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# DO INVESTORS USE CUSTOMER METRICS TO VALUE HIGH GROWTH SERVICE FIRMS?

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## ABSTRACT

*High growth service firms invest resources to acquire and retain customers, creating intangible assets. This paper tests whether investors use customer metrics to value these firms. Using a unique hand-collected data set, we show that investors discount the values of high growth service firms if their service costs per customer are high, perhaps because high service costs are associated with inefficient business operations. Conversely, investors boost the values of high growth service firms with high acquisition costs per customer, perhaps because higher acquisition costs are associated with customers who generate larger future cash flows. We also show that relatively high growth firms tend to disclose customer metrics more frequently, monthly rather than quarterly, helping to moderate the inherent uncertainty in their quarterly earnings. We find that customer metrics are incrementally informative to traditional financial performance measures, particularly when valuing high-growth service firms.*

**JEL:** G12, G14, M41

**KEYWORDS:** Customers, Valuation, Intangibles

## INTRODUCTION

Investors struggle to correctly value many high-growth service firms because they often have negative cash-flows, no dividends or earnings, and little asset book value. Traditional valuation models that rely on these measures produce inaccurate or nonsensical prices. Damodaran (2001) suggests that one way around the problem is to forecast the traditional value measures and then discount. We argue that investors may instead value the firms by valuing their customers as intangible assets.

Non-traditional information disclosures are becoming more common, perhaps because the ratio of firms' intangible assets to physical assets has increased during the last 25 years. New technology-based service industries, like those built around the internet, are a larger part of our economy, and firms in those industries have proportionately more intangible assets. Indeed, the service sector of the U.S. economy has grown to far exceed the good producing sector. Figure 1 illustrates how personal consumption of services as a proportion of GDP started to grow around 1970, and accelerated in the 1980s and 1990s. Conversely, the relative consumption of physical goods (durables plus non-durables) has declined, particularly in the 1980s and 1990s. In line with this trend, the service sector's higher proportion of U.S. corporate investments has led to an increase in intangible assets. Figure 2 shows the impact on price to book ratios of U.S. companies at the 95<sup>th</sup> percentile of price-to-book during the same time period. Data for the S&P 500 are not available for the full period, but the index's price to book ratio also increased from 1.2 in 1978, to 3.1 in 2006, with a high of 4.9 in 2000. Hence, the dramatic increase in intangible assets is apparent even for large S&P 500 firms.

Note that the steady upward trend in market to book values starts in the late 1970s and early 1980s. This is about the same time that the U.S. service sector growth accelerated (see Figure 1). Although research on intangible asset values has grown, much of it focuses on R&D. But growth in corporate R&D probably does not explain the trend in intangible assets during the last 25 years because R&D spending as a proportion of sales was flat at about three percent from 1985 to 1999, while market to book values were

# IS THE VALUE EFFECT SEASONAL? EVIDENCE FROM GLOBAL EQUITY MARKETS

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## ABSTRACT

*This paper extends the research on value premium by examining patterns of seasonality exhibited in the book-to-market effect in major global equity markets. The results provide evidence supporting the January effect in the value premium phenomenon. Using stock market indices for Asia Pacific; Europe, Australasia, and Far East (EAFE); and Europe, with and without the U.K., Scandinavian countries, the U.K., U.S., and Japan from 1975 through 2007, the paper provides out-of-sample evidence from twenty-one countries that comprise different index portfolios. As a robustness measures, we use regression analysis, paired means tests, and non-parametric tests to examine whether the persistence of the anomalous January value premium is real and significant. The annualized excess January value premium ranges from 42.96 percent for Scandinavian countries to 9.24 percent for EAFE markets with 20.28 percent for U.S. Even though such a predictable pattern exists, our analysis suggests that large standard deviations would not allow a viable investment strategy.*

