BLACK MONEY, DEMONETIZATION AND ECONOMIC GROWTH: INDIAN EXPERIENCE AND CROSS-COUNTRY VERIFICATION

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Abstract: The study reveals that 'currency in circulation' has limited effect on macroeconomic growth. Data on 'broad money', and 'shadow economy' of 110 countries suggests that demonetization is an effective instrument for fighting black money. The fear that demonetization of 2016 would induce an economic downturn was not based on emerging economic developments. New variables like FDI and 'skill-development of manpower' have greater explanatory power on determining the rate of economic growth than the quantum of 'currency in circulation'. Benefits resulting from demonetization eventually outweighed the negative consequences and placed the economy on a rising phase.

Key Word: Demonetization, Black Money, Economic Growth, 'Currency in Circulation'

BLACK MONEY: A CHALLENGE TO ECONOMIC GROWTH

'Money plays the central role in the determination of income and employment in an economy (Dornbusch, Fischer and Startz, 2001: 213)'. However, black money plays the just the adverse role. It tends to make the economy gradually weaker by transferring income and money to unofficial sector plagued with the characteristics of low marginal propensity to consume and low multiplier effect. Some researchers [i.e., Rishi and Boyce (1990) and Dhar P K (2003)] pointed that generation of black money results in transferring of funds from India to foreign countries through clandestine channels. Global Financial Integrity estimated gross transfer of illicit assets by residents of India amounting to be about US$462 billion as at the end of December 2008. It is required to be noted that 72% of illicit assets is held aboard (MoF, 2012: p.15). It reflects that generation, accumulation and consequential cross-border flight of capital collectively render the economy weak and hurt the space of economic growth.

Medina, Leandro and Schneider, Friedrich (2017) produced estimates of the size of shadow economy of 158 countries. Due to non-availability of data relating to growth rate of GDP of some countries for the year of study 2015, twenty two countries had to be excluded from this list. Data on rates of GDP growth and size of shadow economy of 136 have been analyzed for examining the relationship between the rate of economic growth and size of shadow economy. The results obtained from the analysis show that there is a negative relation between black money and economic growth. It means a rise in black money is sure to push the growth rate downward.

Table.1 provides a list of sixteen countries confronting negative growth rate. It is observed that these countries are plagued with excessive load of shadow economy (black money). Average size of shadow economy in these countries is found to be 35.29% of GDP of these countries. From this data it can be inferred that slow pace of economic growth or adverse economic condition of a country is associated with the size shadow economy prevailing in the country.

Table 1: Black Money and Adverse Economic Condition: Some Evidences

Sl No.	Country	Growth rate of GDP (%) in 2015	Shadow Economy as Percent of GDP in 2015
1	Suriname	-10.3653	23.8
2	Yemen, Rep.	-9.77917	28.81
3	Equatorial Guinea	-9.6850	31.38
4	Brazil	-3.59474	35.22
5	Azerbaijan	-3.10	43.66
6	Belarus	-2.64903	32.37
7	Brunei Darussalam	-2.46551	30.44
8	Argentina	-2.29817	24.99
9	Swaziland	-2.21888	40.94
10	Congo, Rep.	-1.86466	35.05
11	Liberia	-1.60	43.67
12	Nigeria	-1.54105	52.49
13	Ecuador	-1.4675	30.18
14	Belize	-0.7787	42.29
15	Burundi	-0.5872	35.68
16	Russian Federation	-0.2249	33.72

Source: Growth Rate from World Development Indicators of World Bank

Shadow Economy data Medina, Leandro and Schneider, Friedrich (2017)

Average size of shadow economy of the remaining 120 countries [see Appendix A] with the record of positive growth rate is 26.77%. 't-statistic' computed for comparing average 'shadow economy' of these two categories of countries with the records of negative and positive growth rates is found to be 2.64, which is significant at 1% level [see Table 2]. This result confirms that the increased size of shadow economy has an adverse effect on the growth rate of the economies.

Table 2: Independent Samples Test

Countries with	N	Mean	Std. Deviation	t	Df	Sig(2tailed)
Positive Growth Rate	120	26.7754	12.5694	2.64*	134	0.009
Negative Growth Rate	16	35.2931	7.6308			

* t is significant at 0.01 level

The analysis reveals that the countries with the record of higher percentage of black money have the records of comparatively slow and negative growth rates. Therefore, it is an imperative to the government of every country that as a measure should be initiated to control black money and ensure that the growth rate of the economy is not affected.

Black Money has been an important economic and political issue in the country since long back. As per Cambridge Dictionary black money is the money earned illegally or on which necessary taxes have not been paid. National Institute of Public Finance and Policy has defined black money as incomes, which are taxable but not reported to the tax authority. It means that any income, legal or illegal, which is kept secret and not reported to the income tax authority, can be defined as black money. The fact is that to avoid the tax liability some citizens don't divulge their exact income.

Consequently, a part of income gets lost from national income accounts and subsequently the same gets routed to shadow economy, underground investments and money laundering. The hard fact is that black money is a part of lost national income. Medina Leandro and Schneider Friedrich (2017) estimated that the average size of shadow economy in the country is around 23.91% of GDP.

Chhoker Jagdeep S (2017) draws attention to the nexus between black money and politics of the country. There is also a nexus between corruption and black money. Correlation coefficient obtained from cross-country data relating to shadow economy and corruption rank of the respective countries is found to be 75% [See Note 1 and Appendix B]. The result is statistically significant. In the White Paper on Black Money (2012) Government of India admitted that 'manifestation of black money in social, economic and political space of our lives has a debilitating effect on the institutions of

governance and conduct of public policy in the country'. Government also reiterates her realization that success of an inclusive development strategy critically depends on the capacity of our society to root out the evils of corruption and black money from its very foundation. Hence, there has been an administrative compulsion to chalk out programmes and strategies to combat the size and growth of black money in the country.

