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Economic Growth and the Development of Financial Markets: Some African Evidence

Félix Zogning Nguimeya* and Gaétan Breton**

Abstract

The purpose of this study is to determine if African stock markets have contributed to a better allocation of savings and economic growth in the countries in question. Our results reveal a strong and significant relationship between aggregate economic growth and stock market development indicators. Causality tests indicate that the real sphere involves the financial sphere for relatively new markets.

Keywords: Stock market, stock exchange development, company financing, economic growth, causation.

JEL classification: G15, O16.

1. Introduction

During the 1990s and the first half of the 2000s, liberalization and privatization have become prominent as a developing strategy for Africa. The evolution of these attitudes toward the role of the private sector in the development of African economies has been favorable to the development of capital markets. In the 1990s, many African countries created stock exchanges as a preliminary condition to the establishment of a market economy in the context of structural adjustments programs under the International Monetary Fund (IMF) or the World Bank, and to help in the privatization process of public firms initiated by these institutions.

The African continent possesses 23 stock exchanges, a dozen of which had initiated their activities only in the 1990s. This new trend clearly shows that African countries believe in the importance of such markets for their development. The hope invested in financial markets as capable of bringing about a new impulse for firms, as a means of assembling local

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capital in new ways, and as a way of compensating for the slow development of intermediating institutions, is driven by the obsessive discourse of the IMF and World Bank.

The growth of market capitalization in Africa has been described as more remarkable than that of more advanced economies. However, some observers have doubted the efficiency of the functioning of African stock exchanges and the appropriateness of developing such institutions across the continent in terms of the enormous costs involved and the poor financial structure of the countries involved (Singh, 1999). Critics of the promotion of financial markets in African countries have questioned the advantages of organizing such a market structure, and the role it effectively plays in development and economic growth.

This study examines the relationship between the development of a financial market and the evolution of economic growth for a series of countries (South Africa, Côte d'Ivoire, Nigeria, Ghana, Kenya, and Tunisia). We also discuss, albeit briefly, the destination of the wealth created by this development concomitant to the opening of stock exchanges.

The remainder of the paper is organized as follows: first, we discuss the theory of development, followed by the relationship between the development of stock markets and economic growth, which leads to our theoretical framework. The rest of the paper posits our hypotheses, and presents our analysis of the results, leading to some concluding remarks.

2. Economic Development and Market Development

It is casually believed that a lack of development is related to a lack of investment, which is often expressed in terms of market liquidity. Therefore, if a country can bring in the investment required to finance local projects, this will result in growth. In fact, it is not that simple, as Hagen (1975) has argued, and the theories about development have often been circular. Many factors are at work at the same time in a society, and it is very difficult to isolate one causal chain moving only in one direction. However, it seems that development moves from the primary sector to the tertiary sector, which is less capital-intensive. Consequently, an economy must be less dependent on investment when it arrives at this point. To develop, the primary sector needs considerable capital, however, mainly to acquire the necessary technology that will increase productivity and free workers who will be used more productively in the secondary and then in the tertiary sectors.

Projects need financing and many believe that organizing this financing will produce development (Schumpeter, 1911; Andrianaivo & Yartey, 2010). To increase funding possibilities, it is essential to increase the level of liquidity of the market.

2.1. *Liquidity and Market Efficiency*

Two key instruments are generally available to increase the level of liquidity, depending on the definition provided: banking institutions and stock markets. The first definition of liquidity is that money circulates relatively easily. For this, the intermediating institutions have to be created and to function. The development of the intermediating sector is a problem in Africa. African banks seem to have a limited share in the economy while the banking sector is dominated by foreign institutions (Andrianaivo & Yartey, 2010). Some researchers have proposed that financing the states outside central banks will bring some impetus to the African banking system (Sy, 2010). Second, the liquidity of the market itself is important (Yartey, 2008). African stock markets are structurally quite inefficient: shares are rarely traded, bid-ask spreads are large, and trading clearing and settlement systems are very slow (Andrianaivo & Yartey, 2010).

Since McKinnon's (1973) and Shaw's (1973) arguments in favor of financial liberalization as a strategy destined to contribute to the growth of possibilities for risk diversification by financial institutions, some studies have used the multifunctional approach of the markets to relate financial markets to the efficiency of investments (Andrianaivo & Yartey, 2010; Senbet & Otchere, 2005; Levine & Zervos, 1996; Stiglitz, 1985). According to these studies, financial markets facilitate price fixing; prices are, in turn, invested with informational content and carry signals for different stockholders in the market. As a consequence, these markets facilitate investment decision-making and increase the optimal affectation of financial resources in an economy. Financial markets also aid efficient governance and control mechanisms through pressures and agent disciplining. In a context of uncertainty, parties to a contract may not always observe the relevant parameters or may attempt to control one another, while control mechanisms can be costly. Financial markets, however, provide some control mechanisms, leading potentially to optimal governing behavior and, consequently, influencing the management toward the adoption of correcting measures.

Other studies, however, do not agree with these positions. For them, the spreading of shareholding reduces the power of individual

investors who lack the capacity or incentive to acquire the necessary information to realize an efficient allocation of their resources (Singh, 1993, 1997). Moreover, while stock markets can facilitate collecting information on investment opportunities, they can also make this information accessible to any participant in the market. On the other hand, the availability of free information can discourage investors from paying to acquire such information (Stiglitz, 1985). Therefore, the positive effect theoretically generated by the existence of a stock market and the efficiency of investment coming through the informational efficiency of such a market may never materialize.

A consensus emerging from the empirical literature indicates that the development of financial markets increases investment efficiency. Most of the studies conducted on Africa have tended to be qualitative. Nyakerario (2007) has tried to fill this gap by exploring the relationship between the stock market and investment efficiency. The study has three main conclusions: first, African stock markets potentially possess the ability to increase the efficiency of investments and to favor the creation of wealth and of the long-term capital necessary for long-term development. Second, a small public sector favors the efficiency of investment, and, finally, poor governance, measured by the index of corruption, is prone to discourage productive efforts and to compromise investment efficiency and market efficiency.

2.2. *Stock Market and Economic Growth*

Postulating that stock markets offer another way to mobilize savings in an economy implies that such mobilization would stimulate productive investment and contribute to economic growth. Levine and Zervos (1996), in their international study covering 41 countries, conclude that the effects of the organization of a stock market are positively and significantly associated with economic growth. Bencivenga, Smith, and Starr (1996) and Levine (1991) contend that stock markets that are more liquid reduce the risk and cost of investing in long-term projects, reinforcing growth perspectives.

Following Saint-Paul (1992), who argues that financial markets have a positive impact on firm productivity, Kyle (1984) and Bamba (2001) identify a positive relationship between the development of the stock market and economic growth. They underline that economies with developed stock markets are able to reach a higher degree of development than those with less developed financial markets.

Opposed to these advocates of the positive relationship between stock markets and economic growth, others argue that the development of stock markets can hinder the development of an economy by providing opportunities for counterproductive firm takeovers (Shleifer & Summers, 1988; Morck, Shleifer, & Vishny, 1990). For them, stock markets, by encouraging short-term profits, do not allow the management of firms to concentrate on long-term perspectives, notably investment in long-term projects that are essential for economic development.

Singh and Weiss (1998) are adamant on this question. For them, if it is true that stock markets can attract foreign capital and investors, these flows are mainly speculative and not really related to investment. The OECD estimates the proportion of fund movements in the world destined to speculation at around 90 percent. This conclusion is based on the fact that these amounts do not stay where they have been transferred for more than a week, which is not long enough to be invested, even from a short-term perspective. Others add that the risk sharing integrated in the structure of stock markets can reduce the level of savings and, therefore, decrease economic growth (Devereux & Smith, 1994). Mayer (1988) and Stiglitz (1985) remain convinced of the existence of a negative relationship between stock exchanges and economic growth.

Studying the impact of the creation of the Stock Exchange of Abidjan (BVA) on the Côte d'Ivoire's economy, N'zué (2006) tries to harmonize the opposing positions presented earlier. He concludes that the country's GDP is positively correlated with state investment and public spending, public subsidies to development, foreign direct investment, and the index of stock exchange development (which includes the ratio of market capitalization, market liquidity, and the indicator of concentration of the four firms constituting the index of the stock exchange). It seems that the relationship is not unidirectional and constant across periods. Aka (2010), after studying the African situation, concludes that the main form of the relation is bidirectional. However, this is an average, and many countries, some of them figuring in our sample, exhibit a tendency contrary to the main tendency.

Having studied the development of African markets, we now raise the question of the destination of the wealth that is created from them, since it is implicitly understood that the purpose of this development is to decrease the level of poverty of the countries' populations.

2.3. Whose Development?

When natural resources are in large supply, a country can develop itself for a while, relying on the primary sector. There is, however, what is called the “resource curse” (Breisinger, Diao, Schweickert, & Wiebelt, 2010). Assessing such a situation is often a matter of point of view. For some specialists closely associated with the UN, Ghana has successfully fought against poverty. For instance, one could ask if opening a stock exchange in Ghana has pushed the economy forward or if installing an aluminum refining complex in the 1960s created the conditions for opening a capital market two decades later. Whether the wealth created by this development has been used to reduce the level of poverty is debatable. In the ECOWAS countries, which include Ghana, “over 250 million people, half of the population, live with less than one dollar per day” (Diop, Dufrenot, & Sanon, 2010, p. 265). Normally, development is reputed to benefit the population (Rotberg, 2009; Lyakurwa, 2009). The level of revenue per capita is supposed to increase with development.

Unfortunately, this does not seem to be the case. It depends on who is taking advantage of the development of, firstly, the primary sector. For instance, South Africa, which has the first dated stock exchange in Africa, functions in a developed economy. It is one of the very few African countries with a gross national product (GNP) per capita greater than USD 10,000 in terms of purchasing power parity (PPP) in 2006 (United Nations Development Programme [UNDP], 2006). However, while ranking 55th for its gross internal product (GIP) per capita, it stands at 121 in terms of human development. The conclusion is obvious: its wealth is not well distributed. Effectively, if we consult the Gini,¹ it is at 57.8 (the highest score is 63.2). Therefore, South Africa is very near the worst in terms of the unequal distribution of wealth, explaining the huge gap between its rankings in economic and human development.

This problem of redistribution can stem from corruption, which seems to have increased globally as well as in the sub-Saharan countries. While in 1984, 70 percent of these countries were among the most corrupt, this figure rose to 93 percent in 2006. None of these countries were among the less corrupt in 2006 (Bissessar, 2009). For Ghana, the situation is not that extreme, but indicators point moderately in this direction. Its GIP ranks better than its human development. Its Gini, which is over 40, compares

¹ The Gini is a measure produced by the United Nations Development Programme. A score of 1 would indicate perfect equality and a score of 100 would indicate perfect inequality. In its 2006 report, the highest score was 63.2, and the lowest was Azerbaijan at 19, followed by Denmark at 24.7.

only with the US in the first 20 countries in terms of human development. Incidentally, Ghana ranked 136th in 2006. These moderated views come from UN statistics.

It must be added at this point that the relatively high rates of inflation (often over 25 percent) do not help diminish the level of poverty in the country. In Ghana, new mining companies receive five years' tax relief and only have to change their names to renew this relief (Deneault, 2008). In terms of economic institutional development, Ghana has also experienced what seem to be the widest interest rate spreads, evaluated by some observers to be around 15 percent (Aboagye, Akoena, Antwi-Asare, & Gockel, 2008).

Table 1 provides some statistics from the UN for the countries in our sample to which we have added South Africa as the most economically developed country in Africa.

Table 1: Some statistics for sampled countries, including South Africa

	IHD 2006	GIP/person USD	Rank in GIP less rank in IHD	Gini	HPI	GIP rank
South Africa	121	11,192	-66	57.8	53	55
Ghana	136	2,240	-9	40.8	58	127
Kenya	152	1,140	7	42.5	60	159
Nigeria	159	1,154	-1	43.7	76	158
Tunisia	87	7,768	-18	39.8	39	69
Côte d'Ivoire	164	1,551	-15	44.6	82	149

Notes: GIP = gross internal product, HPI = human poverty index, IHD = index of human development. GIP given in PPP in terms of USD per person.

Still, in Ghana, political factors tend to intervene. After the 2000 election, about 50 percent of civil servants were fired (Nwezeaku, 2010), which had negative effects on public management.

The Côte d'Ivoire also has a negative score, with a very low (164) ranking in term of human development and, although also quite low, a better ranking in terms of GIP per capita. Its Gini, near 45, is also relatively high. The human poverty index (HPI) must be adjusted since 45 other countries—mostly the richest in the world—are not included.

Therefore, we have to be very careful when we associate a country with the “development” made on its territory. It may be somebody else's

development, impacting on somebody else's economic growth. This is more systematically analyzed in the results section. However, this comparison between the level of economic and social development is interesting and is a new statistic to be computed by the UN. Symptomatically, the development is measured by country and is, theoretically, associated with the conditions generally prevailing in a country. This view seems not to concretize in reality.

3. Financial Markets in Africa

In Africa, financial markets are relatively recent, entering progressively on the impulse of the Bretton Woods institutions (the IMF and World Bank), and intended to help economically problematic countries to raise the necessary capital and retainers of savings to invest their money locally.

If we number 23 stock exchanges now in Africa, the continent possessed only around 10 of these 20 years ago. The first African stock exchange was created in Johannesburg (the JSE) in November 1887, in the context of the discovery and exploitation of the mining sector. It was not until the 1960s, the period of the declaration of independence for many African countries, that other stock exchange institutions were developed. The main one was the Tunis Stock Exchange, created in 1969. Stock exchanges were, until then, perceived more as a registration of transaction offices than as a reflection of the state of an economy with a capitalization less than 1 percent of the GIP.

Since then, over-the-counter markets have remained important in many countries. This form of market, generally considered a step on the path toward establishing a complete market, remain prevalent in many countries, notably in Rwanda, Gabon, and the Gambia. For a large majority, African stock exchanges (see Table 1) had been created in response to a political movement intended to mobilize national resources, particularly following the privatization programs of state enterprises and the need to finance public infrastructure. Kenya and South Africa are examples of countries where public infrastructure was financed through the bond market. The stock exchanges' aim was, equally, to attract foreign investment.

African markets are not strongly related to other international markets, as is the case in Asia. Although this might appear to be an impediment to their growth, this independence is often seen as an advantage by investors looking for markets that will not be affected in the

same way as the larger international markets, as was the case during the Asian markets crisis in the 1990s. Moreover, investors traditionally look for high-growth potential investments and Africa offers unique opportunities in this domain. Returns on investment in Africa are starting to be quite impressive, the rate of growth of market capitalization being high despite the relative weakness of the capital market. Table 2 lists the stock exchanges in Africa.

Table 2: African stock exchanges

No.	Stock exchange	Year opened	Firms listed	Capitalization
1	Bourse Régionale des Valeurs Mobilières	1998	41	3,171,148,036,455*
2	Bourse des Valeurs Mobilières d'Alger	1997	6	6,500,000,000*
3	Botswana Stock Exchange	1989	23	94,577,000,000
4	Douala Stock Exchange Douala	2001	2	21,445,430,000*
5	Bolsa de Valores de Cabo Verde		20	N/A
6	Cairo and Alexandria Stock Exchange	1883	165	N/A
7	Ghana Stock Exchange	1990	35	17,691,600,000
8	Nairobi Stock Exchange	1954	45	1,900,000,000
9	Libyan Stock Exchange	2007	07	N/A
10	Malawi Stock Exchange	1995	13	1,821,073,300*
11	Stock Exchange of Mauritius	1988	40	36,804,984,087*
12	Casablanca Stock Exchange	1929	77	506,792,126,844*
13	Maputo Stock Exchange	1999	16	400,000,000
14	Namibia Stock Exchange	1992	24	N/A
15	Nigerian Stock Exchange	1960	282	31,500,000,000
16	JSE Securities Exchange	1887	472	182,600,000,000
17	Khartoum Stock Exchange	1994	53	5,000,000,000
18	Swaziland Stock Exchange	1990	05	1,436,416,337*
19	Dar es Salaam Stock Exchange	1998	10	975,820,000,000*
20	Bourse de Tunis	1969	56	8,301,000,000*
21	Uganda Securities Exchange	1997	11	5,178,305,484,326*
22	Lusaka Stock Exchange	1994	21	N/A
23	Zimbabwe Stock Exchange	1993	65	6,000,000,000*

Note: * In local money. All other entries given in USD.

Despite the creation of many stock exchanges in the continent since the end of the 1980s, the capitalization of the African market remains negligible by international standards. This can be attributed to the numerous obstacles constraining the financial system in Africa. Jarislowsky, a renowned business guru, suggested to Canadians wanting to acquire stocks in foreign markets that they concentrate on the New York Stock Exchange:

For the African continent, the only thing we can say is that it is plunged into ethnic dissensions, dictatorial regimes and misappropriation of funds (2005, p. 32).

Such a declaration exemplifies the attitude of foreign investors to African financial markets, which are characterized in Table 3.

Table 3: Characteristics of African stock exchanges

Characteristics	Potential explanation
Low level of liquidity	Small number of transactions Small size (39 firms at the BRVM, 2 at Douala, etc.)
Volatility of prices	Perceived political instability Weak diversity in terms of sectors Lack of information
Isolation from other markets	Few relations with other stock exchanges
Few foreign investors	Economies poorly organized Regulatory constraints and low level of protection for investors

Sources: Bayala (2002), Biitner (1999), and Leslie (1998).

Created in 1998, the Association of African Stock Exchanges has the dual objective of contributing to the development of stock exchanges, and promoting cooperation between existing ones. One of its goals is to create sub-regional structures encompassing the stock exchanges of Kenya, Tanzania, and Uganda in eastern Africa; those of Johannesburg and the Community for Developing Austral Africa (SADC); the stock exchanges of Cairo and Alexandria in northern Africa; and in western Africa, the national stock exchanges of Nigeria, Ghana, and the regional francophone in Abidjan (BRVM). This integrative perspective, more advanced in western Africa, has been sustained by the elimination of obstacles to the free movement of persons, goods, services, and capital

protected by the Economic Community of West African States (ECOWAS) since its creation in 1975.

4. Theoretical Framework

There is no consensus among economists on the nature of the relationship between financial markets and economic growth. The neoclassical approach considers that demographic growth and technology determines economic growth as well as the accumulation of capital. The Keynesian theory of growth is concentrated around the role of investment as a component of global demand and as a complement to the stock of capital (Pearce, 1986). From these traditional causes of economic growth, other economists have studied the multiple sources of growth and tried to measure their discrete contributions for different periods and countries (Ackley, 1970). Among these sources, we find the accumulation of capital, the work offered, production, and many other global variables.

Where stock markets contribute to mobilize savings leading to investment, they can also affect economic growth. Consequently, the development of financial markets can be considered to determine growth. The possibility for a country to mobilize savings appears to be crucial for long-term sustained economic growth. The development of stock markets thus assumes a role in the development of the global economy, stemming from the impact of such markets on firms' financing. For instance, stock markets, due to their liquidity, allow firms to rapidly acquire the necessary financing, facilitating the allocation of financial resources. This channeling of savings allows an optimal allocation of capital and translates into an accelerated growth rate.

Theories of endogenous growth assume that financial markets play this facilitating role through their mobilization of local savings, the acquisition of information, liquidity, and risk management. This, in turn, impacts economic growth through the accumulation of capital and technological innovation (Levine, 1997). Consequently, financial markets channel investments toward the most productive sectors.

On the basis of the preceding discussion, we can raise some questions on the real effect of the emergence of a financial market in a country. Does the liquidity of the market affect economic development?

4.1. Hypotheses

We also have to acknowledge that economic growth has many determinants other than the presence of a stock market. Many factors are exogenous (Venables, 2009). Other explanations or definitions have been proposed for development. Many argue that investment, which they see as highly dependent on financial institutions, is a key factor.

Therefore, we posit our first hypothesis as follows:

H1: There is a positive relationship between the development of a stock market and the economic growth of a country.

Taking into account the fact that the emergence of a financial market necessitates a thick economic membrane, the cost of such implementation, added to the poverty of financial structures in the African continent, we can posit our second hypothesis:

H2: In the first years of a stock market, economic growth has a ripple (driving) effect on the development of the stock market.

5. Method

This section describes the methods we use to conduct our study, starting with a description of the sample and the data used.

5.1. Sample and Data

Our study covers six African financial markets, including South Africa, which had the first stock exchange in the continent and the nineteenth in the world. Our sample also includes the stock exchanges of Ghana (with the strongest growth of capitalization), Kenya, Nigeria, and Tunisia in the Monetary Union of West Africa (UEMOA) zone. The UEMOA zone, comprising eight countries with a francophone majority from West Africa, was created in 1998 with a common stock exchange, the BRVM (Regional Stock Exchange), from the transformation of the Abidjan stock exchange in Côte d'Ivoire. It is the only regional stock exchange in the continent, uniting countries from the same economic community, with the same central bank, monetary unit, and accounting system.

All the data on national financial markets (South Africa, Ghana, Kenya, Nigeria, and Tunisia) is from the World Bank's (2009) World Development Indicators database. For the BRVM, the data is from the

Regional Council of Public Savings and Financial Markets (CREPMF). The macroeconomic data is from information published by the CNUCED and UNDP.

5.2. Variables and Model

The variables chosen to measure economic development are GDP or GNP and GDP or GNP per capita. We use this measure to attenuate the variation of global measures that would be attributed to a change in the population. The GIP used here is expressed in purchasing power units to eliminate the effects of inflation, which can be huge in some African areas, or of deflation over time. Therefore, the indicator is in constant monetary units.