**JEL: G12**

**KEYWORDS:** Value premium, International equity market, January effect

## INTRODUCTION

Long-term investment data makes it clear that value stocks (firms with high book-to-market equity ratios) outperform growth stocks (firms with low book-to-market equity ratios). This book-to-market (B/M) equity effect, also known as value premium, is persistent over time and across regions (see for example, Chan, Hamao, and Lakonishok, 1991; De Bondt and Thaler, 1985, 1987; Fama and French, 1992, 1995, 1996, 1998; Haugen and Baker, 1996; Lakonishok, Shleifer, and Vishny, 1994). The finance literature provides several competing explanations for this value premium. These explanations vary from usage of a bad model for controlling risk (Black and Fraser, 2004; Fama, 1998; Fama and French, 1995, 1996, 1998; Kiku, 2006; Lakonishok, Shleifer, and Vishny, 1994; Lettau and Ludvigson, 2001; Petkova and Zhang, 2005; Zhang, 2005), behavioral biases (Daniel, Hirshleifer, and Teoh, 2001; De Bondt and Thaler, 1987; Haugen, 1995; Hirshleifer, 2001; Kothari, 2000; Lakonishok, Shleifer, and Vishny, 1994), random occurrences (Kothari, Shanken, and Sloan, 1995), to simply a case of data snooping (Lo and Mackinlay, 1990). The value premium remains a puzzle in spite of considerable research effort in finding an explanation for the higher returns earned by value stocks relative to growth stocks. Our paper extends the research on value premium by examining the pattern of seasonality exhibited in book-to-market effect in the major global equity markets. While value premium has been persistent, the important research question is whether there is a predictable pattern to the premium. In addition, if any such pattern in value premium exists, does it provide profitable arbitrage opportunities to investors?

Our results provide evidence of January effect in the value premium phenomenon. The consistent result across all major indices ensures that seasonal pattern in value premium is not the result of data mining. Using stock market indices for Asia Pacific, EAFE (Europe, Australasia, and Far East), Europe (with and without the U.K.), Scandinavian countries, the U.K., U.S., and Japan across time period 1975 through 2007, our study provides out-of-sample evidence from twenty-one countries that comprise different index

# WHY DO INSIDERS SOMETIMES PAY MORE AND SOMETIMES PAY LESS IN PRIVATE PLACEMENTS?

Ching Yi Yeh, Hsiuping University of Science and Technology  
Tai Ma, National Sun Yat-sen University

## ABSTRACT

*This paper explores private placement pricing sold to insiders by considering changes in the control power of the largest shareholders in private placement. We use the Banzhaf power index to reflect the largest shareholder's relative power of influence. The results indicate that, if existing insiders maintain their leading control status, in cases where insiders are the main investors, private placements are issued at deep discounts that benefit themselves. However, in cases where outsiders/new insiders are the main investors, outsiders and new insiders will pay relatively more when existing insiders dominate. Contrarily, if existing insiders fail to retain their leading position and become less powerful after private placement, outsiders and new insiders buy at lower prices. In more than 65% of the sample, the largest shareholders lost their leading control status, and the issuer's ownership structure becomes more concentrated following private placements. Finally, the findings suggest that motivations of private placement issues have a greater influence on pricing than investor types in private placements.*

**JEL :** G1; G3

**KEYWORDS:** Private placement discount, power index, control right, self-dealing, ownership structure

## INTRODUCTION

Over the last few decades, there has been a dramatic increase in the number of equity private placements. From 1995 to 2006, the number of private placements issued by U.S. corporations increased from 127 to 2,720. The total amount of capital raised via private placement also has increased from \$1.87 billion in 1995 to \$88.0 billion in 2006. In Taiwan, from October 2001, publicly listed firms have been able to raise equity capital via private placements. The number of private offerings has been increasing annually, while numbers of public offerings have been decreasing. Some firms even conduct multiple private offerings during a single year in Taiwan. The private placement market has emerged as an important choice among corporations for the issuance of follow-on equity financing. Although extant research has focused primarily on public offerings, private placements have recently attracted considerable attention.

Equity private placements are in general sold at a discount. Empirical research shows the average discount of U.S. private equity issues is -11.3%~-20.14%. The average discount of Taiwanese private offerings is about -20%. Why private placements are issued at relatively large discount to the market price? Past literature on the causes of private placement discount mainly focused on the impact of monitoring, illiquidity, management entrenchment and information asymmetry. However, existing studies have ignored the fact that changes in large shareholders' control over the firm may be a key consideration in determining prices.