For controlling black money there is already a huge administrative structure consisting of numerous departments and organizations. Those include Central Board of Direct Taxes, Enforcement Directorate, Central Board of Excise and Customs, Central Bureau of Investigation, etc. However, in combating effectively the generation and accumulation of black money, these machineries emerge inadequate. Occasional income tax raids and cash seizure have failed to stop the perpetrators of black money from their nefarious activities. Voluntary Disclosure of Income Scheme (VDIS) also appears very much ineffective. Economists and experts object VDIS, because it eventually helps in safe parking of ill-gotten black money at some gifted intervals.

During campaign of last parliament election, Prime Minister Narendra Modi promised that his government would bring back the black money stashed abroad (Kumar Arun, 2016). There was an urgent compulsion to destroy the parallel economy run by the perpetrators of counterfeit currency notes. Prime Minister Narendra Modi, in a bid to fight black money and corruption, announced demonetization of currency notes of Rs 500 and Rs 1000 on 8th November 2016.

Immediate after announcement of demonetization, while lots of uncertainty loomed large, different academicians and politicians began to present their own observations on the basis of their academic and political acumen. Now in the middle of 2018, after elapse of nearly two years, while all the consequences of demonetization have been almost fully absorbed, it unfolds an opportunity to look into the event and understand the effect of such a programme on the economy of the country. Perfect understanding about such a drastic programme of economic cleansing is essential for alleviating the fear and misunderstanding about such an announcement.

The paper is dedicated to make a post-mortem of demonetization announced in 2016 and bring some economic facts to light. This might help economic entities, household, firm and government to understand the extent to which demonetization can hurt economic prospect of the country. This would be also useful in designing strategies to face the uncertainty arising from the announcements of similar demonetization drives, if any, in future.

DEMONETIZATION: UNCERTAINTY, PANIC AND RECOVERY

Announcement of demonetization compelled all economic entities to deposit their cash hoardings kept in currency notes of higher denominations of Rs 500 and Rs 1000 into their savings bank accounts. It resulted in decrease in currency in circulation, but it neither made any change in total stock of narrow money M_1, nor did it cause any change to the size of broad money M_3. While people deposited currency in hand into their bank accounts in the form of demand deposits, purchasing power of household was supposed to be partially affected. In fact, there was no political instability. There was no restriction on writing cheques against the demand deposits. There was also no restriction on using debit card or credit card to meet the transaction requirements. There was also no restriction on net-banking. Restrictions were there on only withdrawals of liquid cash.

In India, as physical currency notes are dominantly used for transaction purposes, demonetization caused a shock on retail transactions in November and December, 2016. Consequently economy faced a negative pressure and experienced a reduction in the growth rate of GDP from 6.9% in third quarter to 6.0% in fourth quarter of the financial year 2016-17.

Announcement of demonetization forced people to deposit bulk cash holdings (kept in denomination notes of Rs 500 and Rs 1000) into their savings bank accounts. A program like this, in fact, does not make a person poor and reduce his consumption and savings. This only makes an individual or household to postpone consumption (of less essential consumer durables) to a future date. Industry effect resulting from demonetization unfolded this plain truth. For example, in the 3rd quarter of 2016-17, sales

of automobiles declined by 18.7%. However, soon after the system was back to normal, sales of automobiles registered a considerable jump in May 2017; this trend continued for a long time. RBI Study team (2017), while presenting the preliminary assessment of macroeconomic impact of demonetization, noted that adverse effect of demonetization would be transient and felt mainly in November and December of 2016. The negative forces dissipated fully by February, 2017.

Indeed the demonetization was announced suddenly and the magnitude was enormous consisting of 86% of currency in circulation. Economists such as Dasgupta D (2016) and Ghosh Ambar (2017) suspected that demonetization of such big scale might induce an economic downturn. In the context of demonetization announcement of 2016, the puzzling question is - can depositing 'cash in hand' into bank accounts induce depression? Indeed, on the basis of ceteris paribus assumption, everybody will discard such possibilities. However, if it happens that after demonetization is put into effect, direct tax collection increases, it has every reason to believe that, as a tool of management of public finance, demonetization can sometimes be used as a strategy to boost tax revenue and increase government expenditure for pushing up the rate of economic growth.

Fig 1, given below, shows the movement of quarterly growth rates of GDP after announcement of demonetization, which was announced in the third quarter in 2016-17. Consequent liquidity crisis reduced the growth rate to 6.0% (at constant prices) in the fourth quarter from 6.9% in third quarter of 2016-17. However, the growth rate peaked up to 7.7% at constant prices in the fourth quarter in 2017-18. This snap-shot of growth trend confirms most of the academicians' assessment that the downward pressure would be short-lived.

Fig 1
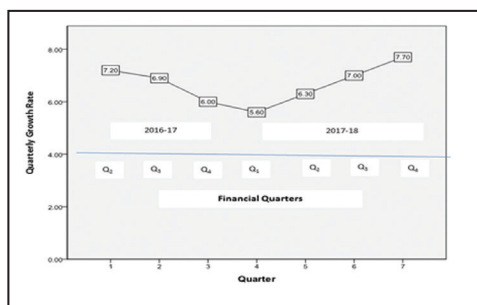
Table 3: Quarterly Growth Rates

Financial Year	Q1	Q2	Q3	Q4
2016-17		7.2	6.9	6.0
2017-18	5.6	6.3	7.0	7.7

Source: Quarterly Estimate of GDP 2017-18; Ministry of Statistics & Programme

Sudden currency contraction created a shock. However, this would be naïve to assume that economic entities would be designing no alternative financial strategies to withstand the shock. Part - B of this paper provides a snapshot of the way corporate houses devised strategies to combat the shock.