The development of the financial market is measured using variables for market size: market capitalization, its liquidity expressed by volume, and the value of transactions. The variables and their definitions are listed below:

Markecap	Market capitalization of listed companies (current US\$)
Stocktrade	Stocks traded, total value (current US\$)
Listedcomp	Number of listed companies
Netincome	Net income (balance of payments, current US\$)
Gdpconst	GDP (constant 2000 US\$)
Gdpercapconst	GDP per capita (constant 2000 US\$)
Curr_acc_bal	Current account balance (US\$)
Gni	Gross national income (GNI) (US\$)

The basic model compares indicators of stock market development with indicators of economic growth. GDP, GDP per capita, gross national revenue, and the bottom line of the commercial balance are regressed against market capitalization. These variables being endogenous, we use the two-stage least squares method (2SLS) by selecting the value of the transactions and the number of listed firms as measures of market capitalization. The models are as follows:

1. $Gdpconst = \alpha + \beta \text{Marketcap} + \epsilon$
2. $Gdpercapconst = \alpha + \beta \text{Marketcap} + \epsilon$
3. $Gni = \alpha + \beta \text{Marketcap} + \epsilon$

We will complete our analysis by conducting a Granger causality test (see Odhiambo, 2009; Aka, 2010), to determine which indicator,

between market capitalization and GDP per capita—also endogenous—comes first and has an effect on the other. Developed by Granger (1969), this test allows us to determine if a variable can be seen as the cause of another, taking into account the propensity of past values of Y to explain its actual values, while assessing the amelioration of the estimate when the retarded values of X are integrated in the model. If the variable X determines estimates of Y , or if the coefficients of its retarded values are significantly different from 0, then X can be considered to cause Y .

5.3. Description of the Sample

Table 4 provides some statistics about our sample.

Table 4: Descriptive statistics for the sample

Variable	n	Mean	SD	Min.	Max.
Marketcap	123	53254.14	136298.9	76	833548
Stockstrade	119	18302.32	65600.37	4	425747
Gdpconst	126	37465.94	46155.72	3008.627	183249.1
gdpercapcons	126	1130.919	1096.159	212.382	3763.819
curr_acc_bal	122	-324.4687	4877.741	-20981.38	24202.07
gni	126	44435.14	61186.48	4830.689	274722.9
listedcomp	120	157.25	210.5197	13	754

Note: With the exception of n and GIP per capita, all variables are expressed in USD million.

Our sample constitutes stock exchanges of different sizes, where the Ghana stock exchange is only a few years old, comprising 35 listed companies but which had as few as 18 during the period covered by our study. On the other hand, the large South African stock exchange has a capitalization of USD 888,548 million and 472 listed firms, comparable with some OECD stock exchanges.

6. Analysis of Results

Many factors enter consideration when we attempt to explain the rate of economic growth, and our results must therefore be viewed accordingly. We start with the numerical results and follow with an analysis. Table 5 provides statistics on the correlation matrix.

Table 5: Pair-wise correlations

	marketcap	stockstrade	gdpconst	Gdpercap cons	curr_acc _bal	gni	listed comp
marketcap	1.0000						
stockstrade	0.9113	1.0000					
	0.0000						
gdpconst	0.8576	0.7108	1.0000				
	0.0000	0.0000					
gdpercapcons	0.7076	0.5571	0.7952	1.0000			
	0.0000	0.0000	0.0000				
curr_acc_bal	-0.5452	-0.6450	-0.2589	-0.3447	1.0000		
	0.0000	0.0000	0.0040	0.0001			
Gni	0.8909	0.7741	0.9477	0.7220	-0.2932	1.0000	
	0.0000	0.0000	0.0000	0.0000	0.0010		
listedcomp	0.6331	0.3885	0.8923	0.7364	-0.0651	0.7773	1.0000
	0.0000	0.0000	0.0000	0.0000	0.4875	0.0000	

Source: Authors' calculations.

With one exception, these numbers show a very strong relation between all the indicators of capital market development and the measures of economic development, suggesting the existence of a relationship whose modalities need to be more deeply defined. On the other hand, the very strong correlation between market capitalization and the volume of transactions (0.9113***), and also with the number of firms listed (0.6881***) allow us to choose between these two variables in our 2SLS regression to explain the variance in the economic growth indicators. Table 6 shows the coefficients of correlation for market capitalization (volume of transactions and number of firms listed) and economic growth.

Table 6: 2SLS regression for market capitalization as a determinant of economic growth

	Dependant variables	Market cap.	Constant	Obs.	Adj. R2	p-value
Whole sample	Gdpconst	0.3110362***	2.25e+10	116	0.7283	0.0000
	Gdpercapcont	5.91e-09***	840.0464	116	0.5004	0.0001
	Gni	0.4195876***	2.39e+10	116	0.7895	0.0000
Ghana	Gdpconst	1.327218 ***	3.22e+09	16	0.3151	0.0022
	Gdpercapcont	3.40e-08***	211.4336	16	0.3486	0.0016
	Gni	3.907445***	2.12e+09	16	0.5458	0.0003
Kenya	Gdpconst	0.523715***	1.11e+10	19	0.8028	0.0000
	Gdpercapcont	3.40e-09***	411.1839	19	0.3655	0.0181
	Gni	1.710586***	7.93e+09	19	0.7714	0.0000
Nigeria	Gdpconst	0.5399301***	4.03e+10	21	0.6556	0.0028
	Gdpercapcont	1.86e-09 ***	365.7773	21	0.7344	0.0007
	Gni	2.385856***	2.78e+10	21	0.7566	0.0003
South Africa	Gdpconst	0.1264397***	9.57e+10	21	0.6775	0.0000
	Gdpercapcont	1.24e-09***	2807.704	21	0.6277	0.0000
	Gni	0.2809272***	7.55e+10	21	0.8873	0.0000
Côte d'Ivoire	Gdpconst	0.3733366***	8.93e+09	21	0.3050	0.0189
	Gdpercapcont	-1.54e-08***	628.0826	21	0.3553	0.0366
	Gni	1.794502***	8.60e+09	21	0.8219	0.0000
Tunisia	Gdpconst	2.821906***	1.13e+10	18	0.4542	0.0013
	Gdpercapcont	2.20e-07***	1398.76	18	0.4422	0.0015
	Gni	3.998959***	9.72e+09	18	0.6088	0.0002
Wu-Hausman F test			24.39269 F(1,113)			
p-value			0.00000			
Durbin-Wu-Hausman chi-sq test			20.59463 Chi-sq(1)			
p-value			0.00001			

Note: *** = significant at 0.01. Tests of endogeneity of marketcap H0: regressor is exogenous.

Source: Authors' calculations.

The regression results obtained using the 2SLS method allow us to freeze the endogeneity effect and show the strong relationship between the variables. The coefficients have a high level of significance and some R2 values range from 0.80 to 0.81 for GDP, from 0.78 to 0.85 for GDP per capita, and from 0.55 to 0.89 for gross national revenue (GNR).

To ensure that these results are not spurious, we conduct a test of cointegration (Aka, 2010), which will indicate if the data series is integrated in time. Table 7 gives the results for the cointegration test.

Table 7: Results of cointegration test

Pedroni residual cointegration test				
Sample: 1988–2008				
Included observations: 126				
Cross-sections included: 6				
Null hypothesis: No cointegration				
Trend assumption: No deterministic trend				
User-specified lag length: 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Series: MARKETCAP – GDPCONST				
	Statistic	Prob.	Weighted statistic	Prob.
Panel v-statistic	5.362524	0.0000	0.111963	0.4554
Panel rho-statistic	-2.143334	0.0160	-2.007739	0.0223
Panel PP-statistic	-1.790884	0.0367	-2.326249	0.0100
Panel ADF-stat.	-2.958215	0.0015	-1.353587	0.0879
Series: MARKETCAP – GDPERCAPCONS				
	Statistic	Prob.	Weighted statistic	Prob.
Panel v-statistic	3.680373	0.0001	0.248687	0.4018
Panel rho-statistic	-1.758691	0.0393	-1.517582	0.0646
Panel PP-statistic	-2.025705	0.0214	-2.508915	0.0061
Panel ADF-stat.	-3.523942	0.0002	-1.987452	0.0234
Series: MARKETCAP – GNI				
	Statistic	Prob.	Weighted statistic	Prob.
Panel v-statistic	2.661131	0.0039	3.245496	0.0006
Panel rho-statistic	-4.549824	0.0000	-3.488030	0.0002
Panel PP-statistic	-7.617943	0.0000	-4.921595	0.0000
Panel ADF-stat.	-9.751477	0.0000	-5.196987	0.0000

Source: Authors' calculations.

From the results of Table 7, the null hypothesis that there is no cointegration can be rejected at a level of 0.05 in every case, for every relationship. However, the relation is far stronger for GNR. Therefore, GNR is best explained by the development of the market and that for every country except Kenya.

Since the relationship between stock market indicators and economic aggregates can potentially go both ways, we run a Granger test of causality to find out if the relation is oriented instead of transitive. Table 8 provides the results of this test.

Table 8: Results of Granger causality test

Country	Null hypothesis	F-stat.	Prob.
Ghana	GDPERCAPCONS does not Granger-cause MARKETCAP	2.00256	0.1813
	MARKETCAP does not Granger-cause GDPERCAPCONS	0.41518	0.6701
Kenya	GDPERCAPCONS does not Granger-cause MARKETCAP	0.54596	0.5911
	MARKETCAP does not Granger-cause GDPERCAPCONS	3.98274	0.0427
Nigeria	GDPERCAPCONS does not Granger-cause MARKETCAP	0.35128	0.7098
	MARKETCAP does not Granger-cause GDPERCAPCONS	3.65683	0.0528
South Africa	GDPERCAPCONS does not Granger-cause MARKETCAP	0.02330	0.8805
	MARKETCAP does not Granger-cause GDPERCAPCONS	5.70911	0.0287
Côte d'Ivoire	GDPERCAPCONS does not Granger-cause MARKETCAP	1.57697	0.2412
	MARKETCAP does not Granger-cause GDPERCAPCONS	4.17540	0.0378
Tunisia	GDPERCAPCONS does not Granger-cause MARKETCAP	4.82580	0.0255
	MARKETCAP does not Granger-cause GDPERCAPCONS	0.50307	0.6152

Source: Authors' calculations.

The causality tests, executed with data from two years ago, indicate a causality going from stock market performance toward economic development for countries with a well-established stock exchange, such as South Africa or Nigeria. It also applies to Kenya, which has a less well organized system but with a stock exchange dating from 1954, and to the Côte d'Ivoire with a financial market functioning since 1972 and transformed into a sub-regional market in 1998.

The Côte d'Ivoire, where this sub-regional market is located, also has 85 of the 89 listed firms. These strong ties between the developing measures for financial markets and economic growth correspond to the theories of endogenous growth that advocate a more intensive role for the financial system, notably for financial markets. Our first hypothesis is then accepted and corroborated by the cointegration tests.

However, for some countries, the causality goes from the economic system toward stock market performance. These countries are Ghana and Tunisia. Ghana has generated many times the value of the best stock market performance, notably in 2008 (a return of 41 percent), and 2009 (a return of 58 percent) following the Exotix Ltd. Agency. Its stock market is quite new, having been created in 1990, and these impressive performances involve only 85 firms, which may explain the direction of the causality. For Tunisia, the fact that the market was created in 1969 and accounts for a relatively small number of firms listed (56) and also for a small amount of market capitalization (8,801,000,000 dinars in 2009) may be part of the explanation. These exceptions show that the relationship can go both ways, depending most likely on the level of the country's development when the stock exchange began activity.

If we look at the BRVM of Abidjan, we see that the bond market strongly drives the results by a volume of transaction near nine times the volume of share trading (90 percent of the value of transactions). Of the 90 percent, 76 percent was made by national or local administrations and state-owned companies. There are many kinds of markets. This one brings a very low level of new money into the system.

If we look at economic indicators in comparison with market indicators, we see that growth is far from being evenly distributed. In the Côte d'Ivoire, over the first ten years of the BRVM's existence, GDP increased by 75 percent while GDP per capita increased only by 7 percent, which does not take into account the distribution of this wealth, only for instance the increase in population, which, at 27 percent, is quite high.

Following the UNDP's statistics, the Côte d'Ivoire is 119 out of 135 countries for which the poverty index was calculated. More than 50 percent of adults are illiterate, around 20 percent of the population has no improved source of water, and the level of human development is far below its level of GDP per capita. Consequently, we can understand that development in Africa is more involved with taking natural resources out of the continent rather than improving the living standards of the population. Statistics such as GDP or GDP per capita—a simple division (GDP/number of citizens)—must be tempered by other statistics such as the poverty index, the human development index, and the Gini index, which measure the degree of wealth distribution in a country. Although imperfect, these latter statistics show that development is not a unique front and that what may look like an advance on the economic front has little impact, if none at all, on other essential aspects of what would be development if these principles are applied.

7. Conclusion

The African stock exchanges were created to sustain economic growth beside the monetary market, which had become inadequate to sustain privatization alone over a long period. This required considerable liquidity so that, in principle, stocks could be issued and acquired by a large population. This was the path the African financial markets were supposed to follow: to facilitate the access to long-term financing by African companies that were supposed to generate, in turn, economic growth.

The bottom line is not clear. Some countries have now developed over time, a stock market tradition and a financial market with a sound level of liquidity able to facilitate economic development. The Côte d'Ivoire, although not high-performing, has been able to reach a certain level of development by offering a financial market to a series of countries. However, people do not seem to be better for it.

We have seen that the activities at the BRVM had been centered widely on financing states' activities and only marginally on financing private firms and developing activities. Therefore, the objective of opening some stock exchanges remains unmet. Many local firms are state-owned for the better part and capitalization is far lower for local firms.

Our first hypothesis concerning the positive relationship between the development of a stock market and economic growth can be accepted. Such a relationship is not really surprising, although it remains difficult to say which drives which. It is probably recognizable at the end of the day that organizing a financial market in a country is, at least, an accelerator for some kind of economic development.

All these markets, doubtless, have the potential to increase the efficiency of investment, and to create wealth and the necessary long-term capital for the development of their countries. However, only the implementation of a financial market is not enough to improve economic growth. Efforts must be made to develop a stock-exchange culture in African countries and gradually bring companies to perceive the necessity of financing by the stock market.

It is also the joint effect of a well-organized stock market, an adapted tax system, a legal framework favorable to business, an increase in national public and private investments, and an increase in international

direct investments that will stimulate this economic growth. Development policies must thus be global and integrated.

However, using other statistics, the results go in the same direction, showing that a good part of this development benefits people outside Africa, or a limited number of people. The fiscal policies of these countries, notably toward mining companies, are criticized as being too lenient, allowing those companies to take their benefits out of the countries in which they operate without having much positive impact on the population.

Further research would trace the wealth produced in Africa to the destination and explain why all that remains is ever-increasing debt and despairing populations.

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Intertemporal Asset Pricing: Preliminary Evidence from an Emerging Economy

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Abstract

In this paper, we test a simple Merton-style (1973) intertemporal capital asset pricing model (ICAPM) by allowing for time variations in certain key state variables for a sample of firms listed on the Karachi Stock Exchange. We evaluate the model's ability to account for returns on portfolios sorted by size, book-to-market ratio, and momentum. Our findings provide evidence of an intertemporal asset pricing setting with significant coefficients for innovations in state variables. Innovations in dividend yield, term, and risk-free rates are systematically priced in time series of returns and should be considered when evaluating the risk premium for investments. We do not find the market premium to be a significant variable, which suggests that a traditional capital asset pricing model is unable to capture variations in stock returns for our sample period. These results favor the use of an ICAPM framework for optimal decision-making.

Keywords: ICAPM, business risk, financial risk, Karachi Stock Exchange.

JEL classification: G10, G11, G12.

1. Introduction

The asset pricing literature originates from Markowitz's (1952) proposition of mean variance efficiency, based on which, Treynor (1961/1999), Treynor and Black (1973), Sharpe (1964), Lintner (1965), and Mossin (1966), proposed initial versions of asset pricing models. These models are based on stock's sensitivity to the market, resulting in a market premium for the investor. One of the key assumptions underlying these asset-pricing propositions was the discrete investment period. However, the assumption seemed too stringent because investors are likely to rebalance their portfolios from one period to another. This limitation was addressed by introducing an intertemporal choice by Samuelson (1969),

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Hakansson (1970), and Fama (1970), who argued that investors make portfolio and consumption decisions in various time periods.

Merton (1973) proposed an intertemporal capital asset pricing model (ICAPM), which assumes a continuous investment setting. This facilitated the construction of a framework that was more realistic and, at same time, more tractable than the discrete time model. Merton suggested that when there is stochastic variation in investment opportunities, there is likely to be a risk premium associated with innovations (time variations) in the state variables that describe the investment opportunities. The innovations in the selected state variables are able to identify shocks in the investment opportunity set.

In this paper, we estimate a simple ICAPM by allowing for time variations in certain key state variables and evaluate the model's ability to account for the returns on portfolios sorted by size, book-to-market ratio, and momentum. Since asset pricing models are an important input in estimating investment appraisals, project feasibility, and the cost of equity capital, this study aims to facilitate corporate decision makers and stock market investors in making the appropriate estimates for their investment strategies. Pakistan has three stock exchanges,¹ of which the Karachi Stock Exchange (KSE) features the largest market capitalization, trading volume, and liquidity (Table 1).

The paper is organized as follows. Section 2 outlines the research methodology used, Section 3 presents our empirical findings, and Section 4 concludes the study.

¹ These include the Karachi Stock exchange (KSE), Lahore Stock Exchange, and Islamabad Stock Exchange.

Table 1: Salient features of KSE

Feature	2006	2007	2008	2009	2010
Total number of listed companies	652	654	653	651	651
Total listed capital (PKR)	519,270.17	671,255.82	750,477.55	814,478.74	909,968.03
Total market capitalization (PKR)	2,771,113.94	4,329,909.79	1,858,698.90	2,705,879.83	2,721,604.94
KSE-100 TM index	10,040.50	14,075.83	5,865.01	9,386.92	9,705
KSE-30 TM index	12,521.54	16,717.10	5,485.33	9,849.92	9,641.55
KSE all share index	6,770.06	9,956.76	4,400.76	6,665.55	6,783.70
New companies listed during the year	9	14	10	4	6
Listed capital of new companies (PKR)	14,789.76	57,239.92	15,312.12	8,755.73	32,538.44
New debt instruments listed during the year	3	3	7	1	4
Listed capital of new debt instruments (PKR)	3,400.00	6,500.00	26,500.00	3,000.00	5,650.18
Average daily turnover (shares in millions)	260.69	268.23	146.55	179.88	144.16
Average value of daily turnover (PKR)	31,610.71	25,262.97	14,228.35	7,450.75	4,778.90
Average daily turnover (Future TM) (YTD)	82.68	61.69	30.76	1.03	5.17
Average value of daily turnover (YTD)	13,587.63	9,077.61	5,229.97	89.66	416.1

Note: All monetary data in millions. PKR 1 ~ USD 95.

Source: KSE website.

2. Research Methodology

2.1. Sample Selection

We consider a sample period from 1 July 1997 to 30 June 2007. The reason for choosing this sample period is to be able to estimate the model over a relatively smooth period of investment activity. In August 2008, the KSE index started to follow an extreme downward trend and the stock market was not able to normalize for about eight months. During this time, there was low trading. Therefore, in order to avoid extreme results due to market conditions, the period post-June 2007 was not included in the sample period. The following criteria were employed to select stocks from individual sectors.

1. All selected stocks were listed on the KSE.
2. In order to avoid thinly traded stocks, only those stocks with non-zero returns for at least 90 percent of the trading days were included in the sample. The selected stocks comprised stocks from all sectors.
3. Data on daily price, book value, market value of equity, and market capitalization should be available for the stocks in the sample.

The secondary data was collected from the KSE's website, and comprised daily stock prices and the KSE-100 index value. The overnight repo rate was used as a proxy for the risk-free rate, data on which was collected from the JS Group's treasury. Data on book value and market capitalization was collected from the annual reports of the companies in the sample. Table 2 presents our sample's composition.

Table 2: Year-wise sample composition

Year	No. of firms in the sample	Thinly traded stocks
1998	120	70
1999	131	73
2000	131	84
2001	135	86
2002	138	95
2003	140	110
2004	140	135
2005	145	140
2006	150	153
2007	150	160

Note: We classify thinly traded stocks as those that yield zero returns for more than 10 percent of the observations during the sample period.

Source: Authors' calculations.

2.2. Portfolio Formation

Fama and French (1992) suggest that stock returns are also influenced by firm characteristics such as firm size in terms of market capitalization and firm value in terms of its book-to-market ratio. They observe that glamour/growth and value stocks perform better than the market, and that firms with a high book-to-market value tend to be in constant financial distress while those with a low book-to-market value are associated with sustained profitability and future growth. Moreover, stocks with small market capitalization (small firms) tend to be more profitable than large stocks.

Carhart (1997) and Liew and Vassalou (2000) have augmented the Fama and French size-and-value model with a momentum factor. Liew and Vassalou form portfolios based on a high book-to-market value minus low book-to-market value (HML), small market capitalization to big market capitalization (SML), and momentum up minus down (UMD) in an attempt to capture all three risk factors, namely, size, book-to-market value, and momentum. We adopt Liew and Vassalou's portfolio formation methodology in order to capture the risk associated with firm characteristics—i.e., size, book-to-market value, and momentum—in order to test the relevance of the size, value, and momentum risk factors in an emerging stock exchange such as the KSE.

We construct 12 equally weighted portfolios sorted by size, book-to-market, and momentum: HBU, HBD, HSU, HSD, MBU, MBD, MSU, MSD, LBU, LBD, LSU, and LSD. For each year from 1 July 1997 to 30 June 2007, we take 30 June as the date on which to rebalance the portfolios according to book-to-market, size, and momentum. Accordingly, the 12 portfolios are rebalanced for each year.

