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Emerging Issues Series

The Impact of New Bank Powers (Securities and Insurance Activities) on Bank Holding Companies' Risk

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and
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**THE IMPACT OF NEW BANK POWERS (SECURITIES AND INSURANCE
ACTIVITIES)**

ON BANK HOLDING COMPANIES' RISKS

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Abstract

We create synthetic universal banks in order to examine the impact of securities and insurance activities (the new expanded bank powers) on the banking firms' risk. We find that these non-bank activities reduce the overall risk to the firm but increase systematic market risk -- thus reducing the firm's ability to diversify. Moreover, the unit price of risk does not appear to contain a risk premium to price the enhanced systemic risk exposure that might be engendered by greater convergence across financial firms. Our finding of the absence of any risk diversification benefits suggests that if there are net gains to universal banking, potential gains from synergies and demand effects must be powerful enough to overcome the disadvantages of increased systemic risk exposure. The results suggest that diversification benefits, when considered in isolation from the other implications of expanded bank powers, are not sufficiently large to justify expanding bank powers into non-bank securities and insurance underwriting activities.

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THE IMPACT OF NEW BANK POWERS (SECURITIES AND INSURANCE ACTIVITIES) ON BANK HOLDING COMPANIES' RISKS

I. Introduction

As financial reform legislation lumbers its way through Congress, market forces appear to have already cast their ballots for financial services integration. Mega-mergers of financial institutions, as exemplified by the merger of Travelers and Citicorp, increasingly enable US firms to offer one-stop shopping for financial services. The drive toward universal banking in the US can be understood by appealing to either demand or supply forces. On the demand side, customers may find it convenient to integrate their banking, securities, and insurance activities by dealing with a single financial intermediary that can provide a full array of services. Evidence suggests, however, that consumers are not willing to pay for the convenience of one-stop financial shopping.¹

If demand-side forces are not the apparent motivation for the move toward universal banking, perhaps the pressure emanates from the supply side. Potential supply-side benefits are two-fold: synergistic gains and risk diversification. Synergistic gains can be obtained via the reusability of information obtained in the course of a banking relationship, which lower the costs of providing ancillary securities and insurance services. Alternatively, combining imperfectly correlated banking, securities, and insurance activities may reduce the financial institution's risk exposure, thereby allowing the universal bank to economize on capital costs.

It is the question of risk diversification that is the subject of this paper. We examine the impact on total risk as well as systematic risk of combining commercial banking, securities, and insurance activities in the absence of any synergistic gains. We find that the new bank powers, which would allow banking firms to underwrite securities and insurance, will likely lower the overall risk of the U.S. banking

¹ A Prince & Associates consulting report "surveyed 311 clients with liquid assets of at least \$1 million each and found that one-stop shopping for financial services appeals to about 22 percent -- the same percentage that already uses a single source." Source: *Wall Street Journal*, May 21, 1998, page 1.

industry. However, our results also suggest that the bank's systematic risk (nondiversifiable) will rise with the intensity of securities and insurance activities within the organization.

We address this question by creating synthetic universal banks, consisting of one bank, one securities firm, and one insurance company, and compare the risk of the synthetic universal banks to the risk of the undiversified banks. Since we use individual firms to construct the synthetic universal bank, we avoid the aggregation bias present in earlier studies - see Boyd, Hanweck, and Pithyachariyakul (1980), Wall and Eisenbeis (1984), and Kwast (1989). Whalen (1998) uses both industry-level and firm-level data, and finds that the results are sensitive to the aggregation method. In addition, we use market data, rather than accounting data, which is not affected by the firm's choice of accounting method and less likely to be subject to smoothing. Additionally, the market price of risk also reflects the actual cost of capital faced by the firm.

Previous studies, with the exception of Boyd, Graham, and Hewitt (1993), limit their non-bank activities to those already allowed to BHCs during their sample period -- see, for example, Kwast (1989), Boyd and Graham (1986), Brewer (1989), Whalen (1998), and Kwan (1998). Unlike these studies, we examine a full range of activities provided by securities firms and insurance companies -- including those not currently allowed in banks and/or bank holding companies.² Our results suggest that expanded bank holding company powers would result in a significant diversification benefit in terms of *overall* risk reduction.