LITERATURE SURVEY AND RESEARCH BACKGROUND

Majority of the papers published immediate after the announcement of demonetization were of descriptive nature, devoted to narrating the developments taking place after announcement of the demonetization. Dasgupta Dipankar (2016) used IS-LM framework to make prior assessment of the consequences of demonetization. The scholar reiterated the concern of Robert Lucas (1997) that sudden monetary contraction could induce economic depression. For short and medium terms the scholar projected a slowdown. Ghosh Ambar (2017) developed a macro-theoretic model to assess the likely impact of demonetization on the economy of the country. The author indicated that demonetization would be resulting in contraction of output in the un-organized sector in the beginning and subsequently the negative consequences would be transmitted to organized sector too. He pointed that the poorest segment of the population would be badly hurt by the demonetization. These scholarly works are based on highly restrictive assumptions and models; outcomes projected by them are required to be empirically verified.

Midthanpally, R. S. (2017) raised the question concerning the role of government in implementing the programme of demonetization. The author empirically verified the arguments government advanced in support of announcing demonetization and pointed that most of the reasons government mentioned for announcing

demonetization were not tenable. Chandrasekhar and Ghosh (2017) pointed to the global trend towards increased digitization. They opined that demonetization could facilitate a shift to cashless transactions from traditional modes of cash transactions. However, as India is seemed to be lagging behind in terms of infrastructure and internet connectivity, the obsession for digitization should be abandoned at this moment. Pointing to the dangers of digitization like loss of identity, fraud and piracy, they cautioned that digitization should not affect the life of common people.

RBI team (2017) made a mid-term appraisal of the macroeconomic effect of demonetization on Indian economy with assessment of shock on various sectors of the economy. Many authors [i.e. Singh and Thimmaiah, (2017); Gaur, Ashutosh D and Pandiya, Jasmin (2017); Shah, Aayash Yousuf (2017); Muthulakshmi, et al (2017) and Uke, Lokesh (2017)] presented almost similar studies. These scholars re-iterated that sudden demonetization of lion's share of the currency in circulation could create a liquidity crisis; however, they affirmed that negative shock resulting from demonetization would be short-lived. To them liquidity was synonymous to cash in hand. The authors, mentioned in this paragraph, used tabulated data to validate their arguments; however, no empirical analysis of economic data has been made by them.

As per the study of RBI team the impact of demonetization on GDP was modest (RBI, 2017). Given the scale of demonetization, where 86% of currency in circulation was demonetized, the adverse effect on macroeconomic growth was limited to a marginal downward correction of the rate of GDP growth by less than one percent. It unfolds a new dimension of the economy, which is required to be properly understood. It points to the necessity for an extensive empirical study to unearth the mystery why negative shock of demonetization, instead of initiating a severe downturn, halted the growth rate of GDP for a short period? Incidentally everybody has the reason to ask - why BSE Sensex registered a massive rally from 26886 on 11th November 2016 to 37,663 in August 2018? There is a necessity to investigate why the shocks of demonetization dissipated so quickly? This research work has been undertaken for getting answers to these questions.

OBJECTIVE OF THE STUDY

a) To review the economic rationale behind announcement of demonetization in 2016

b) To examine the relationship between 'currency in circulation' and 'economic growth'.

c) To make cross-country verification of the relationship between 'currency in circulation' and 'economic growth'.

d) To assess the relative explanatory power of currency in circulation on economic growth of the country vis-à-vis other macro-variables.

e) To assess the effect of broad money and deposits on the size of black money.

f) To find the strategies that the corporate houses adopted to cope with the crisis of demonetization.

METHODOLOGY

Review of the theories of monetary economics and survey of contemporary research studies were counted to be essential to develop the background for the research work. Given the economic developments taking place as a consequence of demonetization, empirical analyses were undertaken to cross-examine the relationship between money supply, interest rate and national income. The results have been compared with the theoretically indicated results. Cross-country analyses have been done in two different trials. Firstly, it has been done to verify the inter-relationship between 'currency in circulation' and 'macroeconomic growth'. Second time it has been done to verify the relationship between 'broad money' and 'black money'. The required country data have been downloaded from World Bank and IMF data-base. Data relating to aggregate macro variables, particularly currency in circulation, time series data of Indian GDP growth have been collected from Reserve Bank of India database. Necessary statistical analyses such as charting and correlation analysis and regression analysis with the incidental t-tests have been made to arrive at the scientific conclusions. Whole paper is presented in two parts. Macroeconomic analyses and cross-country analyses have been put under Part-A, while corporate adaptations and

strategies have been discussed in Part-B.

## DEMONETIZATION: THE ECONOMIC RATIONALE

To extend the arguments in support of the announcement of demonetization the official publications of the Government of India pointed to the following facts:

a) Currency to GDP ratio reached to the level of 12.1% (Singh and Singh, 2017) in October 2016, which appeared more than accepted level. If New Zealand and UK can stand as developed countries with limited currency circulation of 3% to 4% of GDP, why India should opt for currency circulation equivalent to 12% of GDP and bear the huge cost of printing, storing and handling? In addition to that, rising volume of cash in hand escalates the crimes and corruption in the country (Rogoff, 2017).

b) The soil rate of Rs 1000 denomination was reported to be 11%, compared to 33% normal soil rate of lower denomination currency notes [Economic Survey 2016-17; pp. 59]. It provided a clear indication that these high denomination notes were marginally used for transaction purpose. Instead, those high denomination notes were put to the use for storing black money (hidden wealth).

c) Studies revealed that currency in circulation as a percentage of GDP has correlation with level of corruption (Sands, 2016; Summers, 2016; Rogoff, 2016). Therefore, demonetization emerged as a necessity to combat corruption persisting in the economic affairs of the country.

ECONOMIC GROWTH AND CURRENCY IN CIRCULATION: INDIAN EXPERIENCE

There is a profound theoretical belief that there exists a positive relationship between 'currency in circulation' and 'economic growth'. The extent to which the relationship is true can be shown by drawing line graphs of the rate of GDP growth and the rate of growth in currency in circulation on a single diagram. See Fig 2.