2.3. Model Specification

The ICAPM is an augmented capital asset pricing model (CAPM) incorporating innovation factors. The model is expressed as follows:

$$R_{it} = R_f + (R_{mt} - R_f)\beta_{1t} + (\hat{u}_{divYld})\beta_{2t} + (\hat{u}_{term})\beta_{3t} + (\hat{u}_{rf})\beta_{4t} \quad (1)$$

$t = 1, 2, 3, \dots, 2,600$, with t daily observations. R_{it} is the expected return on stock i , $R_{mt} - R_f$ represents the market risk premium, \hat{u}_{divYld} is the innovation in the dividend yield of the index (KSE-100), \hat{u}_{term} is the innovation in the term factor of the yield curve, and \hat{u}_{R_f} is the innovation in the risk-free rate, i.e., the daily repo rate. The coefficients β_{1t} , β_{2t} , β_{3t} , and β_{4t} represent the risk sensitivities of the independent variables.

We use the following time series framework to test the ICAPM:

$$R_{it} - R_f = \alpha_i + (R_{mt} - R_f)\beta_{1t} + (\hat{u}_{divYld})\beta_{2t} + (\hat{u}_{term})\beta_{3t} + (\hat{u}_{rf})\beta_{4t} + \epsilon_t \quad (2)$$

where $ER_{it} = R_{it} - R_f$ represents the excess return on stock i in time t , α_i is the intercept of the regression equation representing the nonmarket return component, and ϵ_t represents the error term, which is the random return component due to unexpected events related to a particular stock, i . The coefficients β_{1t} , β_{2t} , β_{3t} , and β_{4t} are the risk sensitivities of returns for market risk, innovation in the dividend yield of the index (KSE-100), innovation in the term factor, and innovation in the risk-free rate. The ICAPM for an individual stock can also be expressed for a portfolio by replacing i with p :

$$ER_{pt} = \alpha_p + (R_{mt} - R_f)\beta_{1t} + (\hat{u}_{divYld})\beta_{2t} + (\hat{u}_{term})\beta_{3t} + (\hat{u}_{rf})\beta_{4t} + \epsilon_t \quad (3)$$

where ER_{pt} is the excess return of the portfolio in time t , and α_p is the average of all individual alphas of the stocks included in the equally weighted portfolio.

2.4. Estimation of Variables

The dependent variable in the ICAPM is the excess portfolio return—the return over and above the risk-free return, represented by ER_{pt} . The independent variables are excess market return and a set of state variables that include innovations in DIV , $TERM$, and R_f , which help to forecast future market portfolio returns. The innovations in these variables are expected to account for common time varying patterns in portfolio returns portfolios and capture uncertainty about future investment opportunities. These variables are chosen to model two aspects of the investment opportunity set: the yield curve and the conditional distribution of asset returns. The yield curve is an important part of the investment opportunity set; the daily repo rate (RF) and term spread ($TERM$) are, therefore, used to capture variations in the level and slope of the yield curve.

The conditional distribution of asset returns is also an integral part of the investment opportunity set. Petkova (2006) suggests that the conditional distribution of asset returns, as characterized by its mean and variance, changes over time. The time-series literature highlights a set of variables that proxy for variation in the mean and variance of returns. The aggregate dividend yield (DIV) and interest rates are among the most common variables used to proxy variation in the mean and variance of returns. Subsequently, these state variables are most likely to capture investors' hedging concerns related to changes in the interest rate and variations in risk premiums.

Viale, Kolari, and Fraser (2009) suggest that the innovations in the slope of the yield curve are closely related to the real business cycle. The yield curve is steeper near the trough of the real business cycle (with negative shocks signaling a possible shift toward good times) and relatively flat near the peak (with positive shocks signaling a possible shift toward bad times). From an ICAPM perspective, the negative sign of the $TERM$ premium implies that stocks constitute a hedge against future negative shocks to consumption growth. Fama and French (1989) argue that the values of the term spread indicate that expected market returns are high during recessions and low during expansions. Their study shows that the term spread tracks short-term shocks and fluctuations in the business cycle. Positive shocks to the term premium are associated with bad times with respect to business conditions, while negative shocks are associated with good times.

According to Petkova and Zhang (2004), value stocks are riskier than growth stocks in bearish markets, but less risky during good times. Cornell (1999) and Campbell and Vuolteenaho (2004) highlight another aspect of shocks to the term spread and HML portfolio—the context of the cash flow maturities of assets. They propose that value stocks are low-duration assets compared to growth stocks, which makes them similar to short-term bonds and, therefore, more sensitive to shocks in the short term, i.e., the short end of the yield curve. Similarly, growth stocks are high-duration assets, which makes them similar to long-term bonds, and are more sensitive to shocks in the long run, i.e., the long end of the yield curve or term structure.

Chan and Chen (1991) argue that small firms tend to lose their market value due to poor performance; they are likely to face cash flow constraints and have high financial leverage, and are less likely to survive during poor economic conditions. Consequently, small firms are more sensitive to news about the state of the business cycle. We test the ICAPM to determine whether unexpected changes in the state variables explained above improve the explanatory power of the standard CAPM.

The returns on an individual stock i are estimated as follows:

$$R_{it} = \ln\left[\frac{P_t}{P_{t-1}}\right]$$

where P_t and P_{t-1} are the closing prices on day t and $t - 1$, respectively. R_{pt} , which represents portfolio returns, is the weighted average return on individual stocks:

$$R_{pt} = \sum_{i=1}^N W_i R_{it}$$

Similarly, market portfolio returns can be estimated as follows:

$$R_{mt} = LN\left[\frac{KSE(100)_t}{KSE(100)_{t-1}}\right]$$

where $KSE(100)_t$ and $KSE(100)_{t-1}$ are the closing index values on day t and $t - 1$, respectively. The portfolio and market returns are used to estimate the excess portfolio returns ($R_{pt} - R_f$) and market risk premium ($R_{mt} - R_f$).

The innovation factors are taken as the difference between the actual (daily value) and expected (monthly average) of a variable. The innovation in the dividend yield of the KSE-100 index $\hat{u}_{div\gamma d}$ is estimated as the difference between the daily dividend yield and monthly average of the dividend yield of the index (KSE-100). The daily dividend yield of the index (KSE-100) is based on its dividends and daily index (KSE-100) values. The dividend of the index is the weighted average of the dividends of all the stocks in the index (KSE-100); the daily dividend of the index is, therefore, tabulated on a daily basis because the companies listed on the KSE give dividends on different dates. The dividend yield of the KSE-100 index is tabulated as its daily dividend yield divided by the daily KSE-100 index values. The term value is tabulated as the difference between the long-term (six-month) repo rate and the short-term (overnight) repo rate. The innovation in the term variable (\hat{u}_{term}) is estimated as the difference between the daily term value and its monthly average. The innovation in the risk-free rate (\hat{u}_{R_f}) is estimated as the difference between the daily repo rate and its monthly average.

3. Empirical Results

Table 3 presents the empirical results of the 12 individual ICAPM regressions on 12 size, book-to-market, and momentum portfolios. The coefficient of the market risk premium is insignificant for all 12 portfolios. Since the intercept (α_p) is found to be significant for five out of the 12 portfolios, i.e., BHU, BLU, BMU, SHU, and SMU, the beta coefficients of the independent variables for these portfolios are deemed irrelevant.

The coefficients of the innovation in the dividend yield of the index (β_2) are found to be significant at 99 percent for five portfolios, i.e., BHD, SHD, SLD, SLU, and SMD. The innovation in the dividend yield of the index reflects the business risk associated with the overall market. Even if the index is dominated by the leading stocks, the innovation in the dividend yields of these stocks would lead to a similar trend in the innovation in the dividend yield in the overall market. Small firms tend to be more sensitive to such business risk due to their lack of financial flexibility and narrow scope of business. An innovation in the dividend yield of the index is, therefore, found to be significant in all portfolios with small companies' stocks. Investors in KSE-traded stocks thus require a premium when investing in small stocks.

The daily repo rate (RF) and term spread ($TERM$) capture the variations in the level and slope of the yield curve. The coefficients of innovation in term (β_3) are found to be significant at 99 percent for six portfolios, i.e., BHD, BMD, SHD, SLD, SLU, and SMD. The coefficients of innovation in the risk-free rate (β_4) are found to be significant at 99 percent for five portfolios, i.e. BHD, BLD, BMD, SLD, and SLU; SMD is significant, however, at 95 percent. Our evidence demonstrates that innovations in term and the risk-free rate are significant in the majority of the portfolios that included small firms. Changes in financing cost arise either because of a change in the firm's capital structure or due to a change in the yield curve—this reflects the financial risks.

As mentioned earlier, the yield curve is an important part of the investment opportunity set because the innovation in the slope of the yield curve is closely related to the business cycle. Since small firms are likely to face cash flow constraints and have high financial leverage, they are less likely to survive during poor economic conditions (Viale et al., 2009), and are, therefore, more sensitive to news about the state of the business cycle and have a high financial risk. Small firms also have a low capacity to absorb additional risk, be it financial or business. Therefore, investors require a premium when investing in small firms. During the sample period (1 July 1997 to 30 June 2007), firms were exposed to high business risk due to the increase in competition that arose during the government's deregulation and privatization efforts. Moreover, since 2003, interest rates in Pakistan have risen, which has increased the financial risk for small firms listed on the KSE.

Large firms have a higher capacity to absorb business and financial risk. Therefore, if we consider only the size factor, large firms are relatively less affected by innovations in term value and the risk-free rate. However, value stocks are short-duration assets compared to growth stocks, which makes them similar to short-term bonds and, therefore, more sensitive to shocks in the short term, i.e., the short end of the yield curve. In bad times value stocks are riskier than growth stocks, whereas they are less risky during good times (Petkova, 2006). Consequently, large firms with a high or medium book-to-market ratio tend to be sensitive to the innovation in term. Overall, our findings suggest that the ICAPM largely explains the time series of returns for portfolios that are controlled for size, value, and momentum effects.

Table 3 reports the results of individual ICAPM regressions on 12 portfolios sorted by size, book-to-market, and momentum for the period 1 July 1997 to 30 June 2007 according to:

$$ER_{pt} = \alpha_p + (R_{mt} - R_{ft})\beta_{1t} + (\hat{u}_{divYld})\beta_{2t} + (\hat{u}_{term})\beta_{3t} + (\hat{u}_{Rf})\beta_{4t} + \epsilon_t$$

where ER_{pt} is the excess return on the portfolio in time t and α_p is the average of all individual alphas of the stocks included in the portfolio. α_p is the intercept of the regression equation representing the nonmarket return component, while $(R_{mt} - R_{ft})$ represents the market risk premium. The coefficients β_{1t} , β_{2t} , β_{3t} , and β_{4t} are, respectively, the risk sensitivities of returns for market risk, the innovation in dividend yield of the index (KSE-100), the innovation in the term factor, and the innovation in the risk free rate. ϵ_t is an error term that represents the random return component due to unexpected events related to a particular stock i . For the purpose of simplification, we assume that ϵ_t has a multivariate normal distribution and is independently and identically distributed over time. Columns 1, 2, 3, 4, and 5 report the estimates of α_p , β_{1t} , β_{2t} , β_{3t} , and β_{4t} . Columns 6, 7, and 8 report the t-statistics for the estimates of α_p and β_{1t} , β_{2t} , β_{3t} , and β_{4t} .

Table 3: ICAPM: Four-factor regressions on 12 portfolios sorted by size, book-to-market ratio, and momentum

	α	β_1	β_2	β_3	β_4	$t(\alpha)$	$t(\beta_1)$	$t(\beta_2)$	$t(\beta_3)$	$t(\beta_4)$
BHD	0.000448	-0.027089	-0.111428	0.352939	-0.363339	1.226919	-1.281405	-4.555941***	16.06064***	-15.54302***
BHU	0.004665	0.001962	0.301166	0.295827	-0.53496	13.76362***	0.099987	13.26758***	14.50455***	-24.65744***
BLD	-0.000469	-0.008034	0.0269	0.02752	-0.247933	-1.527326	-0.451641	1.307114	1.488289	-12.60462***
BLU	0.000963	0.006246	0.205916	-0.023659	-0.301867	3.237845***	0.362803	10.3378***	-1.321924	-15.85604***
BMD	-0.000395	0.013302	0.023861	0.12061	-0.320903	-1.298105	0.755365	1.171167	6.58857***	-16.47938***
BMU	0.00121	0.024333	0.189426	0.052285	-0.317455	3.948205***	1.372035	9.23206***	2.836081***	-16.18756***
SHD	-0.000367	0.022624	0.107566	0.122653	-0.021064	-1.324707	1.411644	5.801088***	7.361967***	-1.188553
SHU	0.001762	-0.004334	0.147087	0.210972	-0.131708	4.637801***	-0.19711	5.781973***	9.230102***	-5.41696***
SLD	-0.000527	-0.033352	0.22429	0.289673	0.308581	-1.31798	-1.440598	8.373541***	12.03616***	12.05338***
SLU	0.00029	0.013195	0.306259	0.34087	0.064533	0.770398	0.605121	12.13991***	15.03821***	2.67638***
SMD	-6.70E-05	0.007054	0.162021	0.070702	0.041539	-0.230408	0.418837	8.314443***	4.038094***	2.230248**
SMU	0.001272	-0.006873	0.102212	0.029978	-0.036825	4.077093***	-0.380646	4.892711***	1.597076	-1.844271*

Note: * = significant at 90 percent, ** = significant at 95 percent, *** = significant at 99 percent.

Source: Authors' calculations.

4. Conclusion

Merton's (1973) ICAPM suggests that asset pricing should be dealt with using continuous time settings and innovations in state variables are systematically priced in stock returns. In this paper, we have tested a standard ICAPM for stocks listed on the KSE using innovations in dividend yield, term structure, and the risk-free rate to account for business and financial risk. The portfolios were constructed by size, value, and momentum to control for these premiums.

Our results reveal an insignificant market risk premium for all 12 portfolios. Small firms demonstrate greater sensitivity to business risk while the innovation in the dividend yield of the index was found to be significant for all the portfolios. The innovations in term and risk-free rate were significant in the majority of the portfolios that included small firms, implying that firms constrained by size are more sensitive to the state of the business cycle and face high financial risk. Small firms also have low capacity to absorb additional risk, warranting a higher risk premium.

Larger firms have a high risk-absorption capacity and are, therefore, less sensitive to innovations in term structure and risk-free rate. Value stocks demonstrate greater sensitivity to shocks in the short term, i.e., the short end of the yield curve. Larger firms with a high or medium book-to-market ratio tend to be sensitive to innovations in term. These findings point to a new dimension of premiums that are priced in stock returns, which should be considered when making investment decisions.

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The Relationship Between Service Quality and Customer Satisfaction in India's Rural Banking Sector: An Item Analysis and Factor-Specific Approach

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Abstract

Earlier research has shown that, in today's highly competitive business world, service quality and satisfaction are central to management concerns for marketing effectiveness and success. This study attempts to determine customer-perceived service quality at rural Indian banks and identify the most significant predictors of overall customer satisfaction based on a five-dimensional 'performance-only' scale measuring service quality. Data was collected from 289 patrons of rural banks, based on a seven-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). The absence of a reliable sampling frame necessitated following a controlled sampling technique. In order to extract factors relevant to service quality, we employ exploratory factor analysis, means, standard deviations, t-tests, and regression analysis. Our preliminary analysis indicates that rural customers report high levels of perceived service quality across all five dimensions while the results of the regression analysis (β) show that reliability and assurance explain overall customer satisfaction at rural banks in India. The study's findings can be employed by the banking industry to restructure and prioritize its service quality and develop appropriate promotional strategies by highlighting relevant aspects of service quality and customer satisfaction.

Keywords: Service quality, customer satisfaction, SERVPERF, rural, retail bank, India.

JEL classification: M10, M20, M31, M39.

1. Introduction

It is widely acknowledged that the Indian banking sector has contributed significantly to the country's rising gross domestic product (GDP) (Kamath, 2003), making it one of the fastest emerging economies. Over the years, the banking industry in India has matured considerably and by and large proved resilient (Subbarao, 2010). The banking index has

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shown a compounded annual growth rate of over 51 percent since April 2001, accounting for over 7.7 percent of GDP with over INR 7,500 billion in market capitalization (McKinsey & Company, 2010). However, to improve business performance, banks have long attempted to address the issue of service quality (Yavas, Bilgin, & Shemwell, 1997).

Service quality and customer satisfaction are critical for marketers and consumer researchers because of their positive impact on customer retention and firm profitability (Caru & Cugini, 1999; Fournier & Mick, 1999; Anderson & Mittal, 2000; Meuter, Ostrom, Roundtree, & Bitner, 2000; Adil, 2012; Adil & Khan, 2012). The literature shows that service quality and satisfaction are central to management concerns for marketing effectiveness and success. In fact, they have become a corporate goal as an increasing number of organizations attempt to improve their level of service quality to enhance customer satisfaction. From customers' perspective, service quality significantly influences their satisfaction. It is, therefore, imperative on the part of banks to stress on both service quality and customer satisfaction to expand their customer base and profitability.

The customer satisfaction paradigm posits that confirmed standards lead to moderate satisfaction, positively disconfirmed (exceeded) standards lead to high satisfaction, and negatively disconfirmed (underachieved) standards lead to dissatisfaction (Al-Eisa & Alhemoud, 2009). The distinction and association between service quality and customer satisfaction is continuously debated in marketing literature (Spreng & Mackoy, 1996). Although the research acknowledges a strong positive correlation between these two variables (Yavas et al., 1997), there is substantial debate on the nature of their causal relationship (see, for example, Parasuraman, Zeithaml, & Berry, 1988; Bitner, Booms, & Tetreault, 1990; Bolton & Drew, 1991). Some studies argue that service quality is an outcome of customer satisfaction, while other, more recent studies argue the opposite. Since the bulk of the research supports the latter concept (Jamal & Naser, 2002; Ijaz, Irfan, Shahbaz, Awan, & Sabir, 2011; Adil, 2012), we treat service quality as an antecedent of satisfaction.

Few empirical studies focus on service quality and customer satisfaction at Indian rural retail banks. The existing literature looks primarily at the service quality attributes important for urban consumers. Thus, there is a pressing need to bridge this gap by carrying out studies encompassing rural consumers, especially in the case of emerging economies such as India. In order to bridge this gap, we assess the contribution of five aspects of service quality in explaining overall

customer satisfaction at Indian rural banks. We also explore the varying importance attached to these five dimensions by rural consumers. To better allocate limited resources, it is pertinent as well as beneficial to identify the differences among these dimensions so that rural banks can focus on the most important dimensions that significantly predict overall satisfaction.

2. Literature Review

2.1. Perceived Service Quality

As a high-involvement industry, banking requires the delivery of excellent services and products to its customers, which is essential for banks to differentiate themselves from their competitors (Arasli, Turan Katircioglu, & Mehtap-Smadi, 2005). Several studies (Aldlaigan & Buttle, 2002; Narang, 2010) assert that individual perception is the most important determinant of consumer value perception. These value perceptions thus formulated tend to impact customer satisfaction and the future purchase intentions of consumers (Bolton & Drew; 1991). To better understand service quality, various studies have conceived it differently. Parasuraman et al. (1988), for example, regard service quality as global judgment or attitude relating to the superiority of the service, while Bitner et al. (1990) refer to it as a customer's overall impression of the relative inferiority/superiority of an organization and its services.

Asubonteng, McCleary, and Swan (1996) conceptualize service quality as the difference between a customer's expectations of service performance prior to the service encounter and their perception of the service received. Ziethaml (1998) defines it as a consumer's assessment of service quality by employing both interior and exterior attributes of low-level production quality or service quality. While there are numerous marketing-related studies on service quality, there is, however, a lack of consensus among researchers on an exhaustive and broader definition, which is a cause of major concern.

2.2. Measures and Dimensions of Service Quality

Over the last two decades, the most commonly used scale of service quality has been SERVQUAL (Parasuraman et al., 1988). However, researchers such as Cronin and Taylor (1992) have questioned its conceptual foundation, criticized it as being confusing, and suggested that the performance component alone be used. They recommend a performance-only service quality scale, i.e., SERVPERF. Other studies

(Boulding, Kalra, Staelin, & Zeithaml, 1993; Jain & Gupta, 2004; Adil & Khan, 2012) provide considerable support in favor of the SERVPERF scale. Though lagging behind the SERVQUAL scale in application, researchers have increasingly started using the performance-only measure of service quality (Cronin & Taylor, 1992; Boulding et al., 1993; Adil & Khan, 2011; Khan & Adil, 2011; Adil, 2012).

2.3. Measures and Dimensions of Customer Satisfaction

The measurement of customer satisfaction has grown dramatically, with more than 15,000 scholarly articles and business reports published in the last two decades (Walker, Smither, & Waldman, 2008). During this period, many researchers have attempted to develop theoretical and methodological frameworks to measure customer satisfaction in a more reliable fashion (see Meng, Tepanon, & Uysal, 2008). A common feature of their underlying methodologies is a heavy reliance on a single-item approach to measuring customer satisfaction (see Smith & Bolton, 2002). Hansen and Hennig-Thurau (1999), in their comparative investigation of national customer satisfaction indices, say that, "on the single-item scale used, the difference between the best and the worst satisfaction score on the level of branches is approximately only 0.2 points that implies the assumption that the used measurement scale has no good selectivity due to skewness."

The issue of single-item versus multiple-item measures has long been the subject of debate among methodologists in the social sciences in general and in the field of marketing in particular. Advocates of single-item measures argue that such measures allow for more efficient use of questionnaire space, reducing the cost of survey development and data-processing, enhancing face validity, and identifying longitudinal changes in constructs under study (see Bergkvist & Rossiter, 2007). Conversely, opponents of the single-item approach (see Shin & Elliott, 2001; Soderlund & Ohman, 2003) argue that such an approach is too simplistic in that it fails to capture all the salient dimensions of an examined construct, and simultaneously precludes the calculation of the internal reliability of that construct (Soderlund & Ohman, 2003). Despite this continuous debate, customer satisfaction, in more recent studies, is still measured using the single-item approach (Brochado, 2009; Ladhari, 2009).