Prior studies provide some evidence of the association between private placement discount and investor type. For example, Hertz and Smith (1993) and Barclay, Holderness and Sheehan (2001, 2007), among others, suggested that there is a larger discount for private placement sold to outsiders. The reason for this large discount is to compensate the investors for agency cost or information cost. However, there is no consensus on the discount for private placement sold to insiders. Some studies provide empirical evidence of the *self-dealing hypothesis* where discounts for private placements sold to insiders are higher than discounts for private placements in which insiders do not participate (see Wruck and Wu (2009), Wu (2004), and Hertz et al. (1993)). Insiders can issue private placements at a greater discount to benefit themselves because private placements tend to draw less attention from investors and regulatory agencies,

# AN ANALYSIS OF THE DEGREE OF DIVERSIFICATION AND FIRM PERFORMANCE

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## ABSTRACT

*A firm's diversification decision is likely to be a response of two interacting effects, one is the agent problem and the other is the economies of scale. Whether diversification causes a discount or a premium depends on the interaction of the two effects. This paper re-evaluates the effect of diversification on firm performance by examining firms with different degrees of diversification. We found the evidence that the diversification premium gets smaller if a firm engages in more than three industries.*

**JEL:** G30, G34, L22, L25

**KEYWORDS:** Tobin's Q, Firm performance, Diversification

## INTRODUCTION

A key strategy issue facing corporate management relates to the degree of diversification that their firm should achieve. Thus, the relationship between diversification and firm performance has inspired a large literature in many fields, including Industrial Organization, Corporate Finance and Strategic Management. However, after several decades of research, the literature has not reached a decisive conclusion whether diversification causes a premium or a discount.

Lang and Stulz (1994) showed that Tobin's q and firm diversification are negatively related. Firms that choose to diversify are poor performers relative to specialized firms. Berger and Ofek (1995) also found that diversified firms trade at a discount relative to specialized firms. Conversely, recent research shows that the diversification discount disappears when we control for the self selection problem. Campa and Kedia (2002) found that firm characteristics, which make firms diversify, might also cause them to be discounted. Villalonga (2004) estimated the value effect of diversification by matching diversifying and single-segment firms on their propensity score and found that diversification does not destroy firm value. In the same direction, Graham, Lemmon and Wolf (2002) pointed out that segments acquired by diversifying firms already traded at a discount before the acquisition, thus refuting the post acquisition negative relationship between diversification and firm performance.

Despite being a central topic in the corporate finance literature, we have not reached a consensus on the effect of diversification on firm performance. Thus, the issue whether diversification improves or worsens firm performance is still worthy of further research.

A diversification discount or premium is a balance of the costs and the benefits of diversification. If the costs of diversification outweigh the benefits, there may exist a diversification discount or vice versa. The gains generally can rise from: (1) managerial economies of scale; (2) efficient resource allocation in internal capital market; (3) firms' current resource may be exploited in other industries. On the other hand, the costs may arise from: (1) inefficient resource allocation in internal capital market; (2) opportunities for managers to use firm resource for their own benefits; (3) difficulty of motivating divisional managers.

# IMPACT OF DIVESTITURE ACTIVITIES ON CORPORATE PERFORMANCE: EVIDENCE FROM LISTED FIRMS IN TAIWAN

Meijui Sun, Ming Chuan University

## ABSTRACT

*This study examines how divestiture affects the performance of listed companies in Taiwan. Divestiture describes firms selling their assets, production lines, subsidiaries or other segments for either cash or securities. This study focuses on two types of divestiture activities: sell-offs and equity carve-outs. Specifically, this work employs a control group design to examine 266 sell-off and equity carve-out announcements between 1995 and 2004, and measures the short-term abnormal stock returns and long-term (5 years) operating performance using financial ratios. The analytical results show significant positive stock abnormal returns associated with divestiture announcements for listed companies in Taiwan. Furthermore, firms generally experienced enhanced performance after undertaking divestiture activities.*