Fig.2: Growth Rates of GDP and Currency in Circulation
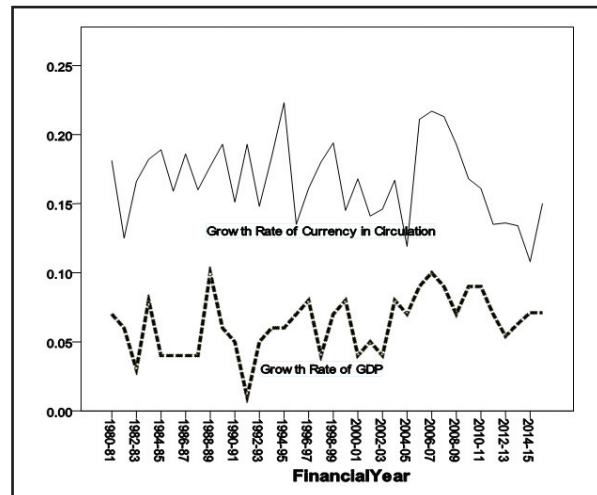
Source: RBI data series; Chart is prepared by the author

The continuous line found on the upper part of the Fig. 2 represents growth rate of currency in circulation, while the dotted line lying in the lower part is showing the rates of GDP growth. Visual inspection reveals that over time growth rate of currency in circulation was much higher than the growth rate of GDP. This persisting trend of excessive growth of 'currency in circulation' over long time fueled the inflation rate in the country.

Most of the scholars tested the relationship between currency in circulation and economic growth on the basis of the absolute size of currency in circulation and size of GDP over time. This methodology has certain shortcomings. To avoid committing the same mistake, the relation between ΔM and ΔY has been examined here, where ΔM stands for changes in money supply and ΔY stands for changes in GDP. The methodology may be termed as Sensitivity Analysis. Using SPSS package on the generated data relating to ΔM and ΔY for the period from 1966-67 to 2016-17, a very weak measure of relationship between ΔM and ΔY is obtained, which is 0.17 or 17% only. This estimate of correlation for the plotted data from 1980-81 to 2016-17 appears again lower, measuring 14% only. It shows that the explanatory power of currency in circulation in respect of augmenting economic growth of the country is becoming weaker over time.

Findings obtained above indicate that, other things

remaining constant, 100% reduction of currency in circulation can reduce GDP growth by 17.4%. It means 86% reduction of currency in circulation can affect growth rate by 15%. If the growth rate of the third quarter of 2016-17 was given as 6.9%, naturally as per simple arithmetic growth rate after demonetization should come down to 6.0% in the fourth quarter. This can be cross-examined by taking a look at arithmetical calculation shown in BOX 1. In fact, the rate of GDP growth came down to 6% in the fourth quarter in 2016-17 [See Table 3]. Findings of this paragraph indicate that analysis of this study is going in the right direction.

CURRENCY IN CIRCULATION AND GDP GROWTH: A CROSS COUNTRY VERIFICATION
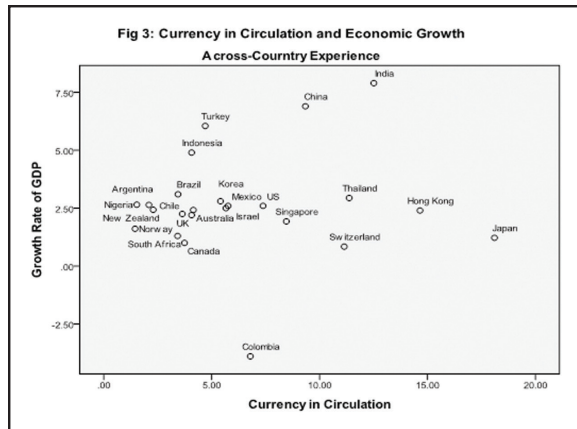
The relation between 'currency in circulation' and GDP growth of the country has been studied in the previous paragraph. To verify the validity of the finding, a cross country-analysis of the data relating to 'growth rate of GDP' and 'currency in circulation' as a percentage of GDP can be done. To meet this purpose, data relating to 'currency in circulation' of 24 countries has been gathered. Table 4 shows the compiled data relating to 'currency in circulation' and growth rate of GDP of 24 countries. The data relates to the year 2016.

BOX 1

Growth Rate in Q4 in 2016-17 would reduce to $= \dfrac{6.9}{115} \times 100 = 6\%$

Table 4: Currency in Circulation and Economic Growth

Serial No.	Country	Currency circulation as % of GDP ##	Growth rate of GDP (%)**
1	Japan	18.1	1.22
2	Hong Kong	14.65	2.4
3	India	12.51	7.9
4	Thailand	11.37	2.94
5	Switzerland	11.14	0.84
6	China	9.34	6.9
7	Singapore	8.46	1.93
8	US	7.38	2.6
9	Colombia	6.79	-3.9
10	Mexico	5.76	2.6
11	Israel	5.66	2.5
12	Korea	5.41	2.8
13	Turkey	4.7	6.05
14	Australia	4.15	2.42
15	UK	4.07	2.2
16	Indonesia	4.07	4.9
17	Canada	3.74	1.0
18	Chile	3.64	2.25
19	Brazil	3.44	3.1
20	South Africa	3.42	1.3
21	New Zealand	2.29	2.43
22	Argentina	2.09	2.64
23	Nigeria	1.53	2.65
24	Norway	1.45	1.61

Source: ## (Rogoff K S, 2016) /files/curse_fig_3.4_currency_to_gdp_ratio.xlsx

**https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=

Fig 3: Currency in Circulation and Economic Growth A cross-Courntry Experience

To make visual scrutiny of the presence of the relationship between currency in circulation and growth of GDP, the data have been presented in the form of a scatter diagram in Fig 3 above. The diagram reflects no clear relation between these two variables. While Norway records a growth rate of 1.61% with currency in circulation of 1.45% of GDP, Japan is registering a growth rate lower than Norway with much higher percentage of currency in circulation measuring 18% of the GDP of the country.