2.4. Customer Satisfaction

Customer satisfaction is the judgment that emerges out of comparing pre-purchase expectations with the post-purchase evaluation of a product or service experience (Oliver, 1980). Customer satisfaction is identified as a salient precursor to customer loyalty, retention, behavioral intention, market share, and profitability (see, for example, Taylor & Baker, 1994; Muffato & Panizzolo, 1995; Levesque & McDougall, 1996; Heskett, Sasser, & Schlesinger, 1997; Fournier & Mick, 1999; Anderson & Mittal, 2000; Athanassopoulos, Gournaris, & Stathakopoulos, 2001; Jamal & Naser, 2002; Beerli, Martin, & Quintana, 2004; Olorunniwo, Hsu, & Udo, 2006; Wood, 2008). Thus, customer satisfaction is widely recognized as a key driver of the formation of consumers' future purchase intentions (Taylor & Baker, 1994) and the likelihood of their patronizing a firm in the future (Kotler & Armstrong, 2006).

Other empirical studies identify service quality, price, convenience, and innovation as key drivers of customer satisfaction (see Athanassopoulos, 2000). The prevalence of such research has heightened the interest of many retail banks in India in measuring the level of their customers' overall satisfaction with the products and services offered (Mishra, 2009). Measuring customer satisfaction has great potential to provide retail bank managers with information about their actual performance and the expectations of their customers. Such information allows them managers to fine-tune their efforts to improve the quality of their services or to deliver services that appear attractive to customers (Shin & Elliott, 2001). In this manner, measuring customer satisfaction is expected to enhance the bank's reputation and image, increase attention to customer needs, and reduce customer attrition (Muffato & Panizzolo, 1995), ultimately increasing profitability. Thus, for a service provider, customer satisfaction is not an ultimate goal in itself, rather, it is a means of yielding greater profits.

2.5. Relationship between Service Quality and Customer Satisfaction

The relationship between service quality and satisfaction remains an important issue in the services marketing literature (Jamal & Naser, 2002), specifically in the field of banking (Avkiran, 1994). Service quality is an important tool for measuring customer satisfaction (Pitt, Watson, & Kavan, 1995) and a prerequisite for establishing a satisfactory relationship with customers. As service quality improves, the probability of customer satisfaction increases. Increased customer satisfaction thus leads to behavioral outcomes such as commitment, customer retention, the creation

of a mutually rewarding relationship, increased customer tolerance, and positive word-of-mouth (Reichheld, 1996; Moutinho & Goode, 1995; Heskett et al., 1997; Newman, 2001). Cronin and Taylor (1992), Aldlaigan and Buttle (2002), Sureshchandar, Rajendran, and Anantharaman (2002, 2003), Bei and Chiao (2006), and Adil (2012) all report that service quality has a positive effect on satisfaction.

3. Research Methodology

3.1. Objectives and Hypotheses Formulation

The study's objective's are:

- To determine customer-perceived service quality at Indian rural banks.
- To identify which dimensions of service quality contribute significantly to measuring overall satisfaction in the context of Indian rural banks.
- To explore the applicability and efficacy of the original SERVPERF scale in measuring perceived service quality at rural retail banks in India.

Based on the literature and the objectives above, we formulate and test the following hypotheses:

- H1: There are no significant differences in the perceptions of rural customers in terms of tangibles, reliability, assurance, responsiveness, and empathy as dimensions of service quality.
- H2: Service quality has a positive significant impact on customer satisfaction.

3.2. Development of Instrument

A number of empirical studies have relied on the SERVPERF model in surveys of service industries such as car retailing, hospitality, banking, restaurants, medical services, travel and tourism, etc. (see Mazis, Ahtola, & Klippel, 1975; Churchill & Surprenant, 1982; Bolton & Drew, 1988, 1991; Woodruff, Cadotte, & Jenkins, 1983; Angur, Natarajan, & Jaheera, 1999; Jain & Gupta, 2004; Kumar & Gulati, 2010; Adil, 2011a; Adil, 2011b; Adil, 2012). In line with their observations, we use the SERVPERF-measuring instrument developed by Cronin and Taylor (1992). We therefore measure banks' service quality using 22 items based on an expanded list of five dimensions: (i) tangibles (four items), (ii) reliability (five items), (iii) responsiveness (four items), (iv) assurance (four items), and (v) empathy (five items), while customer satisfaction is measured with a single item.

The research instrument consists of a structured questionnaire, on which respondents were required to indicate their level of involvement with the help of a seven-point Likert scale where 1 = "strongly disagree" and 7 = "strongly agree". The seven-point Likert scale was employed so that our findings could be compared with those of previous studies that had also relied on the use of this measurement tool (Adil & Khan, 2011; Khan & Adil, 2011). The research instrument consisted of two categories of questions. The first set of questions related to demographics and the second set dealt with various items of the standard SERVPERF scale also used also by previous studies (see Jain & Gupta, 2004; Vanniarajan & Anbazhagan, 2007; Vanniarajan & Nainamohamed, 2008; Selvaraj, 2009; Kumar & Gulati, 2010; Adil, 2011a, Adil, 2012) to measure bank service quality in India.

Initially, the research instrument was developed in English and given independently to three subject experts to obtain feedback on its content, layout, wording, and the ease with which the measurement items could be understood. In general, the comments were positive with some suggestions that were taken into account when revising the questionnaire to ensure content validity. The English version of the research instrument was later translated into Hindi, which is commonly spoken in western Uttar Pradesh (where the respondents were located). As an additional precaution, the Hindi version was first pretested on a representative sample of ten customers of rural banks, and further tested for originality by 'back-translation' (see McGorry, 2000).

3.3. Sampling Plan

The study's population of interest comprised all the villages in India, but keeping in mind practical considerations such as the penetration of retail banks and proximity, it was decided to select the district of Aligarh, which comprises 12 blocks and a total rural population of 2,457,268 individuals (India, Ministry of Home Affairs, 2011). Due care was taken while administering the questionnaire in order to prevent bias from the point of view of any particular demographic group or particular bank. Respondents were approached at different banks with the objective of generating a representative sample and minimizing bias, owing to the proximity of Aligarh's urban center.

For survey research, probability sampling is preferred to nonprobability sampling (Saunders, Thornhill, & Lewis, 2000). According to Trochim (2006), however, there may be circumstances, as in this case,

where it is not feasible or practical to undertake probability sampling, especially in situations where a reliable sample frame does not exist. Here, too, the lack of a reliable sampling frame made it necessary to adopt a nonprobability-based purposive sampling procedure (see Patsiotis, Hughes, & Webber, 2012).

3.4. Data Collection

The data for this study was collected over August–November 2011 on a one-to-one basis from “willing respondents”.¹ The Hindi version of the questionnaire was personally administered to roughly 330 respondents with bank accounts in designated rural bank branches located around Aligarh city. Illiterate respondents were personally helped to complete the questionnaire after its contents and purpose were explained to them. In all, 307 completed questionnaires were returned; of these, 289 responses were found suitable for further analysis, giving a high response rate of 87.6 percent. The remaining questionnaires were discarded since they were incomplete in various respects.

The demographic profile of the respondents is as follows. Of a total sample size of 289 participants, the majority (179) were male (61.9 percent). A total of 131 (45.3 percent) were between the ages of 20 and 25. Most respondents were single (73.4 percent). Almost 39 percent were students, 21 percent belonged to the business class, and about 29 percent were farmers.

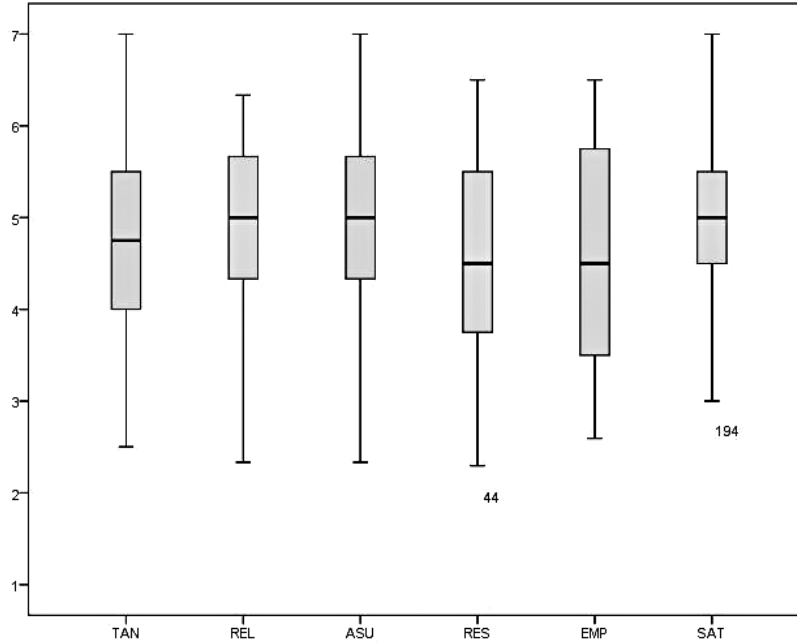
4. Analysis and Discussion

4.1. Data Preparation

The data was cleaned before proceeding with the final analysis. Coleby and Duffy (2005) posit that “outliers” should be reduced with the help of box plots, which graphically summarize much of the numerical data, including the median, inter-quartile range, outliers, maximum, and minimum. The inter-quartile range shows where the bulk of the data lies as well as the dispersion of the data (Brochado, 2009). Thus, outliers are detected with the help of box plots using SPSS (see Field, 2009). Figure 1 shows the box plots for each of the five dimensions of service quality and customer satisfaction.

¹ A “willing respondent” is defined as a rural bank customer who owns an account in a designated rural bank, maintains and operates it him/herself, and is voluntarily ready to undertake the survey.

Figure 1: Results of box plot



Note: TAN = tangibles, REL = reliability, ASU = assurance, RES = responsiveness, EMP = empathy, SAT = customer satisfaction.

Source: Author's calculations.

To test another problem with the data, i.e., that of multicollinearity, we calculate the variance inflation factor (VIF), which can be summarized as:

$$VIF(j) = 1 / (1 - R(j)^2)$$

where $R(j)$ is the multiple correlation coefficient between variable j and the other independent variables.

The VIF values for all the dimensions of service quality are shown in Table 1. A VIF value greater than 2 is usually considered problematic (Field, 2009). However, in the present case, all the VIF values are less than 2, ranging between 1.007 and 1.500. Thus, the data can be assumed to be free of the problem of multicollinearity.

4.2. Dimensional Analysis

We assume that customers can distinguish between the five dimensions of service quality and attach varying importance to each, as shown in Table 1.

Table 1: Perceptions of dimensions of service quality

Dimension	Rank	Mean	SD	VIF
Tangibles	3	4.65	0.89	1.476
Reliability	1	4.81	1.10	1.007
Assurance	2	4.79	1.03	1.028
Responsiveness	5	4.39	1.22	1.500
Empathy	4	4.43	1.38	1.051

Source: Author's calculations.

Reliability and assurance emerge as the two most important dimensions of service quality in the context of Indian rural retail banks, with mean scores of 4.81 and 4.79, respectively. Respondents perceive responsiveness as the least important, ranking it fifth with a mean score of 4.39. Standard deviations range from 0.89 to 1.38, which shows that the data is compact and less scattered.

4.3. Exploratory Factor Analysis

We use descriptive statistical techniques to refine and validate the service quality scale. As Table 2 shows, prior to the analysis, the suitability of the entire sample was tested for factor analysis, as recommended by Karatepe, Yavas, and Babakus (2005). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is above 0.500 and the Bartlett test of sphericity is significant at $p = 0.001$. The results of these tests indicate that the sample is suitable for factor analytic procedures. We conduct a factor analysis on a perception scale using the principal component method and varimax rotation. Based on Hair, Black, Babin, Anderson, and Tatham's (2006) study criterion, factors with eigenvalues greater than 1.0 and factor loadings equal to or greater than 0.50 are retained. In all, 13 items load cleanly onto the five dimensions of service quality as suggested by Cronin and Taylor (1992). Nine items are dropped altogether due to high cross-loadings, creating subconstructs or loading poorly on their respective latent variables.

Table 2: Preliminary analysis

Variable	Loading ^a	KMO	α^b	Loading ^c
Tangibles		0.663	0.694	
Up-to-date equipment	0.675			0.735
Neat employees	0.386*			X ^d
Physical facilities	0.652			0.820
Visual service material	0.551			0.806
Reliability		0.500	0.613	
Services delivered at promised time	0.643			0.803
Services delivered as promised	0.671**			X
Error-free records	0.647**			X
Service right the first time	0.727			0.803
Solving customer's problem	0.505			X
Assurance		0.500	0.639	
Trustworthy	0.587			0.801
Safe transaction	0.772			0.801
Courteous	0.352*			X
Knowledgeable	0.373*			X
Responsiveness		0.687	0.779	
Prompt service	0.687			0.792
Customer request	0.610			0.805
Informs in advance	0.648			0.727
Willing to help	0.457**			X
Empathy		0.743	0.693	
Individual attention	0.320*			X
Specific needs	0.665			0.678
Personal assistance	0.717			0.989
Operating hours	0.402**			X
Best interest	0.790			0.880

Note: a = factor loading of all items, b = Cronbach's alpha coefficient, c = factor loading of retained items only, X = item dropped, * = item deleted in first iteration, ** = item deleted in second iteration.

Source: Author's calculations.

4.4. Measurement of Reliability and Validity

In line with Karatepe et al. (2005), we carry out a reliability test of the constructs using Cronbach's (1951) alpha—a model of internal consistency based on the average inter-item correlation. An alpha (α) score above 0.6 is generally regarded as an acceptable minimum level of

accuracy for a construct (Hair et al., 2006). As evident from Table 2, the first factor (“tangibles”) was loaded with $\alpha = 0.694$. The second factor (“reliability”) consisted of five variables ($\alpha = 0.613$). The third and fourth factors (“assurance” and “responsiveness”) were loaded with $\alpha = 0.639$ and 0.779 , respectively. The fifth factor exhibited $\alpha = 0.693$, referring to the final construct, “empathy”. The cumulative reliability of the five-factor scale is $\alpha = 0.732$.

The validity of a scale can be defined as the extent to which differences in observed scale scores reflect the true differences among objects on the characteristic being measured rather than systematic or random error. In this study, we assessed the content validity of the measurement instrument by asking three subject experts to examine it and provide feedback. As already discussed, changes were made in line with the suggestions.

4.5. Overall Attitude Towards Customer Satisfaction

Since the five dimensions of SERVPERF collectively form the components that determine the satisfaction of rural retail banks, all five dimensions were taken as predictors while customer satisfaction was taken as the criterion variable.

Linear regression was carried out to analyze the impact of the independent variables on the dependent variable. Table 3 gives the results of the regression analysis. The adjusted R^2 is 0.713 , which indicates that, together, the five SERVPERF dimensions explain almost 71 percent of the variation in satisfaction. Of the five SERVPERF dimensions, all have a significant impact on satisfaction. In order of importance, these are:

1. Reliability ($\beta = 0.303$)
2. Assurance ($\beta = 0.281$)
3. Tangibles ($\beta = 0.257$)
4. Responsiveness ($\beta = 0.226$)
5. Empathy ($\beta = 0.179$)

Table 3: Results of regression analysis

Variable	Unstandardized coefficients (B)	Standard error	Standardized coefficients (β)	t-test	Sig.
Constant	-0.476	0.291	-	-2.531	0.035
Tangibles	0.307	0.089	0.257	3.285	0.031
Reliability	0.318	0.097	0.303	3.621	0.001
Assurance	0.314	0.091	0.281	3.686	0.002
Responsiveness	0.287	0.065	0.226	3.194	0.002
Empathy	0.189	0.062	0.179	2.280	0.029

Notes: Dependent variable: customer satisfaction. Adjusted $R^2 = 0.713$, $F = 87.239$, sig. = 0.001.

Source: Author's calculations.

5. Conclusions, Limitations, and Managerial Implications

5.1. Conclusions

At the outset, we have examined rural customers' perceptions of service quality and satisfaction. The five dimensions' individual mean scores were each greater than 4, indicating that respondents perceived rural bank service to be of high quality. Respondents attached greatest importance to reliability (mean = 4.81), followed by assurance (4.79). Responsiveness, with a mean score of 3.39, was ranked fifth. The study has also attempted to identify which dimension has the greatest influence on customer satisfaction. The results of the regression analysis revealed that reliability ($\beta = 0.303$) and assurance ($\beta = 0.281$) were the significant predictors of overall customer satisfaction.

The preliminary analysis suggests that the original 22-item SERVPERF scale fails as a test of universal applicability since it is not unidimensional. Due to poor factor loadings, high cross-loadings, or the creation of subconstructs within their respective latent variables, nine items were dropped at the preliminary analysis stage and further analyses were carried out on 13 items. The psychometric property of the 13-item scale was comparatively better than the original 22-item scale. This finding concurs with that of Adil and Khan (2011), where eight items were dropped and 14 items loaded cleanly onto five dimensions of service quality with better values than the original 22-item SERVPERF scale.

5.2. Limitations and Future Research

The first limitation of this study is that the sample is taken only from a particular region, i.e. Aligarh city, owing to which we should be careful when generalizing the findings. Second, the sample size is 289, which is very small in contrast to the actual number of patrons resident in rural India. Future researchers need to examine a wider sample covering rural customers from all walks of life. Third, this study has considered the impact of one factor (service quality) on customer satisfaction in rural banks. There may be other situational factors such as advertising, price, repurchase intention, and word-of-mouth recommendation. Subsequent empirical research should look at the impact of these factors on customer satisfaction. Finally, our results relate only to those respondents selected through convenience sampling, hence this study should be seen as a starting point that gives direction for future research and generalization to a wider population of the retail banking industry should be done with some caution.

5.3. Managerial Implications

With the advent of privatization and globalization, the banking industry in India is subject to intense competition from banks both within and outside the country. Therefore, banking professionals need to understand how different kinds of customers rate service quality and which critical dimensions contribute to improving it. Since reliability and assurance have emerged as the first and second most important predictors of satisfaction, bank managers should emphasize these dimensions of service quality. Taking their relevant cues, bank managers should emphasize customer-employee interaction in their communication strategies, and provide services at the promised time and the right services the first time. Employees should make customers feel safe when carrying out transactions and take a keen interest in solving their problems. Bank advertisements and other visual materials should emphasize improving the effectiveness of reliability and assurance of service quality in order to enhance the overall satisfaction of rural customers.

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The Relationship between Job Burnout and Gender-Based Socio-Demographic Characteristics in Lahore

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Abstract

Job burnout has been extensively researched in the international literature. Burnout is caused by personal and occupational factors. This study analyzes the impact of burnout with respect to different socio-demographic characteristics and job-related factors. Based on a sample randomly selected from various industries in the Lahore region, we use cross-tabulations to analyze the effects of burnout, and calculate the mean frequencies of the variables used. We measure three dimensions of burnout—emotional exhaustion, cynicism, and lack of personal accomplishment—using the Maslach Burnout Inventory-General Survey. The study finds that women score significantly on emotional exhaustion while men score higher on cynicism and lack of personal accomplishment, compared to all other socio-demographics. Education and work experience are strongly associated with burnout in women while age and income are significantly related to burnout in men. Women’s higher burnout scores are related to higher levels of education (graduates), less work experience (0–10 years), income (PKR 10,000–25,000), age (24–35 years), being self-employed, and working in the manufacturing industry. Among men, burnout is associated with white-collar (upper and lower) employee positions, work experience of 0–4 years, incomes of PKR 25,000 or more, and working in the services industry. Burnout is more significant among men than women with regard to marital status. Among job stressors, men and women are not significantly different with respect to role ambiguity, role conflict, organizational politics, autonomy, and work overload. Most of our results confirm the findings of other studies on job burnout, with the exception that the male respondents in this study experienced high burnout at an early age (24–29-year-old category), which could be due to ‘reality shocks’ or ‘early career burnout’.

Keywords: Burnout, emotional exhaustion, cynicism, personal efficacy.

JEL classification: M12, J16.

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1. Introduction

1.1. Defining burnout

An individual's job and working environment can create mental tension and stress. Common symptoms of mental disorders are anxiety, depression, and reduced self-esteem, while physical disorders can include headaches and stomachaches, and increase one's future risk of frequent illness (Yip & Rowlinson, 2007). Prolonged exposure to these symptoms can produce a number of negative effects such as reduced productivity, impaired performance, low levels of customer service, absenteeism, turnover, and other social problems (Van der Colff & Rothmann, 2009).

Burnout is a type of stress response most commonly displayed by individuals who have direct and intense contact with students, clients, or patients. It may arise when an individual tries to accomplish too much in too little time as a result of unrealistic deadlines, too many meetings or projects, and high expectations. While stress is not bad per se, all people have their limits and once they reach these limits, burnout is likely. Thus, job burnout is a psychological syndrome that involves a prolonged response to stressors in the workplace.

The term 'burnout' was coined by Freudenberger (1974), who observed that employees who came to the workplace motivated and interested in their jobs soon lost the energy and morale needed to cope with professional demands. The Maslach Burnout Inventory (MBI) defines burnout as "a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who do 'people work' of some kind" (Maslach, Schaufeli, & Leiter, 2001).

A widely accepted model, the MBI holds that burnout is characterized by three interrelated dimensions. The first—and a key component of burnout syndrome—is an increased feeling of emotional exhaustion. At this stage, the individual feels mentally drained and 'empty' or 'worn out'. Since his/her emotional resources are depleted, he/she is unable to perform as best possible. The second dimension is the development of negative, cynical feelings toward one's work or the recipients of one's services (Maslach & Jackson, 1986). The third aspect of the burnout syndrome is the tendency to evaluate oneself negatively with respect to one's work with clients (Jackson, Turner, & Brief, 1987). Several studies confirm these three phases of burnout (Cordes & Dougherty, 1993; Koeske & Koeske, 1989; Tripathy, 2002).

