					Adj R ²	SEE	F
		IndGDP	INF	BLR	lnNEPSE	lnREM			
1	11.171 (1.712)	0.376 (1.360)					0.037	1.08	1.851
2	19.074 (29.272)		0.134 (1.581)				0.064	1.07	2.501
3	21.696 (33.759)*			-0.249 (-2.711)*			0.224	0.97	7.349
4	12.936 (8.776)				1.196 (4.849)**		0.506	0.77	23.52
5	9.679 (6.569)**					0.423 (7.059)**	0.689	0.61	49.84
6	13.529 (2.338)*	0.345 (1.419)		-0.243 (-2.704)*			0.26	0.95	4.86
7	12.747 (2.654)**	0.009 (0.042)			1.192 (4.3566)**		0.481	0.79	11.2
8	8.219 (2.1582)*	0.069 (0.417)				0.415 (6.522)**	0.677	0.63	24.03
9	13.897 (2.778)**	-0.049 (-0.210)	0.061 (0.884)		1.153 (4.137)**		0.475	0.8	7.647
10	9.989 (2.643)**	-0.0263 (-0.156)	0.088 (1.715)			0.409 (6.729)**	0.705	0.6	18.55
11	15.366 (6.617)*		0.105 (1.451)	-0.138 (-1.363)	0.814 (2.360)*		0.521	0.76	8.979
12	15.687 (3.078)*	-0.016 (-0.071)	0.106 (1.398)	-0.137 (-1.312)	0.822 (2.209)*		0.495	0.78	6.383
13	10.637 (2.517)*	-0.023 (-0.133)	0.096 (1.689)	-0.032 (-0.380)		0.386 (4.413)*	0.691	0.61	13.32
14	10.753 (2.506)*	-0.053 (-0.291)	0.084 (-1.380)	-0.012 (-0.123)	0.237 (-0.696)	0.35 (3.411)*	0.682	0.62	10.45

Notes: Figures in parentheses are t-values; asterisk signs (**) and (*) indicate that the results are significant at 1 per cent and 5 per cent levels, respectively.

The results of model 2 show that the interest rate proxy by bank lending rate has statistically significant, negative causal relationship with changes in the total initial public offerings' proceeds raised in the stock market.



Table 5
Regression analysis between average IPO proceeds raised and the independent variables

Mode l	Intercept	IndGD P	Regression coefficients of				Adj R ²	SE E	F
			INF	BLR	lnNEPSE	lnREM			
1	9.98 (2.235)*	0.33 (-1.741)					0.085	0.74	3.03 1
2	17.041 (37.462)**		0.098 (- 1.659)				0.074	0.74	2.75 2
3	18.183 (66.621)*			-0.102 (- 1.909)*			0.107 2	0.73	3.64 3
4	13.198 (11.710)**				0.766 (4.064)* *		0.414	0.59	16.5 2
5	11.171 (9.029)**					0.268 (5.338)* *	0.556	0.52	28.5
6	12.338 (7.252)*			0.047 (-0.682)	1.068 (3.673)*		0.398	0.6	8.28
7	8.406 (4.663)*			-0.12 (2.001) *		0.349 (5.640)*	0.611	0.48	18.2 9
8	13.228 (2.698)*	0.088 (-0.507)		0.039 (-0.535)	0.799 (3.022)*		0.375	0.61	5.40 1
9	6.534 (2.107)*	0.099 (-0.746)		0.111 (-1.807)		0.332 (5.021)*	0.602	0.49	12.1 1
10	8.019 (4.491)*			0.134 (2.246) *	0.324 (-1.378)	0.282 (3.652)*	0.628	0.47	13.3 7
11	9.654 (2.922)**	0.064 (-0.429)	0.056 (- 1.258)		0.119 (-0.445)	0.224 (2.881)* *	0.558	0.51	7.94 8
12	11.567 (2.864)*	0.065 (-0.358)	0.039 (- 0.651)	0.014 (-0.174)	0.721 (2.444)*		0.356	0.62	4.03 4
13	8.373 (4.301)*		0.024 (- 0.516)	0.116 (-1.66)	0.276 (-1.074)	0.227 (3.490)*	0.613	0.48	9.70 9
14	7.68 (2.246)*	0.036 (-0.250)	0.021 (- 0.444)	0.114 (-1.574)	0.26 (-0.958)	0.276 (-3.378)*	0.592	0.49	7.37 5

*Notes: Figures in parentheses are t-values; asterisk signs (**) and (*) indicate that the results are significant at 1 per cent and 5 per cent levels, respectively.*

Further, the changes in the stock market index, and that in inflow of remittance have significant positive causal relationship with the changes in the total initial public offerings' proceeds raised per year, while the other variables inflation and gross domestic products do not impact the number of initial public offerings issued in the stock market. The model is significant at 5 percent level as indicated by F-ratio of 10.451, and the predictor variables



studied in the model has the explanatory power to the tune of 68.20 percent for explaining the dependent variable as indicated by the adjusted R^2 value.