Hong Kong with currency circulation equivalent of 14.65% has the record of 2.4% growth rate, while Turkey with currency circulation equivalent to 4.70% has the growth rate more than 6%. It clearly signals that the theoretical pronouncement of positive correlation between 'currency in circulation' and 'GDP growth' can neither be empirically established from domestic data, nor it can be established from the cross-country data. Output of correlation analysis of the data given in Table 4 above has been shown in Table 5 as shown below:

Table 5: Correlation between Currency in Circulation and GDP Cross-Country Experience

		Currency in Circulation	GDP Growth Rate
Currency in Circulation	Pearson Correlation	1	.085
	Sig. (1-tailed)		.346
	N	24	24
GDP Growth Rate	Pearson Correlation	.085	1
	Sig. (1-tailed)	.346	
	N	24	24

A measure of statistically insignificant correlation of 0.085 [or, 8.5%] is obtained from the analysis of cross-country data. The message reflected in scatter diagram given above is compatible with correlation output shown in Table 5. The findings indicate that there is a necessity to re-examine the theoretical belief that there is a significant positive correlation between 'currency in circulation' and 'economic growth' of the country. In the changing perspective, to unearth the emerging relation between two variables further research work in this direction is strongly suggested.

CURRENCY IN CIRCULATION, INVESTMENT AND GROWTH

In the previous paragraph explanatory power of 'currency in circulation' on growth of GDP has been checked, where influences of many other variables have not been counted. In this paragraph few more variables have been incorporated into the analysis by putting them in a multiple regression model. Growth rate of GDP has been defined as dependent variable, while growth rate of currency in circulation, growth rate of export and growth rate of FDI have been defined as explanatory variables. This is an experimental trial meant for making an assessment of the explanatory power of 'currency in circulation' vis-à-vis other macro-variables. It needs to be mentioned that many important macro-variables have not been included in this analysis. As the spirit of the analysis is to cross-check explanatory power of currency in circulation in a multi-variate framework, non-inclusion of numerous other variables might not distort the purpose of the study. [See Note 2] The relationship of GDP with other variables can be expressed as given below:

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + e_t$$

Where Y_t is growth rate of GDP

X_{1t} = growth rate of currency in circulation

X_{2t} = growth rate of export

X_{3t} = growth rate FDI investment

The analysis is based on time series data of the country for the period of 26 years, from 1990-91 to 2015-16. The result of the analysis has been presented in Table 6 given below.

Table 6: Coefficients of Currency in Circulation vis-à-vis other Macro-variables[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.998	1.905		1.048	0.306
Currency Growth	0.104	0.103	0.175	1.040	0.310
Export Growth	0.091	0.107	0.159	0.849	0.405
FDI Growth	0.124	0.043	0.552	2.89	0.008

a. Dependent Variable: GDP Growth Rate

Goodness of fit of the model is very low (49.7% only). However, it serves the purpose in distinguishing the macro-variables into strongly explanatory or weak explanatory variables. The result shows that currency in circulation has failed to stand as an effective explanatory variable in influencing the macroeconomic growth of the country. Hence, the speculation that demonetization might result in economic depression was not based on any empirical basis. However, in matters of shaping economic growth, a new variable named Foreign Direct Investment is emerging as a powerful explanatory variable, which is found significant at 1% level.

Result of the study has an important policy implication. As currency in circulation has very weak effect on macroeconomic growth, central bank and government of the country must abandon the policy of printing more and more currency notes to fulfill the dream of accelerating the space of economic growth.

Dornbusch R, Fischer S and Startz R (2001) compiled an important observation in their popular textbook, Macroeconomics (p. 52). The authors used inputs from research work of Barro and Lee (1993) to obtain their findings. They used average years of schooling as a proxy variable to represent formation of human capital. They observed a clear evidence of perfect relationship between human capital formation and growth of GDP. The purpose of presenting this paragraph is to communicate a message that economists have begun to believe that now some non-financial variables explain economic growth much better than a variable like 'cash in hand' or 'currency in circulation'. Looking at this lesson many countries have shifted their attention to skill development of their human factor.

CURRENCY IN CIRCULATION, BROAD MONEY AND BLACK MONEY

Is it reasonable to accept that demonetization is a justified step to fight black money? Answer to this question has been explored here. The analysis is designed on the line of the methods adopted by the Central Government at the time of announcing demonetization in 2016. Government instructed people to deposit their cash in hand, kept in denominations of Rs 500 and Rs 1000, into their bank accounts. This process resulted in decrease of currency in circulation and increase in the size of term deposits and demand deposits. If it could be proved that by making reduction of 'currency in circulation' and raising the aggregate size of 'demand deposits and term deposits' the level of black money can be curtailed, the point gets established that demonetization is the right strategy to combat black money.

To conduct analysis in this paragraph the data relating to 'currency in circulation' of twenty one countries have been collected from data files prepared by Rogoff Kenneth (2017). On the other hand, data relating to the size of shadow economy as percentage of the GDP of these countries have been collected from Leandro Medina and Friedrich Schneider (2017) for the year 2015. The coefficient of correlation obtained from the analysis of data of twenty one countries is 0.662; the coefficient is positive and statistically significant approximately at 1% level [see Table 7]. It supports that currency in circulation is a factor behind creation of black money. Every hundred dollar in circulation has the risk of creating black money of $66.2 through the route of corruption, crime and tax evasion (Rogoff, 2017). This interpretation is, however, oversimplified.