Initially, burnout was seen as occurring solely within “helping” professions such as nursing and education because Maslach et al. (2001) considered burnout to be a helper’s syndrome resulting from emotionally demanding relationships with clients. Such relationships are inherently difficult because human services professionals deal with troubled people who suffer and are in need. The former are likely to feel emotionally exhausted, to treat their clients as objects, and sometimes to even doubt their professional competence when dealing with clients. The introduction of the MBI-General Survey (MBI-GS) has, however, made it possible to measure the three dimensions independently of the services professional context (Maslach et al., 2001). Psychometrically, MBI-GS works well and has proven its validity and reliability in many countries, including the US, UK, Finland, and Spain, and across samples of office workers in occupations other than the services sector (Koeske & Koeske, 1989).

The purpose of this study is to explore the relationship between socio-demographic characteristics—including age, gender, and education, type of employment, work experience, time spent working, industry, and marital status—and the three levels of burnout in the Lahore region. Some of the organizational factors we include are work overload, role ambiguity, role conflict, organizational politics, and autonomy.

1.2. Research Questions

The study seeks to answer the following questions:

- What organizational and job factors (type of job, work experience, working arrangements, working hours, type of sector, and industry) predict the level of burnout in males and females?
- What individual factors (age, marital status, education, income, and occupational level) best predict the level of burnout in males and females?
- How do job stressors (role ambiguity, role conflict, work overload, organizational politics, autonomy, job security, and mental stimulation at work) affect gender and the level of burnout?

2. Literature Review

A stressful work environment that offers little or no opportunity for personal growth, has an overwhelming workload, and offers little or no support, can lead to burnout (Maslach et al., 2001). Other work environment-related factors leading to burnout include role conflict,

ambiguity, autonomy, lack of opportunity to participate in decision-making, and lack of control over one's job. Burnout is caused by organizational as well as individual factors. (Cherniss, 1993; Maslach & Schaufeli, 1993). This study explores both the individual and occupational factors that promote burnout.

2.1. Organizational Factors

Overload is the perception that there is too much work to complete in the given time; qualitative overload occurs when a worker's job requirements exceed his/her skill level (Sanders, Fulks, & Knoblett, 1995). Work overload drains the individual of emotional resources and energy, causing emotional exhaustion (Schaufeli, Leiter, & Maslach, 2008)—the first of the three components of burnout. Maslach et al. (2001) confirm that workload and time pressure are consistently and strongly related to job burnout.

Role conflict and role ambiguity are both precursors of burnout. As described by Rizzo, House, and Lirtzman (1970), role conflict occurs when an employee perceives a discrepancy between the expectations conveyed by different sources, while role ambiguity occurs when an employee is uncertain about his/her professional expectations. While earlier research established that role conflict and role ambiguity had an independent, direct causal relationship with burnout (Jackson, 1983), Kirk-Brown and Wallace (2004), in a study on workplace counselors, find that role ambiguity alone (and not role conflict) is a significant predictor of burnout.

Lack of autonomy, also described as lack of participation in decision-making, has also been shown to cause worker exhaustion (Maslach et al., 2001; Pines, Aronson, & Kafry, 1981). Lack of autonomy implies an uncontrollable environment; when employees feel that their environment is sufficiently uncontrollable, they resort to depersonalizing their relationships (Jackson et al., 1987). Cordes and Dougherty (1993) confirm that employees who work in impersonal, bureaucratic, rigid, or controlled work environments experience a higher level of burnout.

Interpersonal conflict has also been identified as a strong predictor of burnout, with some studies indicating that interaction with coworkers is the single most important source of job burnout (Schaufeli et al., 2008). According to Leiter and Maslach (2004), interpersonal contact can often be negative because of conflicts over organizational policies, conflicting personal values, or disagreements about how a job should be carried out. They also find that negative contact is linked to increased emotional

exhaustion, depersonalization, and decreased professional efficacy—all three components of burnout.

2.2. Socio-Demographic Factors

An additional aim of this research is to explore the relationship between socio-demographic characteristics—including age, gender, education, type of employment, work experience, time spent working, industry, and marital status—and burnout (Ahola, Honkonen, Isometsä, Kalimo, Nykyri, Koskinen et al., 2005). Many studies show that age is the most consistently related to burnout (Birch, Marchant, & Smith, 1986; Mor & Laliberte, 1984; Poulin & Walter, 1993; Bakker, Demerouti, & Schaufeli, 2002). Although burnout is observed more often among those aged over 30–40 years, other research suggests that burnout can also occur in younger professionals, explained by ‘early career burnout’ and ‘reality shocks’ (Cherniss, 1980). The MBI manual shows a decline in burnout levels with age or work experience for all three dimensions (Maslach, Jackson, & Leiter, 1996).

The relationship between burnout and gender is not so clear-cut. Some studies show that burnout occurs more often among females than among males (Maslach & Jackson, 1981; Poulin & Walter, 1993), while others argue the opposite (Burke, Greenglass, & Schwarzer, 1996; Price & Spence, 1994; Van Horn, Schaufeli, Greenglass, & Burke, 1997). However, females score higher on emotional exhaustion, while males score higher on depersonalization (Vredenburg, Carlozzi, & Stein, 1999; Schaufeli & Enzmann, 1998). According to Schaufeli and Enzmann (1998), being unmarried and more highly educated carries a greater burnout risk. Burnout has also been extensively investigated in services-based industries especially healthcare and teaching (Schaufeli & Buunk, 2005; Gundersen, 2001; Rutter, Herzberg, & Paice, 2002).

Marital status is significantly related to emotional exhaustion. In Maslach et al. (2001), people who were single or divorced scored higher than married people. We also find differences in the level of education for each of the MBI subscales. Higher education levels are associated with higher scores for emotional exhaustion while the reverse occurs for depersonalization, which is lowered by higher education levels. Graduates are found to score higher on personal accomplishments. The role of socio-demographic factors is, however, neither strong nor consistent. The most consistent and methodologically valid results relate burnout to work-related and organizational factors.

Geurts, Rutte, and Peeters (1999) and Sargent, Sotile, Sotile, Rubash, and Barrack (2004) find that longer working hours are associated with higher burnout among medical residents. Employees in social welfare tend to experience more burnout than those in education, healthcare, banking, industry, and the postal service (Matthews, 1999). Several studies have been carried out on burnout in healthcare (Felton, 1998) and education (Brouwers & Tomic, 2000; Burke et al., 1996; Mazur & Lynch, 1989), where the burnout level was higher than in other occupations. Among white-collar and blue-collar employees, there were no differences in the process or causes of burnout (job stressors) (Toppinen-Tanner, Kalimo, & Mutanen, 2002).

3. Methodology

3.1. Study Design

Our research design included a questionnaire on individual and job-related factors that was self-administered by the survey's respondents. The sample consisted of employees in organizations randomly chosen from the healthcare, education, manufacturing, and services industries in Lahore. Of 100 questionnaires that were given out, 11 were discarded because of missing or incomplete information. The questionnaire included the MBI-GS, assessed using a Likert scale rating.

3.2. Measures

Emotional exhaustion occurs when an individual feels completely drained and loses control of his or her emotions (Maslach et al., 2001). It has physical, emotional, intellectual, and social elements. In this study, we use the emotional exhaustion subscale of the MBI-GS to measure exhaustion. We define cynicism as the indifference of a worker as he/she depersonalizes his/her work. Given that the literature on burnout uses the term cynicism interchangeably with depersonalization, we use the cynicism subscale of the MBI-GS to measure depersonalization.

Professional inefficacy refers to a worker's perception that he/she is a failure and/or has few feelings about his/her accomplishments and/or competence. In the literature, professional inefficacy is used interchangeably with lack of personal accomplishment. In this study, we measure inefficacy on the professional efficacy subscale of the MBI-GS. The items are scored on a seven-point scale ranging from 1 (a few times a year) to 6 (everyday). The percentile scores of emotional exhaustion, cynicism,

and personal efficacy identify high, moderate, and low burnout scores. High scores on exhaustion and cynicism and low scores on professional efficacy are indicative of burnout.

Role ambiguity, role conflict, work overload, organizational politics, and autonomy are assessed using a Likert-scale rating. The other variables used are gender, age, level of basic and vocational education, working time arrangements, number of hours worked per week, marital status, and industry.

Gender is divided into male and female. Marital status is divided into married and unmarried (including widowed, divorced, or single). Basic education is classified into below secondary, secondary to intermediate, and graduate. Vocational education is classified as one course or less, school, institution, or higher education. Socioeconomic status comprises income and occupational level, where the latter is defined as self-employed, upper white-collar, lower white-collar, and blue-collar. Classification of income also defines the level of occupation with income intervals.

Working time arrangements include regular day jobs, regular evening/night jobs, shift work, and others. Weekly hours are classified as part-time (less than 37 hours), normal (37–40 hours), regular overtime (41–54 hours), or abundant overtime (55–70 hours). Types of employees are defined by the sector in which they work in—public or private. Working industries are classified as education (teachers), health (doctors and nurses), manufacturing (managers, staff members), services (banking, logistics), or others. The distribution of the continuous variables age and work experience are portioned into five equal parts at a 20 percent interval.

3.3. Sample Composition

The final study sample comprised 89 workers, after 11 questionnaires were eliminated on the grounds of incomplete data. Out of 89, 55 (61 percent) were male and 34 (38 percent) female. The largest age group included young adults aged 24–29 (47.2 percent). Fifty percent of the participants were married and about the same were unmarried. More than half the participants were university graduates (70 percent). Thirty percent of the respondents earned PKR 40,000, while 32 percent earned PKR 10,000–25,000. Forty-seven percent were classified as lower white-collar employees, 21 percent as upper white-collar, 17 percent as self-employed, and 14 percent as blue-collar employees. About 37 percent had 0–4 years'

work experience, followed by 24 percent with 5–10 years' experience. Thirty percent worked in the public sector while 70 percent belonged to the private sector. Within industries, 30 percent worked in manufacturing, 24 percent in services, 15 percent in banking, 12 percent in education, 10 percent in social services, and 5 percent in hospitals.

3.4. Research Hypotheses

Overwhelmingly, the literature supports the conceptualization of burnout as a three-component construct. Emotional exhaustion, cynicism (depersonalization), and the perception of professional inefficacy (lack of personal accomplishment) are repeatedly demonstrated to be the three dimensions of burnout. Studies on burnout consistently consider the phenomenon by measuring these three variables. The null hypotheses formulated for this study are as follows:

- Hypothesis 1: There is no significant relationship between gender and burnout.
- Hypothesis 2: There is no significant relationship between age, level of burnout, and gender.
- Hypothesis 3: There is no significant relationship between education, level of burnout, and gender.
- Hypothesis 4: There is no significant relationship between working status, level of burnout, and gender.
- Hypothesis 5: There is no significant relationship between work experience, level of burnout, and gender.
- Hypothesis 6: There is no significant relationship between marital status, level of burnout, and gender.
- Hypothesis 7: There is no significant relationship between household income, level of burnout, and gender.
- Hypothesis 8: There is no significant relationship between sector, level of burnout, and gender.
- Hypothesis 9: There is no significant relationship between industry, level of burnout, and gender.
- Hypothesis 10: There is no significant relationship between role ambiguity and gender.
- Hypothesis 11: There is no significant relationship between role conflict and gender.

- Hypothesis 12: There is no significant relationship between work overload and gender.
- Hypothesis 13: There is no significant relationship between organizational politics and gender.
- Hypothesis 14: There is no significant relationship between autonomy and gender.

4. Statistical Analysis

The data was analyzed using SPSS 10, applying cross-tabulations to analyze the effects of burnout. Socioeconomic factors and stressors are treated as independent variables while burnout variables are treated as dependent variables. We calculate the means frequencies of all the variables, followed by the cross-means between the level of burnout, gender, and other socio-demographic factors. Since burnout is a combination of three aspects, we generate three tables to discuss each hypothesis. Differences between genders are analyzed in percentages. An observed N is excluded to eliminate the possibility of bias between greater or fewer observations of any specific variable, easing the analysis. Chi-squares are used to analyze the significance of the cross-tabulations.

4.1. Data Analysis

Table 1 shows that most males (63.6 percent) and females (67.5 percent) felt their jobs were secure; 11.8 percent of females and 12.7 percent of males thought their jobs were not secure. Twenty-two percent of the total sample gave no opinion about their job security. An overwhelming majority of respondents (96.4 percent of females and 94.1 percent of males) said they felt respected at work, while 2.9 percent of females felt they were not. Around 65.5 percent of males and 67.6 percent of females said they were mentally stimulated at work, while 18.2 percent of males and 14.7 percent of females said they were not. The chi-square is insignificant for job security, respect at work, and mental stimulation at work ($p > 0.005$).

Table 1: Gender cross-tabulation

Response		Males (%)	Females (%)	Total (%)
I feel that my job is secure	Yes	63.6	67.6	65.2
	No opinion	23.6	20.6	22.5
	No	12.7	11.8	12.4
Total		100.0	100.0	100.0
Chi-square: 0.926				
I feel respected at work	Yes	96.4	94.1	95.5
	No opinion	3.6	2.9	3.4
	No		2.9	1.1
Total		100.0	100.0	100.0
Chi-square: 0.436				
I feel stimulated at work	Yes	65.5	67.6	66.3
	No opinion	16.4	17.6	16.9
	No	18.2	14.7	16.9
Total		100.0	100.0	100.0
Chi-square: 0.911				

Source: Author's calculations.

Hypothesis 1: There is no significant relationship between gender and burnout.

Table 2 shows that, in the first phase of burnout, 23.5 percent of females and 3.6 percent of males score high on emotional exhaustion. Cynicism or depersonalization is high among 12.7 percent of males compared to 2.9 percent of females. In the last phase of burnout, lack of personal accomplishment is higher among males (23.6 percent) than females (17.6 percent). The chi-square is significant for emotional exhaustion ($p = 0.001$) but insignificant for cynicism and personal efficacy ($p = 0.632$ and 0.794 , respectively).

Table 2: Burnout * gender cross-tabulation

Response		Males (%)	Females (%)	Total (%)
Emotional exhaustion	High	3.6	23.5	11.2
	Moderate	34.5	50.0	40.4
	Low	61.8	26.5	48.3
Total		100.0	100.0	100.0
Chi- square: 0.001				
Cynicism	High	12.7	2.9	9.0
	Moderate	29.1	20.6	25.8
	Low	58.2	76.5	65.2
Total		100.0	100.0	100.0
Chi-square: 0.632				
Personal accomplishment	High	23.6	17.6	21.3
	Moderate	58.2	61.8	59.6
	Low	18.2	20.6	19.1
Total		100.0	100.0	100.0
Chi-square: 0.794				

Source: Author's calculations.

Hypothesis 2: There is no significant relationship between age, level of burnout, and gender.

As Table 3 shows, emotional exhaustion is high among males aged 24–29 years (11.1 percent), and among females aged 24–28 years (20.8 percent), 30–35 years (33.3 percent), and 36–41 years (20.0 percent). It is highest among females aged 48–52 years (50.0 percent). The opposite is true for cynicism, which is highest among males aged 24–29 years (33.3 percent), followed by those aged 30–41 years (14.3 percent) and 42–47 years (11.1 percent). Among females, cynicism is high among those aged 24–29 years (12.5 percent) and the middle-age category (48–52 years). Lack of personal accomplishment becomes higher after 42–64 years. Among females, lack of personal accomplishment is higher among 30–35-year-olds (33.3 percent) than 24–29-year-olds (20.8 percent). The chi-square is significant for males for cynicism and personal efficacy.

Table 3: Burnout * gender cross-tabulation

Percentage by age			Age (years)					Total	
			24-29	30-35	36-41	42-47	48-52		53-64
Males	Emotional exhaustion	High	11.1						11.2
		Moderate	44.4	57.1	57.1		20.0	25.0	40.4
		Low	44.4	42.9	42.9	100.0	80.0	75.0	48.3
	Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Chi-square: 0.113						
Females	Emotional exhaustion	High	20.8	33.3	20.2		50.0		23.5
		Moderate	54.2	33.3	40.0		50.0		50.0
		Low	25.0	33.3	40.0				26.5
	Total		100.0	100.0	100.0		100.0	100.0	100.0
			Chi-square: 0.909						
Males	Cynicism	High	33.3	14.3	14.3	11.1			16.4
		Moderate	50.0	14.3	14.3	11.1	30.0	25.0	29.1
		Low	16.7	71.4	71.4	77.8	70.0	75.0	54.5
	Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Chi-square: 0.063						
Females	Cynicism	High	12.5				50.0		11.8
		Moderate	25.0	33.3	20.0				23.5
		Low	62.5	66.7	80.0		50.0		64.7
	Total		100.0	100.0	100.0		100.0		100.0
			Chi-square: 0.630						
Males	Personal accomplishment	High	11.1			55.6	40.0	50.0	23.6
		Moderate	66.7	57.1	85.7	22.2	60.0	50.0	58.2
		Low	22.2	42.9	14.3	22.2			18.2
	Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Chi-square: 0.039						
Females	Personal accomplishment	High	20.8	33.3					17.6
		Moderate	62.5	33.3	60.0		100.0		61.8
		Low	16.7	33.3	40.0				20.6
	Total		100.0	100.0	100.0		100.0		100.0
			Chi-square: 0.622						

Source: Author's calculations.

Hypothesis 3: There is no significant relationship between education, level of burnout, and gender.

This hypothesis relates education to the level of burnout between genders. Table 4 shows that, among males, graduates report high emotional exhaustion (5.7 percent). Among females, graduates (24.1 percent) as well as those with below secondary-level education (25.0 percent) report high emotional exhaustion. Male graduates (22.9 percent) and those with below secondary-level education (11.1 percent) score high

on cynicism, as do female graduates (6.9 percent) and those with below secondary-level education (50.0 percent). In the lack of personal accomplishment category, males with below secondary-level education score highest (55.6 percent), followed by secondary to intermediate (36.4 percent) and graduates (11.4 percent). Female graduates score high on lack of personal accomplishment (20.7 percent). The chi-square term is significant for males for cynicism and personal efficacy.

Table 4: Burnout * education * gender cross-tabulation

Percentage within education			Education			Total
			Below secondary	Secondary	Graduate	
Males	Emotional exhaustion	High			5.7	3.6
		Moderate	11.1	36.4	40.0	34.5
		Low	88.9	63.6	54.3	61.8
	Total	100.0	100.0	100.0	100.0	
			Chi-square: 0.369			
Females	Emotional exhaustion	High	25.0		24.1	23.5
		Moderate	75.0	100.0	44.8	50.0
		Low			31.0	26.5
	Total	100.0	100.0	100.0	100.0	
			Chi-square: 0.566			
Males	Cynicism	High	11.1		22.9	16.4
		Moderate		45.5	31.4	29.1
		Low	88.9	54.5	45.7	54.5
	Total	100.0	100.0	100	100.0	
			Chi-square: 0.061			
Females	Cynicism	High	50.0		6.9	11.8
		Moderate			27.6	23.5
		Low	50.0	100.0	65.5	64.7
	Total	100.0	100.0	100.0	100.0	
			Chi-square: 0.117			
Males	Personal accomplishment	High	55.6	36.4	11.4	23.6
		Moderate	33.3	63.6	62.9	58.2
		Low	11.1		25.7	18.2
	Total	100.0	100.0	100.0	100.0	
			Chi-square: 0.023			
Females	Personal accomplishment	High			20.7	17.6
		Moderate	75.0		62.1	61.8
		Low	25.0	100.0	17.2	20.6
	Total	100.0	100.0	100.0	100.0	
			Chi-square: 0.285			

Source: Author's calculations.

Hypothesis 4: There is no significant relationship between working status, level of burnout, and gender.

As Table 5 shows, 10.0 percent of upper white-collar and 4.0 percent of lower white-collar male employees report high emotional exhaustion. Among females, 44.4 percent of upper white-collar, 11.8 percent of lower white-collar, and 25.0 percent of self-employed individuals indicate high emotional exhaustion, which is thus high among females. In the second phase of burnout, males report high levels of cynicism for all job positions while it is also high among self-employed females. Males across all job positions report a high lack of personal accomplishment (28.6 percent), while self-employed females score highest in this category (25 percent). Females score significantly on emotional exhaustion and cynicism, while males score significantly on personal efficacy.

Table 5: Burnout * job position * gender cross-tabulation

Percentage within job position			Job position				Total
			Self-employed	Upper white-collar	Lower white-collar	Blue-collar	
Males	Emotional exhaustion	High		10.0	4.0		3.6
		Moderate	42.9	40.0	32.0	30.8	34.5
		Low	57.1	50.0	64.0	69.2	61.8
	Total		100.0	100.0	100.0	100.0	100.0
			Chi-square: 0.861				
Females	Emotional exhaustion	High	25.0	44.4	11.8		23.5
		Moderate	75.0	22.2	52.9		50.0
		Low		33.3	35.3		26.5
	Total		100.0	100.0	100.0		100.0
			Chi-square: 0.096				
Males	Cynicism	High	14.3	20.0	16.0	15.4	16.4
		Moderate	42.9	30.0	24.0	30.8	29.1
		Low	42.9	50.0	60.0	53.8	54.5
	Total		100.0	100.0	100.0	100.0	100.0
			Chi-square: 0.061				
Females	Cynicism	High	37.5		5.9		11.8
		Moderate	25.0	44.4	11.8		23.5
		Low	37.5	55.6	82.4		64.7
	Total		100.0	100.0	100.0		100.0
			Chi-square: 0.979				
Males	Personal accomplishment	High	28.6	10.0	16.0	46.2	23.6
		Moderate	71.4	40.0	68.0	46.2	58.2

Percentage within job position			Job position				Total
			Self-employed	Upper white-collar	Lower white-collar	Blue-collar	
Total	Low		50.0	16.0	7.7	18.2	
			100.0	100.0	100.0	100.0	
			Chi-square: 0.036				
Females	Personal accomplishment	High	25.0	11.1	17.6	17.6	
		Moderate	75.0	66.7	64.7	61.8	
		Low	25.0	22.2	17.6	20.6	
Total			100.0	100.0	100.0	100.0	
			Chi-square: 0.930				

Source: Author's calculations.