In addition, the methodology used in this paper also allows us to isolate the potential risk diversification benefits from any synergistic gains. Thus, our work is complementary to Whalen (1998) and Kwan (1998), which examine synergies and risk diversification jointly by examining returns to overseas securities activities and Section 20 subsidiaries, respectively. Whalen (1998) finds that, using

² Non-bank activities have been increasingly permitted in banks and bank holding companies, particularly with the allowance of Section 20 subsidiaries. However, even Section 20 subsidiaries are limited in both their lines of business and volume of activity.

firm level data in 1987-1996, the mean and standard deviation of returns on assets from overseas securities activities are higher than those of the holding company's domestic bank and domestic non-bank offices. Kwan (1998) presents a more complete analysis and utilizes a new source of data over a more recent time period than previous studies. Ex-post returns between Section 20 subsidiaries and their commercial bank affiliates are compared, using data from 1990 to 1997. It is found that securities activities are riskier overall than banking activities, and that trading activities by primary dealers provide diversification benefits. Our results concur with those of Kwan (1998), suggesting that the benefit of risk diversification extends beyond Section 20 subsidiaries.³

Boyd, Graham, and Hewitt (1993) examine the impact of diversification on bankruptcy risk. They create simulated mergers between bank holding companies and non-bank financial firms, and compare the calculated risks (using a Z-score measure of failure probability and the volatility of return on equity) of the hypothetical merged firms with those of unmerged banking firms. The results provide weak support for allowing insurance activities, but not securities underwriting. An advantage of our methodology is that whereas Boyd, Graham, and Hewitt (1993) execute the simulation of mergers based on dichotomous pairings (one bank holding company and one non-banking firm), we construct portfolios of three financial firms (one depository, one securities firm, and one insurance). Our results also concur with those of Boyd, Graham, and Hewitt (1993), suggesting that the potential for diversification is greater in a full universal banking environment (combining a bank with insurance and securities firms simultaneously) than a partial one.

It is important to stress that unlike previous studies, which examine only *total* risk, this paper also focuses on *systematic* risk and the *risk premiums* demanded by the market as the relevant

³ Kwan (1998) also finds that trading activities by non-primary dealers increase the firm's total risk. Our paper extends the diversification analysis to include a full range of securities as well as insurance activities, and find that these activities increase the firm's systematic risk.

measure of risk and the risk-adjusted cost of capital.⁴ This also allows us to better identify the pure diversification benefits of the expansion of bank powers into non-bank activities. While bank regulators' primary concern may be related to failure risk (total risk), our analysis of systematic risk in this paper provides an important policy implication for the expanded bank powers. That is, bank holding companies' systematic risk exposure may be considered a proxy for the systemic risk faced by the U.S. banking system. If the expanded bank powers into securities and insurance activities increased bank holding companies' systematic risk, this would suggest that it would be more likely that a common economic shock could lead to massive bank failures across the entire banking system.

Kwast and Passmore (1997) point out an important argument, which is that the diversification benefits could be achieved by banking firms through passive, mutual fund stock holdings of insurance or securities firms without requiring banks to actually provide the non-bank services. Thus, a diversification benefit based on total risk may not be a valid argument for expanding bank powers into non-bank securities and insurance underwriting activities. We are the first to examine the impact of non-bank activities on systematic risk. A reduction in systemic risk faced by the U.S. banking industry through expanded activities, if found, would provide a strong ground for expanding bank powers into non-bank activities.

In addition, if market discipline exists, that is, the market demands a higher unit price of risk for banks with higher betas, then expansion of non-bank activities would be more easily justified since bank risk-taking behavior would be controlled by the market. We examine the impact of securities and insurance activities on the market price of risk in this paper.

Section II describes the data. Section III compares total risk and market returns across financial segments: depository, securities firms, insurance companies, and universal banks. Risk is

⁴ Boyd and Graham (1986), Boyd, Graham, and Hewitt (1993), and Whalen (1998) examine the Z-score as a measure of risk. Others use standard deviation of returns as a measure of risk (total risk, rather than systematic risk).

estimated using the standard deviation of monthly market returns. Section IV examines how the size of securities and insurance units of the universal bank may affect its systematic (non-diversifiable) risks, using a two-factor model with time-varying beta estimated over the period 1986 to 1994. In Section V, the unit price of risk is estimated to see how non-bank activities affect the market's evaluation of bank risk and cost of capital faced by the bank. Section VI presents summary and conclusions.