The results of model 3 show that the interest rate proxy by bank lending rate has statistically significant, negative causal relationship with the changes in the average IPO proceeds raised by various firms in the stock market; while the changes in the stock market index, NEPSE and inflow of remittance have significant positive causal relationship with the changes in the average IPO proceeds raised per year, while the other variables, namely, inflation and GDP, do not influence the average IPO proceeds raised by various firms in the stock market. The model is significant at 5 percent level as indicated by F-ratio of 7.375 and explains the predictor variables studied in the model has the explanatory power to the tune of 59.2 percent for explaining the dependent variable as indicated by the adjusted R^2 value.

Conclusions and Discussions

The study concludes that stock market index, remittance inflow and interest rate are among the most important macroeconomic variables explaining the movements in the IPO activities in the Nepalese scenario. The stock market index and the remittance inflow have statistically significant, positive impact on the number of IPOs issued, total IPO proceeds raised and average IPO proceeds raised. On the other hand, interest rate has negative impact on the IPO activities, as it has a significant, negative causal relationship with the number of IPOs issued, the total IPO proceeds raised and the average IPO proceeds raised, in the Nepalese primary market.

The present study finds that stock market movement is a significant indicator of the IPO activities in the Nepalese capital market, and shows that firms take advantage of the upwards market trends and issue their IPOs in accordance with the market sentiment. The findings are similar to those of previous Nepalese studies, namely, Dahal (2007) and Phuyal (2016). Further, the findings of the regression analysis in model 1, model 2 and model 3 are consistent with those of Loughran et al. (1994) in case of multiple countries; Rydqvist and Hogholm (1995), and Breinlinger and Glogova (2002) in the European context; Tran and Jeon (2011) in the US context. The study is partially similar with the findings of Rees (1997) done in the context of the UK, since both studies found the stock market index as having a positive significant causal relationship with the number of IPOs issued, while the gross domestic product showed no significant relationship with the dependent variable.

Likewise, the present study has discovered significant impact of remittance on the primary market activities in Nepal; reiterating the importance of remittance in Nepalese economy, as firms have relied on the liquidity brought in by inward remittances to cater to their fund requirements met through IPOs. This finding also makes the present study valuable, as previous studies have not analyzed the impact of remittance on the primary market activities, more particularly on IPO activities. And, in case of the overall capital market, the finding related to remittance is similar to that of Phuyal (2016).

Further, the study reveals that interest rate as a macroeconomic situation indicator has a negative impact on IPO activities and all its proxy; The findings of the model 2 and 3 are similar to that of Ameer (2012) in the Malaysian context and Kaya (2013) in the US

context, such that the interest rate has negative impact in the IPO volume floated in the market and acts a crucial factors influencing the firms' decision to issue IPOs in the market. One of the possible explanations for the negative relationship between interest rate and IPO activity can be sought in the insights discovered by Niroula (2015) in case of Nepal. Since investors consider IPOs to be safer and high yielding investment opportunity, a lower bank lending rate in the market means that investors are able to borrow more and invest more on IPOs implying that a larger number of firms are willing to issue IPOs, that too in a larger amount of issuance. In addition, the study found no significant influence of the remaining macroeconomic indicators like real gross domestic product and Inflation in the Nepalese case, as opposed to the findings of Rees (1997) in the context of the UK, Rani and Kaummann (2017) in the Indian context

Thus, the study concludes that macroeconomic factors are the major determining factors of IPO activities in case of Nepal.

Research Contribution and Recommendation

The study findings can have a few important implications to different stakeholders of the Nepalese capital market including investors, private companies, market-makers, and mutual funds as well as to market regulators like SEBON, Nepal Stock Exchange Ltd, central bank (Nepal Rastra Bank), Ministry of Finance, and Government agencies. Specifically, the study findings can help them develop a critical understanding of the macroeconomic indicators and their significant impact on the primary market and overall capital market in Nepal. Policies can be formulated to help market makers adapt to the dynamics of the macroeconomic factors in order to motivate more private companies to go public and help the capital market become more inclusive, active and robust.

Remittance is observed as a major factor influencing the IPO activities in the Nepalese Primary Market as per the present study. Thus, considering it as a major source of liquidity government bodies could make the policies that help in increasing the inward remittance and encourage savings and investment which helps make the market more vibrant and further can bring in mechanisms that boost the market such that the liquidity brought inside the country by the remittance can be channelled to the investment in the primary market activities like IPOs.

Furthermore, companies wishing to go public in the future can also refer to the study and time their IPOs in a more systematic manner as per the favorable macroeconomic condition. The study reveals that a period of lower interest rate, higher remittance inflow and a bullish secondary market condition indicates a macroeconomic condition with higher liquidity and higher investors' confidence. Firms can issue their IPOs and can tap into the sentiments of the market as per these macro indicators. Moreover, investors could take the study as a reference to predict the primary market activities and to make prudent investment decisions while designing their investment portfolios.

Scope of the Future Research

Future studies can use other macroeconomic indicators: industrial production index, gold prices, regulatory and government policies etc... Similarly, future researchers can include segmented data as per monthly and quarterly basis considering their availability to make the study more precise. Also employment of these detailed data can



open ways for using advance econometric tools. Further, they can incorporate government policy variables and monetary instruments variables like Treasury bill rate in the future research to study the impact of the policy level variables on the primary market.



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