Hypothesis 5: There is no significant relationship between work experience, level of burnout, and gender.

Table 6 shows that emotional exhaustion is highest among males with the least work experience—0–4 years (7.1 percent) and 5–10 years (7.7 percent). It is highest among females with 11–16 years' work experience (40 percent) and 11.1 percent and 21.1 percent for 5–10 and 0–4 years' work experience, respectively. Males report high cynicism corresponding to work experience of 0–4 years (21.4 percent), 5–10 years (23.1 percent), 11–16 years (14.3 percent), and 17–24 years (12.5 percent), while females score less than males across 0–16 years of work experience. Lack of personal accomplishment is highest (62.5 percent) among males with 17–24 years' work experience. Females with work experience of 0–4 years score highest (28.3 percent) in this category. Males score significantly on emotional exhaustion, cynicism, and personal efficacy.

Table 6: Burnout * work experience * gender cross-tabulation

Percentage within work experience			Work experience (years)					Total
			0-4	5-10	11-16	17-24	25-50	
Males	Emotional exhaustion	High	7.1	7.7				3.6
		Moderate	42.9	61.5	35.7			34.5
		Low	50.0	30.8	64.3	100.0	100.0	61.8
Total			100.0	100.0	100.0	100.0	100.0	
			Chi-square: 0.048					
Females	Emotional exhaustion	High	21.1	11.1	40.0		100.0	23.5
		Moderate	47.4	66.7	40.0			50.0
		Low	31.6	22.2	20.0			26.5

Percentage within work experience			Work experience (years)					
			0-4	5-10	11-16	17-24	25-50	Total
Total			100.0	100.0	100.0		100.0	100.0
			Chi-square: 0.491					
Males	Cynicism	High	21.4	23.1	14.3	12.5		16.4
		Moderate	57.1	30.8	21.4	12.5		29.1
		Low	21.4	46.2	64.3	75.0	100.0	54.5
Total			100.0	100.0	100.0	100.0	100.0	100.0
			Chi-square: 0.073					
Females	Cynicism	High	5.3	11.1	20.0		100.0	11.8
		Moderate	26.3	22.2	20.0			23.5
		Low	68.4	66.7	60.0			64.7
Total			100.0	100.0	100.0		100.0	100.0
			Chi-square: 0.195					
Males	Personal accomplishment	High	14.3		28.6	62.5	33.3	23.6
		Moderate	71.4	61.5	50.0	37.5	66.7	58.2
		Low	14.3	38.5	21.4			18.2
Total			100.0	100.0	100.0	100.0	100.0	100.0
			Chi-square: 0.042					
Females	Personal accomplishment	High	28.3	11.1				17.6
		Moderate	57.9	66.7	60.0		100.0	61.8
		Low	15.8	22.2	40.0			20.6
Total			100.0	100.0	100.0		100.0	100.0
			Chi-square: 0.710					

Source: Author's calculations.

Hypothesis 6: There is no significant relationship between marital status, level of burnout, and gender.

As Table 7 shows, 12.5 percent of unmarried males report high emotional exhaustion while 21.4 percent of unmarried females, compared to 33 percent of married females, indicate the same. Cynicism is higher among unmarried males (18.8 percent) than married males (15.4 percent), while 14.3 percent of unmarried females also report feeling a high level of cynicism. Lack of personal accomplishment is higher among married males (30.8 percent) than among unmarried males (6.3 percent). More unmarried females rate their sense of accomplishment negatively (17.9 percent) than married females (16.7 percent). The chi-square term reveals that males score significantly on emotional exhaustion, cynicism, and personal efficacy.

Table 7: Burnout * marital status * gender cross-tabulation

Percentage within marital status			Marital status		Total
			Married	Unmarried	
Males	Emotional exhaustion	High		12.5	3.6
		Moderate	28.2	50.0	34.5
		Low	71.8	37.5	61.8
	Total	100.0	100.0	100.0	
			Chi-square: .014		
Females	Emotional exhaustion	High	33.3	21.4	23.5
		Moderate	50.0	50.0	50.0
		Low	16.7	28.6	26.5
	Total	100.0	100.0	100.0	
			Chi-square: 0.755		
Males	Cynicism	High	15.4	18.8	16.4
		Moderate	15.4	62.5	29.1
		Low	69.2	18.8	54.5
	Total	100.0	100.0	100.0	
			Chi-square: 0.073		
Females	Cynicism	High		14.3	11.8
		Moderate	50.0	17.9	23.5
		Low	50.0	67.9	64.7
	Total	100.0	100.0	100.0	
			Chi-square: 0.195		
Males	Personal accomplishment	High	30.8	6.3	23.6
		Moderate	48.7	81.3	58.2
		Low	20.5	12.5	18.2
	Total	100.0	100.0	100.0	
			Chi-square: 0.069		
Females	Personal accomplishment	High	16.7	17.9	17.6
		Moderate	50.0	64.3	61.8
		Low	33.3	17.9	20.6
	Total	100.0	100.0	100.0	
			Chi-square: 0.690		

Source: Author's calculations.

Hypothesis 7: There is no significant relationship between household income, level of burnout, and gender.

Table 8 shows that males earning more than PKR 25,000 report high emotional exhaustion (11.1 and 5.6 percent), whereas females from the lowest income group (50 percent) indicate high emotional exhaustion. Females earning PKR 10,000 and above report lower emotional exhaustion

(23.1, 20.0, and 33.3 percent). Males with an income above PKR 25,000 report cynicism (22.2 percent), while fewer with a smaller income do so (18.2 percent earning PKR 5,000 and 18.8 percent earning PKR 10,000). There is higher cynicism among females with an income level of PKR 5,000 (20 percent) and PKR 10,000 (23.1 percent). A high lack of efficacy is found among males with an income level of PKR 5,000 (45.5 percent), which decreases progressively (25 percent at PKR 10,000, and 16.7 percent at PKR 40,000) indicating that males with a higher income level feel less need to gain a sense of personal accomplishment. Among females, lack of personal efficacy is highest at an income level of PKR 5,000 (50 percent), decreasing to 20 percent at PKR 25,000–40,000. The chi-square is insignificant for all levels of burnout.

Table 8: Burnout * household income * gender cross-tabulation

			Household income (PKR)					Total
			5,000 >	5,001-10,000	10,001-25,000	25,001-40,000	40,001 <	
Males	Emotional exhaustion	High				11.1	5.6	3.6
		Moderate	100.0	27.3	50.0	33.3	22.2	34.5
		Low		72.7	50.0	55.6	72.2	61.8
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Chi-square: 0.488					
Females	Emotional exhaustion	High	50.0		23.1	20.0	33.3	23.5
		Moderate	50.0	60.0	53.8	80.0	22.2	50.0
		Low		40.0	23.1		44.4	26.5
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Chi-square: 0.439					
Males	Cynicism	High		18.2	18.8	22.2	11.1	16.4
		Moderate	100.0	18.2	37.5	33.3	22.2	29.1
		Low		63.6	43.8	44.4	66.7	54.5
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Chi-square: 0.719					
Females	Cynicism	High		20.0	23.1			11.8
		Moderate	50.0	40.0	15.4	60.0		23.5
		Low	50.0	40.0	61.5	40.0	100.0	64.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Chi-square: 0.118					
Males	Personal accomplishment	High		45.5	25.0	11.1	16.7	23.6
		Moderate	100.0	36.4	62.5	66.7	61.1	58.2
		Low		18.2	12.5	22.2	22.2	18.2
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Chi-square: 0.700					

Percentage within household income			Household income (PKR)					Total
			5,000 >	5,001-10,000	10,001-25,000	25,001-40,000	40,001 <	
Females	Personal accomplishment	High	50.0	20.0	23.1	20.0	17.6	
		Moderate	50.0	60.0	61.5	60.0	66.7	
		Low		20.0	15.4	20.0	33.3	
Total			100.0	100.0	100.0	100.0	100.0	

Chi-square: 0.819

Source: Author’s calculations.

Hypothesis 8: There is no significant relationship between sector, level of burnout, and gender.

As Table 9 indicates, males employed in the public sector are subject to high emotional exhaustion (6.75 percent) compared to 2.5 percent in the private sector. Among females, 27 percent working in the public sector report high emotional exhaustion compared to 21 percent in the private sector. Cynicism is higher among males in the public sector (20 percent) than in the private sector (15 percent), and a similar trend applies to females with 18.2 percent for the public sector and 8.7 percent for the private sector. A larger proportion of males in the private sector report a high lack of personal accomplishment (25 percent) than in the public sector (20 percent). Females working in the public sector, however, indicate a high lack of personal accomplishment (36.4 percent) compared to 8.7 percent in the private sector. This implies that males in the public sector and females in the private sector are more driven than their counterparts in the private and public sectors, respectively. However, burnout is higher in the public sector than in the private sector. Neither the public nor private sector is significant.

Table 9: Burnout * sector * gender cross-tabulation

Percentage within sector			Sector		Total
			Public	Private	
Males	Emotional exhaustion	High	6.7	2.5	3.6
		Moderate	40.0	32.5	34.5
		Low	53.3	65.0	61.8
	Total	100.0	100.0	100.0	
Chi-square: 0.625					
Females	Emotional exhaustion	High	27.3	21.7	23.5
		Moderate	63.6	43.5	50.0
		Low	9.1	34.8	26.5
	Total	100.0	100.0	100.0	

Percentage within sector			Sector		Total
			Public	Private	
			Chi-square: 0.278		
Males	Cynicism	High	20.0	15.0	16.4
		Moderate	40.0	25.0	29.1
		Low	40.0	60.0	54.5
	Total	100.0	100.0	100.0	
			Chi-square: 0.404		
Females	Cynicism	High	18.2	8.7	11.8
		Moderate	18.2	26.1	23.5
		Low	63.6	65.2	64.7
	Total	100.0	100.0	100.0	
			Chi-square: 0.681		
Males	Personal accomplishment	High	20.0	25.0	23.6
		Moderate	60.0	57.5	58.2
		Low	20.0	17.5	18.2
	Total	100.0	100.0	100.0	
			Chi-square: 0.921		
Females	Personal accomplishment	High	36.4	8.7	17.6
		Moderate	54.5	65.2	61.8
		Low	9.1	26.1	20.6
	Total	100.0	100.0	100.0	
			Chi-square: 0.110		

Source: Author's calculations.

Hypothesis 9: There is no significant relationship between industry, level of burnout, and gender

Table 10 shows that, for males, emotional exhaustion is highest in the services sector (12.5 percent), while for females it is highest in the manufacturing sector (60 percent), followed by 33.3 percent in services, 20.0 percent in education, and 12.5 percent in social services. Males employed in the services sector report the highest level of cynicism (31.3 percent), followed by 25 percent in hospitals, 20.0 percent in banking, and 4.5 percent in manufacturing. For females, cynicism is highest among employees in the manufacturing sector (40 percent) followed by the services sector (33.3 percent). Lack of personal accomplishment is highest in the manufacturing sector (40 percent) for males, followed by 25 percent in hospitals, and 12.5 percent in services. Females score highest in the education sector (30 percent) in this category, followed by manufacturing (20 percent), and 12.5 percent in services. The chi-square is only significant for cynicism.

Table 10: Burnout * industry * gender cross-tabulation

Percentage within sector			Sector					Total	
			Educ.	Hospital	Manuf.	Banking	Social services		
Males	Emotional exhaustion	High					12.5	3.7	
		Moderate		50.0	18.2	50.0	100.0	43.8	35.2
		Low	100.0	50.0	81.8	50.0		43.8	61.1
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
			Chi-square: 0.236						
Females	Emotional exhaustion	High	20.0		60.0		12.5	12.5	3.7
		Moderate	40.0	100.0	20.0	75.0	50.0	43.8	35.2
		Low	40.0		20.0	25.0	37.5	43.8	61.1
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
			Chi-square: 0.428						
Males	Cynicism	High		25.0	4.5	20.0		31.3	16.7
		Moderate		50.0	18.2	60.0	100.0	18.8	29.6
		Low	100.0	25.0	77.3	20.0		50.0	53.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
			Chi-square: 0.059						
Females	Cynicism	High			40.0			33.3	11.8
		Moderate	10.0	100.0	40.0	25.0	25.0	16.7	23.6
		Low	90.0		20.0	75.0	75.0	50.0	53.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
			Chi-square: 0.099						
Males	Personal accomplishment	High		25.0	40.9	10.0		12.5	24.1
		Moderate	100.0	75.0	54.5	70.0	100.0	43.8	57.4
		Low			4.5	20.0		43.8	18.5
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
			Chi-square: 0.118						
Females	Personal accomplishment	High	30.0	100.0	20.0		12.5		17.6
		Moderate	40.0		80.0	100.0	62.5	66.7	61.8
		Low	30.0				25.0	33.3	20.6
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
			Chi-square: 0.269						

Source: Author's calculations.

Hypothesis 10: There is no significant relationship between role ambiguity and gender.

Table 11 shows that 20 percent of males report positive indications of role ambiguity compared to 11 percent of females. Around 60 percent of males and 61.85 percent of females feel clear about their job roles. The chi-square is insignificant.

Table 11: Gender and role ambiguity

Percentage within gender		Gender		Total (%)
		Males (%)	Females (%)	
My work is prioritized; not everything is an "emergency."	Yes	65.5	61.8	64.0
	No opinion	14.5	26.5	19.1
	No	20.0	11.8	16.9
Total		100.0	100.0	100.0

Chi-square: 0.296

Source: Author's calculations.

Hypothesis 11: There is no significant relationship between role conflict and gender.

As Table 12 indicates, around 50.9 percent of males agree that they are subject to role conflict; this figure is smaller for females (44.1 percent). About 25.5 percent of males and 20.6 percent of females do not feel they are caught up in role conflict. The chi-square is insignificant.

Table 12: Gender and role conflict

Percentage within gender		Gender		Total (%)
		Males (%)	Females (%)	
I get mixed messages from different people about what I should be doing with my time.	Yes	50.9	44.1	48.3
	No opinion	23.6	35.3	28.1
	No	25.5	20.6	23.6
Total		100.0	100.0	100.0

Chi-square: 0.490

Source: Author's calculations.

Hypothesis 12: There is no significant relationship between work overload and gender.

Table 13 indicates that 64.7 percent of females and 41.8 percent of males feel they are overloaded by work at their jobs, while 43.6 percent of males and 26.5 percent of females disagreed. The chi-square is insignificant.

Table 13: Work overload and gender

Percentage within gender		Gender		Total (%)
		Males (%)	Females (%)	
I have too much work to complete in the given timeframe.	Yes	41.8	64.7	50.6
	No opinion	14.5	8.8	12.4
	No	43.6	26.5	37.1
Total		100.0	100.0	100.0

Chi-square: 0.111

Source: Author's calculations.

Hypothesis 13: There is no significant relationship between organizational politics and gender.

Table 14 shows that 36.4 percent of males report that organizational politics interfere in their work; among females, this figure is smaller (29.4 percent). The chi-square is not significant.

Table 14: Organizational politics and gender

Percentage within gender		Gender		Total
		Males (%)	Females (%)	
Organizational politics interfere with my work.	Yes	36.4	29.4	33.7
	No opinion	20.0	26.5	22.5
	No	43.6	44.1	43.8
Total		100.0	100.0	100.0

Chi-square: 0.707

Source: Author's calculations.

Hypothesis 14: There is no significant relationship between autonomy and gender.

As Table 15 shows, 80 percent of males and 73.5 percent of females say they have autonomy at work. Around 11 percent of the sample contends that they do not have enough autonomy and flexibility at work. The chi-square is insignificant for autonomy with regard to gender.

Table 15: Autonomy and gender

Percentage within gender		Gender		Total (%)
		Males (%)	Females (%)	
I participate in decisions about how I do my work	Yes	80.9	73.5	77.5
	No opinion	10.9	14.7	12.4
	No	9.1	11.8	10.1
Total		100.0	100.0	100.0

Chi-square: 0.776

Source: Author's calculations.

4.2. Results

We have investigated the level of burnout in relation to different socio-demographic factors in a Lahore city population study. As a three-dimensional syndrome, it is difficult to determine which factor affects burnout, but the level of burnout can be easily assessed. Women score significantly on emotional exhaustion while males score higher on cynicism and lack of personal accomplishment compared to other socio-demographics. Education and work experience are strongly associated with females while age and income are significant factors for males.

Women's higher burnout scores are related to higher levels of education (graduates) and less work experience (0–10 years) and smaller income levels (PKR 10,000–25,000), age (24–35 years), being self-employed, and working in the manufacturing sector. Among men, burnout is related to white-collar (upper and lower) employee positions, work experience of 0–4 years, income levels of PKR 25,000 and over, and working in the services sector. Burnout is significant among males compared to females with regard to marital status. With regard to job stressors, males and females are not significantly different in their responses to role ambiguity, role conflict, organizational politics, autonomy, and work overload.

5. Discussions and Conclusion

5.1. Discussion

In contrast to our findings, in the literature burnout is positively related to age (Birch et al., 1996; Mor & Laliberte, 1984; Poulin & Walter, 1993; Bakker et al., 2002). There may be several reasons for this. First, in Lahore, individuals may face 'early career burnout' and reality shocks (Cherniss, 1980). Reality shocks are explained by the breakdown of

perception that exists in an individual before he/she is exposed to a working environment. The MBI manual shows a decline in burnout levels with age or work experience for all three dimensions (Maslach et al., 1996).

Overall, women score higher on emotional exhaustion while men score higher on cynicism. This finding is supported by Vredenburg et al. (1999) and Schaufeli and Enzmann (1998). We also find higher burnout among unmarried males and females, and among those with higher levels of education and those employed in the services sector. According to Schaufeli and Enzmann (1998), a higher risk of burnout is associated with being unmarried and having a higher level of education. Graduates scored higher on personal accomplishment, while marital status was significantly related to emotional exhaustion. In contrast, people who were single or divorced scored higher than those who were married, as shown by Maslach et al. (2001). We found differences by level of education for each of the MBI subscales. Higher levels of education were associated with higher scores for emotional exhaustion while the reverse pattern emerged for depersonalization.

Burnout has been extensively investigated in services-based industries, especially healthcare and teaching (see Khattak, Khan, Haq, Arif, & Minhas, 2011; Schaufeli & Buunk, 2005; Gundersen, 2001; Rutter et al., 2002). According to this research, females working in the manufacturing sector are more prone to burnout while males employed in the services industry are more vulnerable to burnout. This argument is supported by several studies on burnout in healthcare (Felton, 1998) and education (Brouwers & Tomic, 2000; Burke et al., 1996; Mazur & Lynch, 1989), where the burnout level was higher than in other occupations. Among men, burnout is associated with white-collar (upper and lower) employee positions. Toppinen-Tanner et al. (2002) find that there are no differences between white-collar and blue-collar employees in the process of burnout while the work-related precursors of burnout (i.e., job stressors) are very similar for both groups.

5.2. Study Limitations

The research on burnout is subject to certain limitations. First, employees who are highly burnt out tend to avoid filling in questionnaires, due to which the level of burnout falls to between low and moderate, indicating that employees have scored higher on the first and/or second dimensions of burnout. Second, this research was based on a cross-sectional setting. It was difficult to take the cohort effect and the actual

development of the work career into consideration, which could have been done with the use of longitudinal data.

Burnout among different socio-demographic factors has not been analyzed. A multivariate analysis could help to compare across demographics. Lastly, our sample consisted of 100 respondents while that of other nationwide studies has varied from below 100 to 5,000 or more. Although, as the MBI manual (1997) explains, in any sample only fewer than 50 respondents are likely to be burnt out out, further nationwide research is required to better understand the nature of burnout prevailing in Pakistan.

5.3. Conclusion

In this domestic representative study, burnout is associated with various factors. Males are more prone to burnout. Age does not protect against burnout particularly among males who experience greater burnout at an early age (24–29 years). Higher education levels and less work experience carry a greater risk of burnout for working women, whereas men with white-collar jobs and jobs in the services sector are subject to a greater risk of burnout.

More research is needed especially in the area of blue-collar workers with low education. Our results show that burnout is a relevant concern and a key area of study in all kinds of vocational groups. The risk factors can vary for different subgroups and this should be taken into account in planning future research.

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The Paradox of Rising Dividend Payouts in a Recession: Evidence from Pakistan

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Abstract

This paper applies a probit model to a panel of 319 firms listed on the Karachi Stock Exchange over the period 1999–2010, and finds that changes in inflation have a statistically significant, positive impact on the probability of paying cash and bonus dividends. Inflation induces firms to revalue their assets, which raises their distributable revaluation surplus. This, in turn, serves as a good buffer when distributing cash and bonus dividends, especially during periods of high inflation and the low profitability of firms during a recession. Bonus dividend distribution becomes relatively more attractive for firms in such a scenario because these enhance debt capacity (collateral) through the revaluation of assets and reduce the debt-equity ratio. We also highlight other factors that contribute to the probability of paying cash and bonus dividends.

Keywords: Cash dividends, bonus/stock dividends, inflation, dividend history, growth/investment opportunities, earnings.

JEL classification: G35, G33.