Table 7: Correlations

		Shadow Economy	Currency in Circulation
Shadow Economy	Pearson Correlation	1	.662[**]
	Sig. (1-tailed)		.001
	N	21	21
Currency in Circulation	Pearson Correlation	.662[**]	1
	Sig. (1-tailed)	.001	
	N	21	21

**. Correlation is significant at the 0.01 level (1-tailed).

After examining the ill-effect of currency in circulation on black money, the need for examining the relation between 'broad money' and 'black money' is strongly felt. Analysis of this is done on the basis of data relating to 'broad money' and 'shadow economy' (black money) of one hundred ten countries [Data has been compiled in Appendix A]. The value of correlation coefficient between broad money and shadow economy, as obtained from the data shown in Appendix A, is eventually found to be negative. The coefficient of correlation is -0.488; the same is also statistically significant. See Table 8.

Table 8: Correlation between Broad Money and Black Money

		Broad Money as % of GDP	Shadow Economy
Broad Money as % of GDP	Pearson Correlation	1	-.488[**]
	Sig. (1-tailed)		.000
	N	110	110
Shadow Economy	Pearson Correlation	-.488[**]	1
	Sig. (1-tailed)	.000	
	N	110	110

**. Correlation is significant at the 0.01 level (1-tailed).

The analyses unfold that while currency in circulation has ill-effect of accumulating black money, broad money has enormous effect combating black money.

In fact, broad money consists of 'currency in circulation' and 'deposits of various natures'. [Broad money = Currency in Circulation + Deposits of various kinds]. As currency in circulation has ill-effect on black money, power of broad money in combating black money, as observed above, can intuitively be attributed to deposit components of broad money. It reflects that deposit component of broad money first offsets the direct effect of currency in circulation on black money and then it leaves a final negative effect, which is equal to -0.488. It states that an increase in the deposit components of broad money by hundred dollars reduces black money of $48.8. Data as shown in Appendix-A shows that countries with the record of a large broad money component have the record of lower amount of black money, whereas countries with low size of 'broad money' has sizeable shadow economy. Therefore, any programme, demonetization or else, causing an increase in the proportion of 'deposits components of broad money' or reducing the 'currency in circulation' can be looked upon as the right method for combating black money. Rogoff (2017) asserted that channelizing the currency notes of large denominations into the formal system of bank deposits, generation of black money can be reduced.

PART - B

Demonetization, Corporate Reactions and Strategy

After macroeconomic analysis made in the previous part, this part is intended to take a snapshot of the reactions that took place in the corporate sector after announcement of demonetization. This is needless to mention that every corporate house is making environmental scanning and exploiting the opportunities and minimizing the negative consequences resulting from adverse developments in the system. Hence, definitely to cope with the adverse consequences of demonetization the corporate houses had to adopt some strategies. This part is devoted to exploring the strategies the corporate houses adopted to minimize the negative effects of demonetization.

Sample and Methodology:

Sample for the study has been defined as top fifty companies enumerated under Nifty Index of National Stock Exchange. The reference period is November 2016 to August 2017. The focus of this part is on pinpointing the characteristic changes in the financial practice of the corporate houses and their working capital management. Balance Sheet and Income Statements of NIFTY companies were downloaded from moneycontrol.com. Aggregate changes that took place in borrowings and working capital management of the companies have been briefly assessed. After banking companies have been dropped from analysis, only forty four companies could be included into the final sample.

Demonetization and Corporate Profit Performance

There was an apprehension that demonetization would adversely affect the profit performance of the corporate sector. Discarding all apprehensions, 36 companies out of the sample of 44 companies maintained the track record of steady profit performance. Only three companies incurred losses; see Table 11.1. It needs to be noted that the losses reported for three companies were not due to systematic risk of demonetization, but those were due to some extra-ordinary transactions undertaken by the companies at that time. Economic Outlook as published by CMIE supports the findings of this study

Table 11.1: Demonetization and Corporate Profitability

Profit Performance	Number of Companies
Earning Profit	41
Rising Profit record	36
Incurring Loss	3
Total Number of companies	44

Source: moneycontrol.com; Compiled and edited by the author

Demonetization and Corporate Borrowing

Soon after demonetization, banks became loaded with enormous deposits. To off-load the deposits to the industrial houses banks began to reduce the interest rate on lending; it shows that demonetization unfolded an opportunity for the corporate borrowers; Table 11.2 shows the effect of demonetization on corporate borrowing.

Table 11.2: Demonetization and Corporate Borrowing

Borrowing Records	Rs crore
Sum of Increased Borrowing of 23 companies	1,29,416
Reduced Borrowing of 11 companies	63,511
Total Rise of absolute borrowing	65,905

Source: moneycontrol.com; Compiled and edited by the author

Aggregate final increase in borrowing by sample industrial houses was Rs 65,905 crore. This provided them an opportunity to expand their production base and increase production in future. It means demonetization eventually resulted in developing a positive climate for investment and growth.

Demonetization, Working Capital and Credit Management

Following table shows the data relating to the absolute size of creditors shown in the Balance Sheets of the companies. Since all companies are not manufacturing companies, sample size has to be reduced to 37. Data relating to size of creditors of 37 companies has been shown in Table 11.3 below.

Table 11.3: Effect of Demonetization on Absolute Size of Creditors

Changes in the absolute size of creditors	Number of companies
Rising	31
Reduced	6
Total Number of companies	37
Total Increase of creditors in value terms	Rs. 40,496 crore

Source: moneycontrol.com; Compiled and edited by the author

The data shown in the table 11.3 above indicates that while there was liquidity crisis, firms used increased credit options to ensure smooth supply of their materials inward. It indicates that demonetization could not stand as a barrier to the normal manufacturing process of the corporate sector.