**JEL:** G34, G14

**KEYWORDS:** Divestiture, Sell-offs, Equity carve-outs, Event study, Taiwan

## INTRODUCTION

Firms can adopt numerous growth strategies, one of which is divestiture. One recent trend has seen diversified firms exhibit a diversification discount compared to stand-alone firms. Rajan, Servaes and Zingales (2000) think that with increased diversity in resources and opportunities, resources flow towards the least efficient division, resulting in less efficient investment and lower firm value. Studies show that firms that engage in divestitures and increase their focus achieve improved operating performance and stock returns (Comment & Jarrell, 1995; John & Ofek, 1995). Dittmar and Shivdasani (2003) indicate that the efficiency of segment investment increases considerably following divestitures.

Other empirical studies on divestitures focus on two areas, namely the impacts of divestiture activities on stockholder wealth and firm operating performance, respectively. Numerous studies have investigated the effect on shareholder wealth of firm announcements to voluntarily divest part of their operations, and all have shown that divestiture announcements positively affect parent firm stock returns (Mulherin & Boone, 2000; Dittmar & Shivdasani, 2003; Datta, Iskandar-Datta, & Raman, 2003; Veld & Veld-Merkoulova, 2004). Regarding the impact of divestiture activities on the operating performance, Haynes, Thompson and Wright (2002) indicate that divestment significantly, positively and substantially enhances firm profitability. Hanson and Song (2003) found that divestitures improve firm operating performance, apparently by removing negative synergies. Most scholars support the perspective that divestitures improve operating performance (Hulburt, Miles & Woolridge, 2002; Dittmar & Shivdasani, 2003).

Few empirical studies have examined firm divestitures in Taiwan or other emerging developing economies. Therefore, it is worth exploring whether or not Taiwanese firms engaging in divestitures improve their performance. Regarding shareholder wealth effects, most previous studies focused on the wealth effect of merger/investment announcements and payment for acquisitions. Previous studies of the wealth effect associated with firm divestiture announcements have been insufficient. This study

# AN ESTIMATION OF THE IMPACT OF GEAR AND NEPAD ON SOUTH AFRICA'S DISAGGREGATED IMPORT DEMAND FUNCTION WITH NIGERIA

Ranjini L. Thaver, Stetson University  
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*This paper estimates South Africa's disaggregated import demand function with Nigeria from 1992 to 2010 utilizing the bounds testing approach to cointegration and the unrestricted error-correction model. We further estimate South Africa's short-run and long-run import elasticities. Our results indicate a long run cointegrated relationship among the variables. However, not all the long-run elasticities display theoretically expected signs; neither are they all significant. While consumption and exports affect imports positively, investment affects it negatively. Real foreign reserves and volatility yield expected signs, but contrary to theoretical expectations, relative price is positive and highly elastic. In the short run almost all the expected elasticity coefficient signs are met and they are all statistically significant. Our study further discloses that South Africa's commitment to increasing intra-African trade through its GEAR and NEPAD policies applies negatively to Nigeria, contrary to our hypothesis. We argue that appropriate public policy at the regional level is necessary to effectively increase trade with Nigeria, given South Africa's reliance on oil imports for which Nigeria is its largest supplier.*

**JEL:** F14, F31

**KEYWORDS:** South Africa, Nigeria, disaggregated import demand, cointegration, GEAR, NEPAD.

## INTRODUCTION

South Africa, Africa's economic giant, is lauded as one of the more growth-dynamic emerging economies in the global economy. It is characterized as a middle power in international trade with a significant trade and growth impact on surrounding economies. As the economy aspires to increase its economic footprint on the African continent, it is imperative to study its import demand function with African countries. So far, however, such research is sparse at best, with estimates of only a few African countries' import demand functions. This study seeks to fill this void in the literature. Our objective is to investigate South Africa's disaggregated import demand function and its associated long run and short run dynamics with Nigeria from 1992 to 2009. Further, we evaluate the success of its Growth, Employment and Redistribution (GEAR) and the New Partnership for Africa's Development (NEPAD) policies intended to increase intra-African trade, in this case, with Nigeria. To our knowledge, this study is the only one of its kind to date. This import demand function is estimated using the bounds testing approach to cointegration and the error-correction model. We proceed in the next section with a brief history of South Africa, after which we review the literature on import demand functions. Thereafter we specify our model and variables and explain the data used for estimation. We then explain and discuss the empirical results, and the final section concludes the paper with suggestions for future studies.