1. Introduction

The Pakistan economy has recently seen two interesting growth periods during 2001–10, both distinguishable from each other. The first half was a high-growth period, with a relatively low rate of inflation, while the second half can be described as a period of stagflation, i.e., declining economic growth (recession) combined with significantly high rate of cost-push inflation. Consequent to these economic changes, the corporate sector witnessed significant improvements in liquidity and profitability during the first half while a significant decline occurred during the second.

It is worth noting that an increase in the revaluation surplus contributed significantly to the recent sharp rise in reserves during the

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period of high inflation. For instance, the increase in revaluation surplus was PKR 52.81 billion during 1999–2010, which constitutes almost 53 percent of the increase in total reserves. In addition, we also note a paradox of corporate behavior in that firms significantly boosted their dividend payout ratio and scrip/stock dividend distributions during bad times (declining growth, and weakening profitability and liquidity) and high inflation rates (2006–10), while these remained relatively low during the period of relatively low inflation (1999–2005) and good times (high growth, liquidity, and profitability). For example, the dividend payout ratio was almost 2 percent during 2000, fell to 0.5 percent in 2005, and has remained closer to 1 percent in recent years, while the proportion of bonus dividend distributions in total dividends fell from 11.64 percent in 2000 to 4.63 percent in 2005, and went up to 13.49 percent in 2010.

The literature defines the dividend payout ratio as follows:

$$\text{dividend payout ratio} = \frac{\text{total dividends}}{\text{net profit after tax}} * 100 \quad (1)$$

In view of this definition, corporate behavior regarding the dividend payout ratio is easily understandable. Total and cash dividends are far less volatile, while bonus dividends—though volatile—remain a very small proportion of total dividends compared to net profit after tax and reserves. This provides empirical evidence of dividend smoothing (more or less constant growth) in Pakistan. Given constant growth in dividends (total and cash), if net profit after tax grows faster than dividends, the dividend payout ratio will decline and vice versa. However, the paradox of corporate behavior regarding especially high bonus dividend distribution during a period of high inflation and bad times still needs extensive research.

To the best of our knowledge, no study in the context of Pakistan has yet explained which firms are likely to pay bonus dividends, and why the proportion of bonus dividend distribution by firms increases during bad times and vice versa. This study aims to fill this gap in the literature.

The remaining paper is organized as follows: Section 2 reviews the literature on the subject. Section 3 describes the data sources and variables used, and the research design and methodology. Section 4 presents and discusses the results, and Section 5 concludes the study.

2. Literature Review

Miller and Modigliani (1961) show that a firm's value is independent of the dividend policy under perfect market assumptions. Corporate dividend distribution is one of the most important corporate decisions because a company's consistency and ability to pay and increase stable dividends over time conveys information about the management's assessment of the firm's future prospects, and thus sends strong signals to the market about its fundamentals. This, in turn, induces favorable stock price and return reactions according to the dividend-signaling hypothesis (see, for example, Bhattacharya, 1979; John & Williams, 1985; Miller & Rock, 1985). Travlos, Trigeorgis, and Vafaes (2001), assessing the Cyprus market, Gurgul, Madjosz, and Mestel (2003), the Austrian market, and Yilmaz and Gulay (2006), the Turkish market, all support the dividend information content hypothesis. Jensen (1986) highlights the role of dividends and other payouts in resolving agency-based conflict between insiders and outside shareholders because higher dividend payouts reduce the shareholder money available to managers to put into unprofitable projects.

Rehman (2012) points to the positive impact of the debt-to-equity ratio, profitability, current ratio, and corporate tax on the dividend payout ratio, while the operating cash flow per share and market-to-book value ratio have a negative impact. The study identifies profitability, debt-to-equity, and market-to-book value ratios as significant determinants of the dividend payout ratio in Pakistan. Al Shabibi and Ramesh (2011) examine firm-specific factors in addition to the corporate governance factors that affected dividend policy for 90 nonfinancial companies in the UK in 2007. They conclude that board size, board independence, firm size, profitability, financial leverage, and risk have a positive impact on dividends per share while audit type and firm growth have a negative impact. However, they report that the impact of firm growth, audit type, and financial leverage is insignificant.

Asif, Rasool, and Kamal (2011) examine the relationship between dividend policy and financial leverage for 403 companies listed on the Karachi Stock Exchange (KSE) during the period 2002–08. They show that financial leverage has a negative impact on dividend payouts. A change in earnings has no significant impact on dividend policy, while the dividend yield has a positive impact and vice versa.

Ahmed and Javid (2008) examine the dynamics and determinants of the dividend payout policy of 320 nonfinancial firms listed on the KSE

for the period 2001–06. They conclude that Pakistani listed nonfinancial firms rely on current earnings per share and past dividends per share when setting their dividend payments. Their results indicate that dividends tend to be more sensitive to current earnings than prior dividends. The listed nonfinancial firms that are quick to adjust and have a low target payout ratio indicate unstable smoothing in their dividend payments. The study also finds that profitable firms with more stable net earnings can afford larger free cash flows and, therefore, pay larger dividends. Ownership concentration and market liquidity have a positive impact on dividend payout policy, while investment opportunities and leverage have a negative impact. Market capitalization and firm size affect dividend payout policy in such a way that firms prefer to invest in their assets rather than pay dividends to their shareholders.

Mohsin and Ashraf (in press) study the behavior of 100 listed firms for the period 2001–09 using Lintner' modified model. Their findings show that, under a restricted monetary policy, the cost of external funds increases and firms prefer to utilize internal funds, leading to a reduction in dividend payouts. Using data on 100 companies representing all major sectors of the KSE for the period 2005–07, Mirza and Azfa (2010) show that managerial and individual ownership, cash flow sensitivity, size, and leverage are negatively related to cash dividends, while operating cash flow and profitability are positively related to cash dividends. Managerial ownership, individual ownership, operating cash flow, and size are the most significant determinants of dividend behavior, while leverage and cash flow have an insignificant impact.

Al-Najjar and Belghitar (2011) explore the simultaneous relationship between corporate cash holdings and dividend policy, using a large sample of around 400 nonfinancial firms for the period 1991 to 2008. Their results show that dividend policy is affected by cash, leverage, growth, size, risk, and profit. In a cross-sectional OLS regression analysis of 882 Nigerian firms for the period 1984–97, Adelegan (2002) shows that liquidity, financial leverage, and profit before tax all have a positive and significant impact, while size and earnings volatility have a negative and insignificant effect on the dividend payout ratio.

Adaoglu and Lasfer (2011) conclude that bonus distributions are carried out by transferring the accumulated equity reserves—mainly the inflation revaluation equity reserves—to paid-in capital, leaving the total equity unchanged. They point out that firms opt for bonus distributions to mitigate the impact of inflation on their eroding paid-in capital to reduce

their leverage, which in turn increases their credibility and borrowing capacity especially in a market of limited access to external equity financing. Using time-series analysis, Lee (1996) finds that dividends respond strongly to permanent changes in earnings without any significant over-reaction, but little, if at all, to transitory changes in earnings. Rankine and Stice (1997) view stock dividend distributions as an indication of management optimism that future income will replenish retained earnings.

3. Methodology

3.1. Research Design

We estimate two separate equations for cash and bonus dividends using a probit model. In the first equation, we use a binary form of the dependent variable, the cash dividends [$CD_{i,t}$] of firm i in year t . We model the probability [Pr] of observing a positive value of cash dividends as follows:

$$\Pr(CD_{i,t} = 1 | [X_{i,t}, \beta], (Z_t, \gamma)) = 1 - F[-X_{i,t}, \beta, (Z_t, \gamma)] \quad (2)$$

where $X_{i,t}$ is a vector of firm-specific explanatory variables that vary across firms as well as over time; Z_t is a vector of explanatory variables that vary only over time; and F is a continuous, strictly increasing function that takes a real value and returns a value ranging from 0 to 1. We assume that the index specification's parameters are linear so that they take the form $(X_{i,t}, \beta)$ and (Z_t, γ) , respectively. The choice of function determines the type of binary model. It follows that:

$$\Pr(CD_{i,t} = 0 | [X_{i,t}, \beta], (Z_t, \gamma)) = -F[-X_{i,t}, \beta, (-Z_t, \gamma)] \quad (3)$$

Based on this specification, we can estimate the parameters of this model using the maximum likelihood method. The likelihood function can be written in the following form:

$$l(\beta) = \sum_{i=1}^n CD_{i,t} \log[1 - F[-X_{i,t}, \beta, (-Z_t, \gamma)]] + 1 - C[\log F[-X_{i,t}, \beta, (-Z_t, \gamma)]] \quad (4)$$

We code the values of $CD_{i,t}$ as follows:

$$CD_{i,t} = \begin{cases} 1 & \text{if } CD_{i,t} > 0 \\ 0 & \text{if } CD_{i,t} = 0 \end{cases} \quad (5)$$

Coding the $CD_{i,t}$ variable in binary form implies that its expected value is simply the probability that $CD_{i,t} = 1$:

$$E(CD_{i,t} = 1[(X_{i,t}, \beta), (Z_t, \gamma)]) = 1. \Pr(CD_{i,t} = 0[(X_{i,t}, \beta), (Z_t, \gamma)]) + 0. \\ \Pr(CD_{i,t} = 0[(X_{i,t}, \beta), (Z_t, \gamma)]) \quad (6)$$

This implies that we can express the binary model of cash dividends as a regression model:

$$CD_{i,t} = (1 - F[(X_{i,t}, \beta), (Z_t, \gamma)]) + \varepsilon_i \quad (7)$$

where ε_i is a residual representing the deviation of the binary $CD_{i,t}$ from its conditional mean.

Similarly, we can specify our bonus dividends model as follows:

$$BD_{i,t} = [1 - F\{(X_{i,t}, \beta), (Z_t, \gamma)\}] + \varepsilon_i \quad (8)$$

3.2. Choice and Discussion of Variables

We use cash [CD] and stock [BD] dividend distributions by firms as dependent variables in our three models. To test whether inflation affects firms' dividend payout policies in Pakistan, in addition to inflation, we include growth opportunities, firm size, current profitability, permanent profitability, earnings volatility, efficiency, financial leverage, investment opportunities, GDP growth, and the real interest rate as control variables. Most studies have used current profit before tax (Adelegan, 2002), net profit after tax (Mohsin & Ashraf, in press) earnings per share (Al Shabibi & Ramesh, 2011; Mirza & Azfa, 2010; Ahmed & Javid, 2008) and found that they have a positive impact on dividend distributions (Rehman, 2012; Mohsin & Ashraf, in press; Al Shabibi & Ramesh, 2011; Al-Najjar & Belghitar, 2011; Mirza & Azfa, 2010; Ahmed & Javid, 2008; Adelegan, 2002). We use return on assets as a measure of profitability, calculated as follows:

$$ROA_{i,t} = \frac{NPAT_{i,t}}{TA_{i,t}} * 100 \quad (9)$$

Suppose we view the current earnings ($ROA_{i,t}$) of firm i at time t as the sum of permanent earnings ($PROA_{i,t}$) and earnings volatility ($RROA_{i,t}$). We can write this as follows:

$$ROA_{i,t} = PROA_{i,t} + RROA_{i,t} \quad (10)$$

We use the following simple technique to isolate permanent earnings ($PROA_{i,t}$) from current earnings ($ROA_{i,t}$).

Step 1: We regress current earnings ($ROA_{i,t}$) on current earnings lagged by one year ($ROA_{i,t-1}$) in the following form:

$$ROA_{i,t} = \alpha + \beta * ROA_{i,t-1} + \mu_{i,t} \quad (11)$$

where $\mu_{i,t}$ represents transitory earnings $RROA_{i,t}$.

Step 2: We create a series of residuals ($\mu_{i,t}$) based on the results of equation (11) above to capture earnings volatility or risk factor ($RROA_{i,t}$).

Step 3: We subtract the residual series [$(RROA_{i,t})$] obtained in step 2 from the series of current earnings ($ROA_{i,t}$) to obtain the permanent component of earnings ($PROA_{i,t}$).

There are several measures of firm size, including the logarithm of total assets (Mirza & Azfa, 2010; Ahmed & Javid, 2008), the number of employees (Al Shabibi & Ramesh, 2011), and relative market share in gross sales (Hussain, 2012) or total assets. The impact of firm size on dividend distributions is controversial in the literature. Some studies substantiate its positive relationship (Mirza & Azfa, 2010; Al Shabibi & Ramesh, 2011; Rafique, 2012) while others establish its negative relationship with dividend distributions (Ahmed & Javid, 2008; Mirza & Azfa, 2010). We measure relative firm size as follows:

$$RFS_{i,t} = \frac{RMSTA_{i,t}}{\sum_{i=1}^n RMSTA_{i,t}} * 100 \quad (12)$$

where $RFS_{i,t}$, $RMSTA_{i,t}$, and $\sum_{i=1}^n RMSTA_{i,t}$ denote relative firm size, the book value of a firm's total assets, and the sum of the book value of total assets of i to n number of firms in the corporate sector, respectively.

In view of growth opportunities, firms invest in assets; therefore, growth in total assets represents growth opportunities. We measure growth opportunities as the logarithm of the book value of total assets [$\log(TA)$]. Improvement in growth opportunities serves as a signal for

better future earnings; therefore, we expect it to have a positive impact on dividend distributions.

Efficient firms, i.e., those that utilize their assets more effectively, are likely to pay higher dividends. Asset turnover [ATO] is a good proxy for efficiency, and is calculated as follows:

$$ATO_{i,t} = \frac{GS_{i,t}}{TA_{i,t}} * 100 \quad (13)$$

where $GS_{i,t}$ and $TA_{i,t}$ denote gross sales and the total assets of firm i in year t , respectively.

The sign of the financial leverage coefficient varies with the choice of dependent and independent variables. The literature provides evidence that financial leverage can have both a positive impact (Al-Najjar & Belghitar, 2011; Al Shabibi & Ramesh, 2011) and negative impact (Mirza & Azfa, 2010; Ahmed & Javid, 2008; Asif et al., 2011) on dividend distributions. Corporate gearing (Hussain, 2012) and the debt-equity ratio are widely used measures of financial leverage. We use the debt-equity ratio [DER], which is calculated as follows:

$$DER_{i,t} = \frac{TL_{i,t}}{TE_{i,t}} \quad (14)$$

where $TL_{i,t}$ and $TE_{i,t}$ signify the book value of the total liabilities and total equity of firm i in year t .

The sign of the liquidity coefficient also varies with the choice of dependent and independent variables. The literature shows that financial leverage can have both a positive impact (Ahmed & Javid, 2008; Adelegan, 2002) and negative impact (Rehman, 2012; Mirza & Azfa, 2010) on dividend distributions. The operating cash flow, current ratio, and quick assets ratio are widely used measures of liquidity. Adelegan (2002) finds that financial leverage has a positive impact and Rehman (2012) finds it has a negative impact on dividend distributions. We use the current ratio [CR] as a proxy for liquidity, which is calculated as follows:

$$CR_{i,t} = \frac{CA_{i,t}}{CL_{i,t}} \quad (15)$$

where $CA_{i,t}$ and $CL_{i,t}$ represent the book value of current assets and current liabilities, respectively, of firm i in year t .

Ahmed and Javid (2008) point out that a firm with more investment opportunities in the future is likely to retain its profits for future expansion if it prefers or intends to use internal sources of funds according to the pecking order theory, especially where equity markets are not well developed. We therefore introduce investment opportunities [IO] as an explanatory variable in our model, using the retention of profits after tax scaled by total assets as a proxy for investment opportunities as follows:

$$IO_{i,t} = \frac{R_{i,t}}{TA_{i,t}} \quad (16)$$

where $R_{i,t}$ is the current year's retained profit and $TA_{i,t}$ denotes the total assets of firm i in year t .

DeAngelo, DeAngelo, and Stulz (2004) show that a firm's dividend history has a positive impact on its probability of paying dividends after controlling for other variables. Following their study, we include the firm's history of paying dividends to capture dividend smoothing and persistence in the probability of paying dividends.

Accordingly, we introduce three macroeconomic variables that are likely to influence dividends. GDP growth [GDPG] serves as a proxy for macroeconomic environment. In view of the empirical evidence of the relationship between the macroeconomic environment and profitability and its likely effect on investment and growth opportunities for the corporate sector, we expect it to affect the firm's dividend decisions. Suppose a firm intends/prefers to use internal sources of funds for growth or investment. The firm may choose to restrict cash dividend distribution or pay stock dividends. The predicted sign of the GDP growth coefficient, therefore, may either be positive or negative. If, however, an improvement in GDP growth indicates a better macroeconomic environment and signals better future business, the firm is more likely to pay more dividends as its management may expect to replenish retained earnings from future earnings.

Lack of data on revaluation surplus prevents us from using inflation [INF] as a proxy for revaluation surplus. In view of the current period's inflationary pressures, firms revalue their assets by the end of their accounting year. We therefore expect inflation to have a lagged positive effect on revaluation surplus. Since it can be used to pay either

cash or stock dividends, it is expected to have a positive impact on dividend distribution (Adaoglu & Lasfer, 2011).

The real interest rate [RIR] serves as a proxy for returns on substitutes for equity, and is therefore expected to compel firms to pay matching returns (dividends) on equity. A higher RIR can raise financing costs and slow down firms' growth, which, in turn, can dampen profitability and reduce the probability of paying dividends. High financing costs can also motivate firms to retain and use internal funds, thus also reducing dividends (Mohsin & Ashraf, in press). Therefore, the expected sign of the RIR coefficient may either be positive or negative.

3.3. Dataset

We have used secondary data for the period 1999–2010, derived from balance sheet analyses of joint stock companies listed on the KSE (State Bank of Pakistan, 1999–2010). The sample covers all listed companies with a complete and consistent 12-year data series, and excludes those with an incomplete and/or inconsistent data series. Statistics on GDP growth, the real interest rate, and rate of inflation have been taken from the *Pakistan Economic Survey* for the years under study.

4. Results and Discussion

We present matrices for correlation coefficients in Table 1 to rule out perfect multi-collinearity between the variables. There is no evidence of perfect multi-collinearity between the variables, either for the cash or bonus dividend models. However, the correlation between relative firm size and growth opportunities, and between earnings volatility and permanent earnings, though not perfect, is fairly high in both cases.

The regression results for both models are presented in Table 2. The sample and number of included observations for regression purposes have been adjusted due to the use of some lags and the first difference of certain variables.

Table 1: Matrices of correlation coefficients

a. Cash dividends														
	CD	LOG(TA)	RFS	ROA	PROA	RROA(-1)	ATO	DER	CR	IO	D(GDPG(-1))	D(INF(-1))	RIR	CD(-1)
CD	1	0.247	0.115	0.404	0.369	0.237	0.259	0.014	0.091	0.190	0.024	0.001	0.098	0.600
LOG(TA)	0.247	1	0.571	0.114	0.120	0.059	-0.104	-0.015	-0.009	0.050	-0.071	0.148	-0.170	0.225
RFS	0.115	0.571	1	0.067	0.059	0.033	-0.002	-0.023	-0.011	0.014	0.005	-0.012	0.014	0.106
ROA	0.404	0.114	0.067	1	0.474	0.358	0.262	0.011	0.077	0.674	0.068	0.005	0.023	0.333
PROA	0.369	0.120	0.059	0.474	1	0.882	0.219	0.019	0.062	0.236	0.034	-0.069	0.047	0.408
RROA(-1)	0.237	0.059	0.033	0.358	0.882	1	0.145	0.013	0.035	0.203	0.051	-0.068	0.048	0.263
ATO	0.259	-0.104	-0.002	0.262	0.219	0.145	1	0.013	0.002	0.138	0.002	-0.014	0.050	0.244
DER	0.014	-0.015	-0.023	0.011	0.019	0.013	0.013	1	0.000	0.008	0.033	-0.031	0.030	0.021
CR	0.091	-0.009	-0.011	0.077	0.062	0.035	0.002	0.000	1	0.056	-0.001	0.007	-0.015	0.058
IO	0.190	0.050	0.014	0.674	0.236	0.203	0.138	0.008	0.056	1	0.080	-0.007	0.022	0.162
D(GDPG(-1))	0.024	-0.071	0.005	0.068	0.034	0.051	0.002	0.033	-0.001	0.080	1	-0.217	0.161	0.047
D(INF(-1))	0.001	0.148	-0.012	0.005	-0.069	-0.068	-0.014	-0.031	0.007	-0.007	-0.217	1	-0.476	-0.110
RIR	0.098	-0.170	0.014	0.023	0.047	0.048	0.050	0.030	-0.015	0.022	0.161	-0.476	1	0.147
CD(-1)	0.600	0.225	0.106	0.333	0.408	0.263	0.244	0.021	0.058	0.162	0.047	-0.110	0.147	1

b. Bonus dividends														
	BBDIV	LOG(TA)	RFS	ROA	PROA	RROA(-1)	ATO	DER	D(CR)	IO	D(GDPG(-1))	D(INF(-1))	RIR	BD(-1)
BD	1	0.178	0.045	0.173	0.160	0.088	0.035	0.004	-0.004	0.102	-0.003	0.096	-0.081	0.471
LOG(TA)	0.178	1	0.571	0.114	0.122	0.060	-0.104	-0.015	-0.008	0.050	-0.071	0.148	-0.170	0.197
RFS	0.045	0.571	1	0.067	0.060	0.034	-0.002	-0.023	-0.002	0.014	0.005	-0.012	0.014	0.069
ROA	0.173	0.114	0.067	1	0.478	0.362	0.262	0.011	0.018	0.674	0.068	0.005	0.023	0.128
PROA	0.160	0.122	0.060	0.478	1	0.880	0.221	0.019	-0.011	0.238	0.034	-0.067	0.044	0.152
RROA(-1)	0.088	0.060	0.034	0.362	0.880	1	0.146	0.013	-0.013	0.205	0.051	-0.065	0.045	0.085
ATO	0.035	-0.104	-0.002	0.262	0.221	0.146	1	0.013	0.007	0.138	0.002	-0.014	0.050	0.023
DER	0.004	-0.015	-0.023	0.011	0.019	0.013	0.013	1	-0.001	0.008	0.033	-0.031	0.030	0.005
D(CR)	-0.004	-0.008	-0.002	0.018	-0.011	-0.013	0.007	-0.001	1	0.025	-0.020	-0.003	-0.003	-0.001
IO	0.102	0.050	0.014	0.674	0.238	0.205	0.138	0.008	0.025	1	0.080	-0.007	0.022	0.075
D(GDPG(-1))	-0.003	-0.071	0.005	0.068	0.034	0.051	0.002	0.033	-0.020	0.080	1	-0.217	0.161	-0.064
D(INF(-1))	0.096	0.148	-0.012	0.005	-0.067	-0.065	-0.014	-0.031	-0.003	-0.007	-0.217	1	-0.476	0.064
RIR	-0.081	-0.170	0.014	0.023	0.044	0.045	0.050	0.030	-0.003	0.022	0.161	-0.476	1	-0.068
BD(-1)	0.471	0.197	0.069	0.128	0.152	0.085	0.023	0.005	-0.001	0.075	-0.064	0.064	-0.068	1

Source: Author's calculations.