To summarize, it can be stated that the firms resorted to more credit purchases to tackle the crisis of cash crunch; on the other hand, they resorted to borrowing for taking advantage of cheaper fund, which usually occurred immediately after demonetization. These benefits came to offset a great portion of negative effect resulting from liquidity crisis caused by demonetization. This is the reason why, even after demonetization, the big corporate houses in India could keep their steady track record unaffected.

CONCLUSION:

Once the black money is created, it gives birth to money laundering and cross-border flight of capital, which render the economy weak. As the presence of black money has debilitating effect on the economy, administrative steps for combating its menace emerge essential. Analysis of country data and cross-country data reveals that in the

contemporary economic system 'currency in circulation' has emerged as very weak explanatory variable in the context of income and growth. This may be partly due to digitization and introduction of digital payment system in the world. Hence, the panic that demonetization of 2016 could induce a depression was not based on ongoing economic reality.

Empirical analysis of broad money and shadow economy of one hundred ten countries unfolds that while currency in circulation has the ill-effect of accumulation of black money, the deposit component of broad money has enormous power in controlling black money. Hence, any strategy designed to reduce 'currency in circulation' appears useful to control black money. Demonetization, in fact, brought hoardings of idle cash in hand (or locker) back into circular flow of economy. This provided an extra strength to the economy.

Corporate houses adopted financing and working capital strategies to cope with consequences of cash crisis. Immediate after demonetization, inflation rate came down to the lowest level, and borrowing became easy and cheaper. All these provided the incentive for enhanced corporate borrowing and internal expansion. All these together worked to dissipate quickly the negative forces of liquidity crisis and put the manufacturing sector back to its track of recovery and growth.

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NOTE 1: BLACK MONEY AND CORRUPTION

On the basis of the availability, the data relating to size of the shadow economy and global corruption rank of respective countries have been compiled in the Appendix B. Higher the country rank, higher is the corruption level in the country. The correlation coefficient between shadow economy and corruption level of the countries appears close to 75.2%, which is statistically very significant. It implies that permitting black money to grow a government is virtually encouraging the economic entities to practice corruption at all level in their economic activities. Thus, as a measure to combat corruption, a responsible government must adopt measures to fight black money.

CORRELATIONS

		Size of Shadow Economy	Corruption Rank
Size of Shadow Economy	Pearson Correlation	1	.752**
	Sig. (1-tailed)		.000
	N	21	21
Corruption Rank	Pearson Correlation	.752**	1
	Sig. (1-tailed)	.000	
	N	21	21

**. Correlation is significant at the 0.01 level (1-tailed).

NOTE: 2

From the experiments of statistical trials it has been noticed that as an investigator goes on increasing the number of explanatory variables, goodness of fit increases gradually; however, contribution of an individual variable continues to diminish. Hence, if large numbers of macro-variables are incorporated into the analysis, the explanatory power of 'currency in circulation' is about reduce further.

APPENDIX – A

GDP growth Rate, Shadow Economy and Broad Money

Serial No.	Country	Rate of GDP Growth (%)	Shadow Economy as % of GDP	Broad Money as % of GDP
		1*	2#	3**
1	Albania	3.46	26.21	84.79
2	Argentina	-2.298	24.99	27.64
3	Armenia	0.201	35.96	36.79
4	Australia	2.765	8.1	113.42
5	Azerbaijan	-3.1	43.66	39.203
6	Bahamas, The	0.256	38.55	53.54
7	Bangladesh	7.11	27.6	64.5
8	Belarus	-2.65	32.37	36.36
9	Belize	-0.77	42.29	80.79
10	Benin	3.98	48.28	43.04
11	Bhutan	6.16	20.28	58.96
12	Bolivia	4.26	45.98	95.62
13	Bosnia & Herzegovina	1.98	29.88	65.23
14	Botswana	2.9	23.99	45.82
15	Brazil	-3.59	35.22	93.71
16	Brunei Darussalam	-2.46	30.44	80.8
17	Bulgaria	3.44	20.83	83.51
18	Burkina Faso	5.86	29.63	40.56
19	Burundi	-0.58	35.68	22.84
20	Cabo Verde	3.918	30.23	98.88
21	Cameroon	4.52	28.93	20.64
22	Central African Republic	4.53	50.71	27.84
23	Chile	1.59	13.16	83.84
24	China	6.69	12.11	202.05
25	Colombia	1.96	25.25	49.32
26	Comoros	2.2	40.92	45.34
27	Congo, Dem. Rep.	2.2	46.95	12.29
28	Congo, Rep.	-1.86	35.05	44.13
29	Costa Rica	4.33	19.24	52.18
30	Cote d'Ivoire	8.75	42.4	36.17
31	Czech Republic	2.42	10.47	78.23
32	Denmark	1.28	14.7	67.9
33	Dominican Republic	6.64	27.97	35.22
34	Ecuador	-1.46	30.18	41.41
35	Egypt, Arab Rep.	4.29	33.32	77.45

Continue

36	El Salvador	2.36	42.6	50.12
37	Equatorial Guinea	-9.68	31.38	17.79
38	Fiji	1.96	25.37	78.67
39	Gabon	2.26	52.01	24.89
40	Georgia	2.74	53.07	42.02
41	Ghana	3.57	39.37	34.39
42	Guatemala	3.06	46.88	48.02
43	Guinea	5.2	41.58	27.01
44	Guyana	3.26	26.09	60.22
45	Haiti	1.44	56.38	50.98
46	Honduras	3.6	37.68	32.21
47	Hong Kong SAR, China	2.04	12.39	362.88
48	Hungary	1.95	20.49	57.77
49	Iceland	7.22	12.45	80.08
50	India	7.11	17.89	78.05
51	Indonesia	5.01	21.76	39.46
52	Israel	4.04	19.18	40.18
53	Jamaica	1.37	24.97	84.11
54	Japan	0.99	8.19	236.07
55	Jordan	2.01	15.16	125.93
56	Kazakhstan	1	32.82	41.88
57	Kenya	5.84	33.43	42.43
58	Korea, Rep.	2.83	19.83	143.68
59	Kyrgyz Republic	3.82	30.78	33.25
60	Lebanon	1.76	29.16	249.59
61	Lesotho	2.5	32.32	31.69
62	Liberia	-1.6	43.67	35.71
63	Madagascar	4.2	45.29	25.54
64	Malawi	2.5	33.56	24.46
65	Malaysia	4.23	26.07	135.01
66	Maldives	4.09	20.65	49.52
67	Mali	5.35	29.45	26.84
68	Mauritius	3.7	19.23	106.85
69	Mexico	2.3	28.07	36.48
70	Moldova	4.1	39.68	52.22
71	Mongolia	0.97	13.2	43.4
72	Morocco	1.1	27.13	116.88
73	Mozambique	3.85	30.98	56.36
74	Myanmar	6.5	50.99	46.37
75	Namibia	1.2	21.78	54.56
76	Nepal	0.56	30.22	98.28