### Brief History of South Africa

South Africa, like most other developing countries, suffers from serious economic problems associated with a dependence on imports of capital and intermediate goods, declining exports, increased imports from the west, high unemployment rates, falling foreign reserves, and balance of payments constraints (Department of Trade and Industry, 2011; Saayman, 2010; Ngandu, 2008, 2009; Truett & Truett, 2003).

# INTEREST RATE REFORMS AND FINANCIAL DEEPENING IN NIGERIA

Tomola Marshal Obamuyi, Adekunle Ajasin University  
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## ABSTRACT

*This main objective of the paper is to examine the effect of interest rate reforms on financial deepening in Nigeria. The methodology adopted for the study includes cointegration and vector error correction models (VECM) to determine the long and short run dynamics of the model. The paper examines time series data from 1973 to 2009. The results indicate that there exists a long run relationship between financial deepening and interest rates. We also find that interest rate reform has a positive and significant effect on financial deepening in Nigeria. The results here suggest that policy makers enact measures that positively influence financial development, economic growth, liquidity reserve ratio, domestic savings/GDP ratio as well as reforms to ensure the efficiency and development of the financial system.*

**JEL:** E4, G2

**KEYWORDS:** Reforms, Vector error correction model, economic growth, financial deepening

## INTRODUCTION

Financial liberalization includes interest rate reform, reduction of credit control, free entry into the banking sector, autonomy to the banking sector, private participation in banking and liberalization of capital flows (Odhiambo and Akinboade, 2009). Interest rate reform, as a policy under financial sector liberalization, has occupied a central position in the liberalization process. The goal of interest rate reform is to achieve efficiency in the financial sector and engendering financial deepening. Nnanna and Dogo (1998) viewed financial deepening as a financial system which is largely free from financial repression. Under such a liberalized system, the market should determine the behavior of lenders and borrowers. Odhiambo and Akinboade (2009) defined financial deepening as the increase in relative size and role of the financial system in an economy.

In Nigeria, financial sector reforms began with the deregulation of interest rates in August 1987 (Ikhide and Alawode, 2001). Prior to this period, the financial system operated under financial regulation, and interest rates were repressed. According to McKinnon (1973) and Shaw (1973), financial repression arises mostly when a country imposes ceilings on deposit and lending rates at a low level relative to inflation. The resulting low or negative interest rates spreads discourage saving mobilization and channelling of mobilized savings through the financial system. This has a negative impact on the quantity and quality of investment and hence economic growth.

The main argument of McKinnon- Shaw (1973) was that an increase in the real interest rate may induce savers to save, which generates more investment. Therefore, the expectation of interest rate reform was to encourage domestic savings and make loanable funds available in the banking system. However, the “tunnel-like” structure of interest rates (Ojo, 1976) in Nigeria was capable of discouraging savings and retarding growth in view of the link between savings, investment and economic growth. The critical questions, therefore, are: Does interest rate reform has any positive effect on economic growth in Nigeria? Will deregulation of the financial system speed up capital accumulation and economic growth in the country?

# PRICING OF PAYMENT DEFERRED VULNERABLE OPTIONS AND ITS APPLICATION TO VULNERABLE RANGE ACCRUAL NOTES

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## ABSTRACT

*This paper derives a pricing model for payment deferred vulnerable options and applies the results to the pricing of vulnerable range accrual notes. The valuation model for vulnerable options takes into account the possibility of the option writer defaulting. However, when the payment date is set later than the option maturity date, the valuation model will be incomplete if the default risk between the option maturity and payment dates is not explicitly incorporated. We extend the current available models and our results show that the default risk of the option writer will further reduce the option value if the payment date is after the maturity date. The analysis of vulnerable range accrual note, which contains multiple payment deferred vulnerable options, is also performed. Due to the product design, the pricing model for vulnerable range accrual notes shows that the relationship between volatility and note value is not monotonic but depends on whether the underlying price is within, outside, or on the range boundary.*