II. The Data

We utilize monthly data from January 1986 to December 1994, for bank holding companies, insurance companies, and securities firms whose shares are traded on the NYSE, AMEX, or NASDAQ and were in existence throughout the whole study period.⁵ We distinguish among these financial institutions based on their assigned SIC codes: depository institutions including bank holding companies (SIC codes 60, 6711, 6712, and 6719), security and commodity broker/dealers (SIC code 62), and insurance companies (SIC code 63). All monthly returns and value weighted market indices are obtained from the CRSP tape, with the interest rate index from Citibase. Total assets are obtained from Bloomberg for the period 1990-1994 (quarterly) and from Moody's Bank and Finance Manual for period 1986-1989. Monthly total assets are obtained through a linear extrapolation, since they are not readily available.

Since universal banking is not permitted *de jure* in the United States, we construct a "synthetic universal bank", which is a portfolio consisting of one depository institution, one securities firm, and one insurance company.⁶ In order to create a time series of returns for each universal bank, we were limited to consideration of firms with returns for the entire period. There are only nine securities firms that had

⁵ We were not able to go back beyond 1986 because the number of observations would dramatically decrease.

⁶ This methodology produces a lower bound estimate of the returns to universal banking, since potential synergies are not considered.

continuous data for a period extending from January 1986 to December 1994.⁷ We then chose the largest nine depository institutions and nine insurance companies (on the basis of asset size) which had existing returns throughout the sample period, and replicated all possible synthetic universal banks by choosing every possible combination of these three market segments.⁸

We obtain a total of 729 synthetic universal banks, each with 108 monthly returns for the period 1986-1994. The average proportions (based on assets) of the bank (P_{BNK}), securities firm (P_{SEC}), and insurance company (P_{INS}) within a synthetic universal bank are 67 percent, 9 percent, and 23 percent, respectively. The proportions across all universal banks range from 6 to 98 percent for P_{BNK} , from 0.05 to 90 percent for P_{SEC} , and from 1 to 86 percent for P_{INS} . Monthly returns of a universal bank are value-weighted average monthly returns of the bank holding company, securities firm, and insurance company that are used to form the synthetic universal bank. The weights are based on total assets as of the end of the month. The Appendix lists all the sampled depository, insurance, and securities firms, which are used in forming the synthetic universal banks, with their total assets as of December 1994 and average monthly returns for the whole sample period (1986-1994).

III. Impact of Securities and Insurance Activities on Bank Holding Companies' Total Risk

Following previous studies which focus on total risk, our results in Table 1 present a comparison of average monthly returns and the overall risk of the synthetic universal banks with each of the components (banking, securities, and insurance units). The risk is defined as the volatility of returns; i.e.,

⁷ This creates a problem of survivorship bias, but since we are comparing the results across surviving firms, the effect should cancel out. Moreover, focusing on surviving firms strengthens our conclusions to the extent that our results are consistent with an increase in systemic risk under universal banking, even assuming away bank failure. The list of firms used to create universal banking portfolios appears in the Appendix.

⁸ These nine bank holding companies are much larger than the nine securities firms and nine insurance companies that are used in forming universal banks. However, this may be a reasonable choice since these large money center banks are the ones that will likely participate more aggressively in expanded non-bank activities.

the standard deviation of the firm's average monthly returns. Previous studies obtain mixed results, depending on the data used and the sample period.⁹ We believe that our results are more applicable than previous studies regarding the issue of whether bank powers should be expanded, because we measure a full range of non-bank financial activities, rather than being limited to those already allowed to banks or bank holding companies. In addition, we use market data (rather than accounting), firm level data (rather than industry), and more recent data. The statistics are presented for the overall period (1986-1994) as well as sub-periods -- pre-FDICIA and post-FDICIA.