Table 2: Regression results

Dependent variable: cash dividends (CD)						Dependent variable: bonus dividends (BD)				
Method: ML – binary probit (quadratic hill-climbing)						Method: ML – binary probit (quadratic hill-climbing)				
Sample (adjusted): 2001–10						Sample (adjusted): 2001–10				
Included observations: 3,159 after adjustments						Included observations: 3,158 after adjustments				
Convergence achieved after 5 iterations						Convergence achieved after 5 iterations				
Covariance matrix computed using second derivatives						Covariance matrix computed using second derivatives				
	Variable	Coefficient	SE	z-stat.	Prob.	Variable	Coefficient	SE	z-stat.	Prob.
C	C	-3.4296	0.2038	-16.8277	0.0000	C	-2.9171	0.2322	-12.5618	0.0000
LOG(TA): growth opportunities	LOG(TA)	0.2384	0.0253	9.4232	0.0000	LOG(TA)	0.1528	0.0303	5.0435	0.0000
RFS: relative firm size	RFS	-0.1227	0.0439	-2.7969	0.0052	RFS	-0.1683	0.0660	-2.5511	0.0107
ROA: current earnings	ROA	0.0308	0.0028	11.1995	0.0000	ROA	0.0090	0.0033	2.6996	0.0069
PROA: permanent earnings	PROA	0.0456	0.0086	5.3170	0.0000	PROA	0.0395	0.0095	4.1779	0.0000
RROA(-1): earnings volatility	RROA(-1)	-0.0152	0.0040	-3.7853	0.0002	RROA(-1)	-0.0160	0.0047	-3.3678	0.0008
ATO: firm efficiency	ATO	0.2805	0.0406	6.9179	0.0000	ATO	0.0054	0.0333	0.1633	0.8703
DER: financial leverage	DER	0.0000	0.0000	0.0506	0.9596	DER	0.0000	0.0000	0.0803	0.9360
CR: firm liquidity	CR	0.0006	0.0002	4.0956	0.0000	D(CR)	0.0000	0.0001	-0.3518	0.7250
IO: investment opportunities	IO	-1.3267	0.2353	-5.6386	0.0000	IO	0.0799	0.3313	0.2412	0.8094
GDPG(-1): macroeconomic environment	D(GDPG(-1))	0.0125	0.0141	0.8873	0.3749	D(GDPG(-1))	0.0404	0.0168	2.4054	0.0162
D(INF(-1)): inflation	D(INF(-1))	0.0410	0.0099	4.1573	0.0000	D(INF(-1))	0.0304	0.0115	2.6537	0.0080
RIR: real interest rate	RIR	0.0396	0.0074	5.3574	0.0000	RIR	-0.0111	0.0086	-1.2899	0.1971
Dividend history	CD (-1)	1.2366	0.0605	20.4521	0.0000	BD(-1)	1.4672	0.0802	18.3007	0.0000
	McFadden R-squared	0.3920	Mean dependent variable		0.45521	McFadden R-squared	0.25676	Mean dependent variable		0.1203

Variable	Coefficient	SE	z-stat.	Prob.	Variable	Coefficient	SE	z-stat.	Prob.
SD dependent variable	0.4981	SE of regression		0.36242	SD dependent variable	0.32540	SE of regression		0.2807
Akaike info criterion	0.8468	Sum of squared residuals		413.09	Akaike info criterion	0.555266	Sum of squared residuals		247.72
Schwarz criterion	0.8737	Log likelihood		-1323.53	Schwarz criterion	0.58212	Log likelihood		-862.76
Hannan-Quinn criter.	0.8564	Restr. log likelihood		-2176.96	Hannan-Quinn criter.	0.56490	Restr. log likelihood		-1160.82
LR statistic	1,706.85	Avg. log likelihood		-0.4189720	LR statistic	596.11000	Avg. log likelihood		-0.2732
Prob. (LR statistic)	0.0000				Prob. (LR statistic)	0.0000			
Obs. with dep. = 0	1,721	Total observations		3159	Obs. with dep. = 0	2,778	Total observations		3,158
Obs. with dep. = 1	1,438				Obs. with dep. = 1	380			

Source: Author's calculations.

Firms with higher current [ROA] and permanent earnings [PROA] have a higher probability of paying both cash and bonus dividends. It is interesting to note that current earnings are relatively more significant compared to permanent earnings for cash dividends while the reverse is true for bonus dividends. The impact of earnings volatility (lagged) [RROA (-1)] on the likelihood of paying both cash and bonus dividends is negative and significant, which implies that a higher degree of earnings volatility motivates firms to conserve funds and cash flows for distribution during bad times to ensure dividend smoothing. Our results also conform with those of Lee (1996), who finds that dividends respond strongly to permanent changes in earnings, contrary to the view that dividends respond little, if at all, to transitory changes in earnings. Lee, however, concludes this using time-series analysis.

The coefficient of growth opportunities [$\log(TA)$]¹ is positive and highly significant. Our regression results indicate that firms with better growth opportunities are likely to have a higher probability of paying both cash and stock dividends. Our results reflect the signaling hypothesis—corporate managers use dividend payouts to signal firms' future earnings, i.e., earnings are distributed from reserves and retained earnings during the current period will be recouped from future earnings. These signals can also create better opportunities to motivate external financing for future growth. The negative and significant firm size coefficient indicates that larger firms are less likely to pay dividends. Following the pecking order theory, larger firms are likely to rely more on internal funds, hence the lower probability that they will pay dividends.

Efficient firms, i.e., those that use their assets more effectively, are more likely to generate smooth operating cash flows to pay cash dividends. Stock dividends, on the other hand, do not require cash flows, and therefore efficiency [ATO] has an insignificant impact on the likelihood of stock dividends. Liquidity has a positive and significant impact on the probability of paying cash dividends, while liquidity does not matter for stock dividend distribution.

Better investment opportunities [IO] have a negative and significant impact on the likelihood of cash dividend distribution. This implies that firms conserve their cash flows for investment by reducing cash dividends. Our results conform to the pecking order theory and to Ahmed and Javid's

¹ Some studies have used $\log[TA]$ as a measure of firm size (see, for example, Mirza & Azfa, 2010; Rafique, 2012). In my view, this is an inappropriate proxy for size. Current expansion or growth in total assets better reflects firms' growth opportunities. Relative firm size can be better measured by the relative size of gross sales or total assets.

(2008) findings. However, the impact of investment opportunities on the probability of paying stock dividends is positive but insignificant.

It is interesting to note the positive and significant coefficient of lagged changes in inflation, $D[INF(-1)]$. Subsequent to the acquisition of plant(s), property, and equipment assets, International Accounting Standard 16² allows companies to choose between a cost and a revaluation model for fixed assets. In the revaluation model, increases in the value of assets are debited from the respective 'asset' account, credited to 'other comprehensive income' in the 'profit and loss' account, and accumulated under the heading of 'revaluation surplus' as part of shareholders' equity. Therefore, the revaluation of assets initially increases both assets as well as equity. Companies can distribute both cash and/or stock dividends to shareholders from the revaluation surplus, depending on their liquidity situation. Thus, inflationary pressures create an opportunity for firms to raise or maintain dividend distribution despite their weak profitability and liquidity in a poor macroeconomic environment.

In addition, if companies declare and pay a bonus dividend, say, out of their revaluation surplus, they can debit the 'revaluation surplus' and credit their 'capital stock'³, which requires no cash payments. This has no impact on assets, merely changing the composition of equity and leaving total equity unchanged. On the other hand, the increased value of assets consequent to initial revaluation gives collateral a greater value, enhances borrowing capacity, and reduces the debt-equity ratio. This, in turn, improves firms' credibility during a period of weaker profitability and liquidity in a poor macroeconomic environment. Therefore, inflation has a positive impact both on stock and cash dividends, and allows financially weaker firms to save face. Our results are consistent with the findings of Adaoglu and Lasfer (2011).

Interestingly, the real interest rate [RIR] has a positive impact on the probability of paying cash dividends because an increase in the real interest rate implies that returns on substitutes for equity have risen, and firms are then compelled to pay matching returns on equity (dividends). However, RIR has an insignificant impact on the probability that a firm will pay stock dividends. Changes in GDP growth, $D[GDPG(-1)]$, have a lagged positive and significant impact on the likelihood of stock dividend payouts, and a positive but insignificant impact on the probability of cash dividend payouts.

² See <http://www.iasplus.com/en/standards/standard14>.

³ Additional paid-in capital stock may also be credited if shares are issued at more than their par value.

5. Conclusion

It is interesting to identify the impact of changes in inflation on both cash and bonus dividends. The lagged impact of high inflation on dividend payout policy arises subsequent to the revaluation of assets, simultaneously giving rise to a distributable revaluation surplus permissible under international accounting standards. Firms find it more attractive to revalue assets and distribute bonus dividends during a period of high inflation and low profitability because the revaluation of assets reduces the debt-equity ratio and increases the value of collateral.

Our regression results suggest that current earnings, permanent earnings, efficiency, liquidity, growth opportunities, the real rate of interest, inflation, and the firm's history of cash dividends have a positive and statistically significant impact, while earnings volatility, size, and investment opportunities have a negative and significant impact on the probability of paying cash dividends. However, the impact of the macroeconomic environment and debt-equity ratio is insignificant. For bonus dividends, on the other hand, current earnings, permanent earnings, growth opportunities, the macroeconomic environment, inflation, and history of bonus dividends have a positive and significant impact. Earnings volatility and size have a negative and significant impact, although the impact of efficiency, investment opportunities, liquidity, and the real rate of interest is insignificant.

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A Note on Corporate Capital Structure Theories

Mawal Sara Saeed*

1. Introduction

Financial theory revolves around rational participants who want to maximize their utility or wealth for a given level of risk. This maximization, in the first place, calls for the optimality of available resources, making capital financing decisions critical for corporations. Any discussion on optimal capital structure leads back to Modigliani and Miller's classical capital structure irrelevance hypothesis (1958), according to which, in an efficient market, the value of the firm is unaffected by its choice of capital structure in the absence of taxes, bankruptcy costs, and asymmetric information. This irrelevance makes the firm's managers indifferent to opting for debt or equity in the firm's capital structure.

Modigliani and Miller's proposition was criticized primarily for ignoring the tax shield that would be available if a firm was financed by debt. Later, Modigliani and Miller (1963) relaxed the assumption of zero taxes and demonstrated that debt financing might contribute toward the value of the firm, due to the available tax shield, but the impact was shown to be lower. Moreover, the use of debt financing leveraged the capital structure, consequently raising the cost of capital. The Modigliani and Miller propositions have had important implications for the theory of investment decisions. First, they demonstrate that such decisions can be separated from the corresponding financial decisions. Second, the rational criterion for investment decisions is a maximization of the market value of the firm. Last, the rational concept of capital cost refers to total cost, and should be measured as the rate of return on capital invested in shares of firms in the same risk class.

Building on the foundations of the Modigliani and Miller capital structure notion, an exhaustive body of literature on alternative theories of capital structure has emerged, debating the existence of an optimal capital structure and its impact on the cost of capital and, ultimately, on the value of the firm. These theories have been widely tested but contradictory empirical results raise questions about their validity. This note briefly discusses these theories of capital structure, along with some empirical findings.

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2. Static Tradeoff Theory

Myers (1984) divides contemporary thinking on capital structure into two theoretical currents. The first is the static trade-off theory, which presumes that firms set up a debt target ratio and move toward it. According to this model, an optimal capital structure does exist and is found as the optimal tradeoff between the tax benefits of debt and the increase in the costs of financial distress associated with debt, i.e., bankruptcy costs against tax benefits.

3. Pecking Order Theory

Myers and Majluf (1984) posit that managers use private information to issue risky securities when they are overpriced. Investors are aware of this asymmetric information problem, and the prices of risky securities fall when new issues are announced. Managers anticipate the price declines and may forego profitable investment if they must be financed with risky securities. To avoid this distortion of investment decisions, managers follow what Myers (1984) calls the pecking order. They finance projects first with retained earnings, which have no asymmetric information problem; then with low-risk debt, for which the problem is negligible; and then with risky debt. Equity is issued only in distress or when investment exceeds earnings in a way that financing with debt would produce excessive leverage. Myers (1984) also suggests that, in the short term, dividends are (for unspecified reasons) sticky, leaving variations in net cash flows to be absorbed mainly by debt.

Furthermore, share repurchases give rise to asymmetric information problem. As Shyam-Sunder and Myers (1999) have pointed out, a firm that announces a repurchase will tempt investors to assume that managers have positive information not reflected in the stock price, causing the price to rise. This can deter the repurchase if the price rises above what managers consider to be the equilibrium level. Thus, when firms use financing retention to retire securities, they first retire debt. They retire equity only when leverage is low or when poor investment opportunities (relative to earnings) lower the value of debt capacity. In short, repurchases should be limited to firms with little or no leverage, few investment opportunities, or both.

Two additional points about the pecking order are pertinent when interpreting their empirical results. First, Myers (1984) emphasizes asymmetric information problems, but recognizes that transaction costs

alone can produce pecking order financing if they are higher for debt than for retained earnings and higher yet for equity. In other words, asymmetric information may be unnecessary. Transaction costs can give rise to a pecking order.

Second, in Myers (1984) and Myers and Majluf (1984), the pecking order arises through an implicit assumption that there is no way to issue equity that avoids asymmetric information problems. If firms find ways to issue equity without such problems, asymmetric information might not constrain equity issues. As a result, pecking order financing can disappear, i.e., financing with equity is not a last resort, the incentive to avoid repurchases to maintain debt capacity is gone, and asymmetric information problems do not drive capital structures. This does not mean that asymmetric information is irrelevant, but its implications do become quite limited. Firms avoid issuing risky securities in ways that involve asymmetric information problems, but financing decisions do not follow the pecking order.

4. Market Timing Hypothesis

Equity market timing refers to the practice of issuing equities at high prices and repurchasing them at low prices to exploit temporary fluctuations in the cost of equity relative to the cost of other fund-raising measures. In the efficient and integrated capital markets assumed by the Modigliani and Miller theorem, the costs of different forms of capital do not vary independently and thus no gain can be obtained from opportunistically switching between debt and equity.

Also, according to the tradeoff theory, when equity prices rise, the market value of leverage ratios fall and firms try to raise leverage ratios by increasing debt and/or repurchasing equity. Thus, the market timing hypothesis predicts the opposite direction envisaged by the tradeoff theory. In practice, many market participants point out that firms tend to issue equities instead of debts when market value is high, relative to book value and past market values, and tend to repurchase them when market value is low.

5. Agency Theory and Capital Structure

There are three kinds of agency costs that bring in the importance of capital structure when calculating the worth of a firm. The first factor is the asset substitution effect, which states that, with increased levels of leverage, the management is induced to take up even those projects with a

negative net present value (NPV). If the project becomes successful, then shareholders are entitled ownership of all the gains and debt holders receive their pre-fixed rate of return, whereas unsuccessful ventures result in debt holders also sharing the loss. This could result in a transfer of wealth from debt holders to shareholders.

Another problem is that of underinvestment. In situations where debt is risky, the gains are passed on to the debt holders for taking that risk. This results in the rejection of such projects that would yield positive future cash flows and have a positive NPV, and would also result in an increase in the value of the firm.

There is a significant body of literature that models the influence of agency costs on capital structure stemming from conflicts of interest. Jensen and Meckling (1976) argue that a conflict of interest can arise between shareholders and managers since the latter hold less than 100 percent of the residual claims. Consequently, they do not capture the entire gain from their profit-enhancing activities, but instead bear the entire cost of these activities. For instance, managers can invest less effort in managing firm resources and may be able to transfer firm resources for their personal benefit by consuming "perquisites". This inefficiency is reduced as the fraction of the firm's equity owned by managers' increases—the larger the shareholding ratio of large investors, the more effective their monitoring. This leads to less chance of conflicts of interest.

Another conflict could be posed by the availability of free cash flows. If the management's tendency is that of an empire builder, it will undertake high-risk projects—the underlying risk of which will be borne by the shareholders. Therefore, increases in debt levels for firms with positive free cash flows will reduce the agency problem because it will force the management to pay out the excess cash. Thus debt acts as a monitor of firm performance, it requires management to run the firm efficiently to avoid the negative consequences of not being able to service the firm's debt payments, and it requires the management to disburse its free cash flow.

6. Some Empirical Evidence on Capital Structure Theories

As mentioned earlier, the alternative theories of capital structure along with Modigliani and Miller's basic irrelevance theorem has been widely discussed in the financial literature. No single theory explains all the time-series and cross-sectional patterns that have been documented. The relative importance of these explanations has varied in different studies. Shyam-Sunder and Myers (1999) test the pecking order theory by

estimating a regression using a firm's net debt issuance as the dependent variable and its net financing deficit as the independent variable. They find that the estimated coefficient on the financing deficit is close to 1 for their sample and interpret the evidence as supporting the pecking order theory.

In general, the pecking order theory enjoyed increasing favor in the 1990s, but has recently fallen on hard times. Chirinko and Singha (2000) use three examples to illustrate potential problems with using the Shyam-Sunder and Myers test to evaluate the theory. Frank and Goyal (2003) argue that none of its predictions hold when a broad sample of firms and a longer time-series is used. Fama and French (2002) find that short-term variations in earnings and investment are mostly absorbed by debt, as predicted by the pecking order, but that it has other failings (namely significant equity issues by small-growth firms). Baker and Wurgler (2002) relate capital structure to historical market-to-book ratios. With their findings, the market timing theory has increasingly challenged both the static tradeoff and pecking order theories.

Fama and French (2004) reject the pecking order theory's central predictions about how often and under what circumstances firms issue and repurchase equity. First, they report that equity issues were commonplace during 1973–2002, and so pervasive that they could not have been limited to firms in distress. Second, repurchases have turned out to be not that rare. Further, they attribute the failure of pecking order breaks at least in part to equity issue with low transaction costs and modest asymmetric information problems. Three of the alternatives to traditional equity offering include issues to employees, rights issues, and direct purchase plans, which have both low transaction costs and minor asymmetric information problems. A fourth, mergers financed by stock, could also fall into this category. They argue that, if there are ways to issue equity that avoids the costs assumed by the pecking order theory, transaction costs and asymmetric information problems might not seriously constrain equity issuance. Therefore, equity issuance is not the last option for raising finance and the asymmetric information problem that is the focus of the pecking order theory is not the sole or perhaps even an important determinant of capital structure.

Fama and French (2004) disagree with Shyam-Sunder and Myers (1999) about the success of the pecking order model, but agree with their conclusion that its main competitor, the tradeoff model, has serious problems. Like asymmetric information, tradeoff considerations (for example, the bankruptcy cost of debt) surely plays a role in financing decisions. However, there are important aspects of the tradeoff model that get little empirical support. They conclude that the tradeoff model and

pecking order model have serious problems, challenging their position as stand-alone theories of capital structure. Perhaps it is best to regard the two models as “stablemates, each with elements of truth that help explain some aspects of financing decisions.”

Ismail and Eldomiaty (2004) compare the three capital structure theories using the stochastic search variable selection procedure. They observe that, with innovations in economic and business dynamics, no single theory can explain capital structure choice. Their results support the pecking order and static tradeoff propositions while they cannot deduce any significance for the agency and free cash flow theories. They attribute the transition of manager choices from the pecking order to tradeoff theories and vice versa to factors such as market and financial risk, tax shield, firm growth rate, and expected investment opportunities.

Dittmar and Thakor (2007) present an alternative theory of capital structure and provide supporting empirical evidence. They find little or no evidence for other known theories such as the pecking order, static tradeoff, timing, and time-varying adverse selection theories. Although the agreement theory appears to be an extension of the timing and time-varying adverse selection theories, there is a major difference. In the timing theory, high stock prices are a consequence of overvaluation while in the agreement model they are the result of market agreement. In the time-varying adverse selection theory, they are attributed to low information asymmetry. Apart from this, the authors claim that, given the model and the empirical evidence, their theory has incremental explanatory power over the timing and time-varying adverse selection hypotheses concerning security issuance decisions. The model's variables provide insight into the firm's capital structure and investment decisions, and the statistics demonstrate that manager-investor agreement is a determinant of corporate decisions.

7. Conclusion

Capital structure choice is one of the critical decisions that a firm's management must make. The empirical literature on the subject is exhaustive, and focuses on the various determinants that drive this choice. However, the empirical findings are not conclusive since the results support and fail to support the capital structure theories that have been proposed over the last 50 years. Even five decades after Modigliani and Miller's seminal paper, capital structure choice is still largely a puzzle and warrants further research on the option of debt versus equity in a dynamic business and economic environment.

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