**JEL:** G12; G13

**KEYWORDS:** Reduced form model, vulnerable options, vulnerable range accrual notes

## INTRODUCTION

This paper derives a pricing model for payment deferred vulnerable options and applies the results to the pricing of vulnerable range accrual notes. The valuation model for vulnerable options takes into account the fact that the option writer may default. However, when the payment date is set later than the option maturity date, a common arrangement in the OTC structured products market, the valuation model will be incomplete if the default risk between the option maturity and payment dates is not explicitly incorporated. We extend the current available models, which usually assume that the option maturity and payment dates are identical. Our results show that the default risk of the option writer will further reduce the option value if the payment date is after the maturity date.

One practical application of the payment deferred vulnerable option valuation model is in the valuation of vulnerable range accrual notes. Range accrual notes are structured products. Its payoff is defined as the interest payment computed as the proportion of the number of days that the reference underlying asset price lies within a specified range times the interest rate specified at the initiation of the note. The specified interest rate is usually set much higher than the interest rate currently available on the market. Therefore, it gives the note holders a chance to get higher earnings. For this reason, the range accrual note is attractive to investors, especially in a low interest rate environment. The analysis of vulnerable range accrual note, which contains multiple payment deferred vulnerable options, is also performed.

The paper is organized as follows. Section 2 provides a pricing model for payment deferred options. Since range accrual notes can be regarded as combinations of range options, which are combinations of digital options, Section 3 discusses the valuation of digital options and range options. Section 4 then applies the results in Sections 2 and 3 to the pricing of vulnerable range accrual notes. Finally, Section 5 presents our conclusions.

# ASSET GROWTH AND FIRM PERFORMANCE EVIDENCE FROM GREECE

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## ABSTRACT

*This study provides evidence drawn from publicly traded companies in Greece on the predictability of assets growth with respect to firm performance. We employ discriminant analysis and a logit specification to test our models. Results indicate that assets growth is predictable at an 85.7% rate in large companies. This rate is high compared those in other prediction studies such as bankruptcy, qualified audit reports and going-concern opinions.*

**JEL:** M,M41

**KEYWORDS:** asset growth, firm performance, discriminant analysis, logit

## INTRODUCTION

Assets are the economic resources of a company expected to benefit the firm's future operations. Certain kinds of assets including cash and accounts receivable are monetary items. Others like inventory, land, buildings and equipment are nonmonetary, physical items. Still other assets like patents, trademarks, and copyrights-are non-physical. The assets of a business enterprise are an integral part of business operations. Assets work in conjunction with other components of liabilities and equity in the overall business operations. Stock returns are a high priority measure of performance. However, prior studies show the market is slow to incorporate publicly available information, contrasting the efficient market hypotheses. Sales and earnings growth are also important measures of performance. Growth provides additional capabilities, opportunities, revenue and profit. Growth can be organic or from mergers and acquisitions.

The purpose of this study is to highlight differences between companies with positive versus negative asset growth. Using firm performance financial ratios as predictors it is shown that assets growth can be predicted at an 85.7% rate in large companies using discriminant analysis. Logit specifications produce a lower predictability. The prediction rates here are high compared to other prediction studies such as bankruptcy, corporate acquisitions, qualified audit reports and going-concern opinions. The contribution of this study is two-fold. First, it provides empirical evidence with a test of two prediction models in a new area of research. Second it adds a firm based analysis in a research area which has previously been examined primarily at the macroeconomic level. The remainder of the paper is organized as follows: Section 2 provides a review of the literature. Section 3 describes the research design. Section 4 presents the empirical analysis and results. Section 5 provides some concluding comments and suggestions for further future research.

## LITERATURE REVIEW

Prior studies in this area have focused on decomposition of stock returns, disaggregation of growth in net operating assets, post-acquisition returns, the impact of R & D increases, capital investments, stock returns, and predictability of stock returns based on balance-sheet growth. In an effort to identify the information that moves stock prices, Campbell (1991) decomposes stock returns into a component that reflects information about cash flows, and a component that reflects information about discount rates.

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