[Insert Table 1 around here]

The bottom panel of Table 1 presents correlation coefficients of returns between each pair of the universal banks' components. The returns are obviously not perfectly correlated, ranging from 34 percent between securities and insurance to 43 percent between banking and securities industry. Due to the imperfect correlation of the returns during the period 1986 to 1994, the volatility of returns (total risk) of universal banks, on average, is lower than that of the bank holding companies – see the top panel of Table 1. The same results hold true when we examine sub-periods: pre-FDICIA and post-FDICIA. The results suggest that the new bank powers, which will allow U.S. banking firms to offer securities and insurance underwriting (one-stop-shopping), will likely lower the *overall* risk of the U.S. banking industry. The average monthly returns, however, will also decline slightly. The next section further examines the impact of securities and insurance activities on bank risk by focusing on the non-diversifiable portion of the risk.

IV. Impact of Securities and Insurance Activities on Systematic Risks

In this section, we are interested in whether or not there is a potential reduction in the systematic risk resulting from allowing banks to engage in securities and insurance activities. A reduction in

⁹ See Benston and Kaufman (1995) for a literature survey.

systematic risk, if found, would reduce the likelihood that a common economic shock could lead to massive bank failures. This reduction in systemic risk exposure would provide a strong ground for expanding bank powers into non-bank activities.

We follow a well-developed literature and estimate a two-factor model using both market and interest rate risk factors¹⁰ -- see Allen and Jagtiani (1997), Flannery, Hameed, and Harjes (1997), Flannery and James (1984a,b), Sweeney and Warga (1986), Saunders and Yourougou (1990), Bae (1990), and Madura and Zarruk (1995).

Following Ferson and Harvey [1991, 1993], we use two-stage regression analysis which allows the betas to vary both across firms and over time. The first stage estimates the two-factor market model, with time-varying betas over the period 1986-1994, as shown in equation (1):

$$R_{it} = a_{it} + \beta_{Mit}R_{Mt} + \beta_{Iit}R_{It} + e_{it} \quad (1)$$

where R_{Mt} is the monthly market index at time t, measured by the value-weighted CRSP index; R_{It} is the monthly interest rate index at time t, measured by the three month U.S. Treasury bill rate¹¹; R_{it} is the monthly rate of return (including dividends) for each of the sampled financial firms at time t. We employ a 36-month rolling window to estimate monthly beta coefficients for each firm. That is, instead of estimating equation (1) using a single regression over the period 1986-1994 for each firm, a different set of coefficients is estimated for each month using returns from the previous 36 months. Thus, we perform this estimation for each firm for each of the 108 months in the period 1986-1994, resulting in estimates of a_{it} , b_{Mit} , and b_{Iit} .

In stage two, in order to determine the impact of securities and insurance activities on universal banks' systematic risks, we examine the variation in investment (measured by asset value) in each of the

¹⁰ The correlation coefficient between the market index and interest rate index is very low (-0.07) and not significantly different from zero during our sample period 1986-1994. We follow Flannery, Hameed, and Harjes (1997) in assuming that the market and interest rate indices are orthogonal to one another.

¹¹ We also performed our analysis using both 3-month and 1-year Treasury rates, with no significant impact

components of the universal bank portfolio.¹² $P_{sec,i}$ is an average (over the sample period) of each securities firm's book value of assets as a fraction of the synthetic universal bank's total asset value.

Similarly, $P_{ins,i}$ is an average of the insurance company's fraction of the synthetic universal bank's asset value. The following equations are estimated:

$$b_{Mi} = b_0 + b_{sec}P_{sec,i} + b_{ins}P_{ins,i} + e_i \quad (2)$$

$$b_{Ii} = b_0 + b_{sec}P_{sec,i} + b_{ins}P_{ins,i} + e_i \quad (3)$$

The dependent variables in stage-two regressions are the average time-varying betas estimated from stage one. That is, b_{Mi} , and b_{Ii} are the average of the estimated coefficients of equation (1) for the market index and the interest rate index respectively. $P_{sec,i}$ is the securities firm's average proportion of the synthetic universal bank i 's asset value, and $P_{ins,i}$ is the insurance company's average proportion of the synthetic universal bank i 's asset value.

[Insert Table 2 around here]

Table 2 presents the results of the second stage of the analysis (estimation of equations 2 and 3), which show that the securities proportion, P_{sec} , is significant (at the 1 percent level) for both the market beta (a coefficient of 0.3289) and interest rate beta (a coefficient of -0.0359 which increases the absolute size of the intercept term). This suggests that the synthetic universal bank's market risk and interest rate risk exposure increase as the proportion invested in securities units increases. Thus, allowing banks to expand their activities into securities will likely increase the market risk exposure of the banking firms, which will result in greater exposure to systemic risk for the U.S. banking system.¹³

on our results.