Continue

77	Nicaragua	4.7	39.51	39.31
78	Niger	4.99	34.12	25.96
79	Nigeria	-1.54	52.49	19.69
80	Norway	1.07	15.07	58.38
81	Pakistan	5.74	31.62	53.32
82	Philippines	6.92	28.04	74.22
83	Poland	2.67	16.67	64.18
84	Qatar	2.23	13.08	86.99
85	Romania	4.82	22.94	40.16
86	Russian Federation	-0.22	33.72	61.6
87	Rwanda	5.93	28.05	21.41
88	Saudi Arabia	1.74	14.7	73.61
89	Senegal	6.65	33.68	45.96
90	Sierra Leone	6.06	34.18	24.15
91	Singapore	1.99	9.2	124.43
92	Solomon Islands	2.98	30.89	45.74
93	South Africa	1.33	21.99	73.43
94	Sri Lanka	4.38	35.49	52.48
95	Suriname	-10.36	23.8	64.51
96	Swaziland	-2.22	40.94	25.77
97	Sweden	3.17	11.74	66.91
98	Switzerland	1.28	6.94	185.39
99	Tajikistan	6.91	37.73	22.29
100	Thailand	3.23	43.12	127.68
101	Togo	4.93	31.49	53.21
102	Turkey	2.87	27.43	52.71
103	Uganda	4.64	31.88	22.31
104	Ukraine	2.31	42.9	49.98
105	United States	1.61	7	89.43
106	Uruguay	1.45	20.38	53.52
107	Vietnam	6.21	14.78	137.65
108	Zambia	3.31	32.99	25.77
109	UK		8.32	136.06
110	Tunisia	1.17	30.9	69.39
111	Austria	1.48	9.01	
112	Belgium	1.19	17.8	
113	Canada	1.47	9.42	
114	Cyprus	2.83	32.2	
115	Estonia	1.57	18.49	
116	Ethiopia	7.56	25.1	
117	Finland	1.38	13.3	

Continue

| 118 | France | 1.19 | 11.65 | |

119	Gambia, The	1.62	43.64	
120	Germany	1.86	7.75	
121	Greece	0.01	26.45	
122	Italy	0.88	22.97	
123	Ireland	5.21	9.58	
124	Latvia	1.95	16.62	
125	Lithuania	2.29	18.65	
126	Luxembourg	4.18	10.38	
127	Netherlands	2.14	7.83	
128	New Zealand	3.94	8.97	
129	Malta	5.04	29.43	
130	Mauritania	2	25.75	
131	Peru	3.88	41.53	
132	Portugal	1.39	17.82	
133	Slovak Republic	3.28	11.18	
134	Slovenia	2.49	20.21	
135	Spain	3.23	22.01	
136	Yemen, Rep.	-9.78	28.81	

Source 1*: https://data.worldbank.org/indicator/ny.gdp.mktp.kd.zg, Document API_NY.GDP.MKTP.KD.ZG_DS2_en_excel_v2_10134344

Source 2#: Medina Leandro and Schneider Friedrich (2018): Shadow Economy Around the World: What Did We Learn Over the Last 20 Years? IMF Working Paper 18/17, available at www. Imf.org/en/Publications/WP/Issues/2018/01/25/shadow-economies. Accessed on 17th August 2018

Source 3**: https://data.worldbank.org/indicator/FM.LBL.BMNY.GD.ZS?view=chart   Document: API_FM.LBL.BMNY.GD.ZS_DS2_en_excel_v2_10081688 accessed on 1st Sept 2017

APPENDIX – B

Currency in Circulation, Corruption and Shadow Economy

		Shadow Economy (as % of GDP) 1*	Corruption Rank 2#	Currency in Circulation (as % of GDP) 3**
1	India	23.9	81	8.51
2	Thailand	50.6	96	11.37
3	Colombia	33.3	96	6.79
4	Mexico	31.7	135	5.76
5	Israel	22	32	5.66
6	Korea	26.4	51	5.41
7	Turkey	31.3	81	4.7
8	Australia	14.1	13	4.15
9	UK	13.3	8	4.07
10	Indonesia	19.8	96	4.07
11	Chile	18.2	26	3.64
12	Brazil	37.6	96	3.44
13	South Africa	25.9	71	3.42
14	New Zealand	13.4	1	2.29
15	Argentina	24.1	85	2.09
16	Norway	20.5	3	1.45
17	Russia	42.6	135	10.1
18	Denmark	18.6	2	3.28
19	Sweden	19.9	6	1.8
20	Taiwan	26.9	29	9.37
21	Canada	17.5	8	3.74

Source: 1* Shadow Economy data: Medina, Leandro and Schneider, Friedrich (2018)

2#: https://www.transparency.org/news/feature/corruption_perception_Index_2017

3**: Rogoff (2016): Currency_to_GDP_Curse_ of_ Cash_Rogoff_ 3.8_ data set