¹² Our estimate of monthly time-varying betas for 729 synthetic universal banks is functionally equivalent to the estimation of monthly betas for each of the 27 actual firms and constructing synthetic universal bank betas by creating portfolios of betas. Stage two of the analysis allows us to examine systematic differences in betas across financial lines of business without resorting to a company-by-company list of time varying betas (unwieldy and unrevealing) or choosing an equally arbitrary consolidation technique (such as company-by-company averaging of monthly betas).

¹³ Our results for synthetic universal banks do not consider either possible synergistic benefits (from economies of scale and scope) or agency costs of diversification (due to conflict of interest). Closest but not directly related studies on the synergy effect examine economies of scale and scope among banks' traditional

However, the greater proportion of insurance activities does not seem to have significant effect on the universal bank's market risk exposure. Unlike securities underwriting, in addition to having no significant impact on the market risk exposure, the insurance proportion, P_{ins} , seems to also reduce the firm's interest rate risk exposure (positive coefficient of 0.0262, which is significant at the 5 percent level). The greater the proportion of the insurance activities, the smaller the interest rate risk exposure of the universal bank.¹⁴

To summarize, it is evident from the previous section that securities and insurance firms are exposed to risks that are not perfectly correlated with each other and with bank holding company's risk. Thus, the new expanded bank powers will likely lower the *overall* risk exposure (i.e., return volatility) of the bank holding companies. However, it is shown in this section that the ability of the banking industry to diversify will be lowered with the intensity of the securities underwriting activities. Unlike securities underwriting, insurance activities have no significant impact on the universal bank's exposure to market risk. In addition, insurance activities will likely reduce the banking firm's exposure to interest rate risk. The next section will examine the market's perception of the expanded bank powers.

V. The Impact of Securities and Insurance Activities on Risk Premiums

This section examines how the size of securities and insurance units in a universal bank affect the way the market evaluates the risk premium per unit of risk that the firm takes. If market discipline exists, we would expect that the unit risk premium demanded by the market would rise with the amount of risk exposure -- thereby providing some degree of market control that may substitute for regulatory

and non-traditional and off-balance sheet activities -- see Jagtiani, Nathan, and Sick (1995), Jagtiani and Khanthavit (1996), and Mester (1992). For related issues on conflicts of interest when allowing banks to expand into non-bank activities, see Mester (1996).

¹⁴ Interest rate risk is included in the model when measuring systematic market risk in our model in order to accurately measure market risk. However, we recognize that interest rate risk can be hedged using derivatives at relatively low cost. Thus, unlike market risk which is not diversifiable, interest rate risk is not likely to offer a valid motivation for universal banking.

control. In this circumstance, the expansion of bank powers would be more easily justified since bank risk taking behavior would be at least partially controlled by the market. We examine the market and interest rate risk premiums for synthetic universal banks using a three-stage procedure, previously used in Ferson and Harvey (1991).

In stage one, we estimate equation (1) using the synthetic universal bank sample with a 36-month rolling window. The estimated time-varying betas from stage one are used as independent variables in a time-series analysis in stage two, using the following expression:

$$R_{it} = \alpha_{0i} + \alpha_{Mt}(\beta_{Mit \frac{1}{2}} O_{t-1}) + \alpha_{It}(\beta_{Iit \frac{1}{2}} O_{t-1}) + e_{it} \quad (4)$$

where $(\beta_{Mit \frac{1}{2}} O_{t-1})$ is the stage-one conditional estimate of firm i 's market risk exposure given the information set, O_{t-1} , where $t-1$ is the 36-month rolling window used to estimate the coefficients of the market model; $(\beta_{Iit \frac{1}{2}} O_{t-1})$ is the stage-one conditional estimate of firm i 's interest rate risk exposure; and R_{it} is the monthly rate of return for firm i . The time-varying market risk premium, α_{Mt} , and time-varying interest rate risk premium, α_{It} , are estimated in stage two of the analysis.

The estimated time-varying market risk premium and interest rate risk premium from stage two are used as dependent variables in stage three, where the time-series regressions (equations 5 and 6) are estimated. $P_{sec,t}$ and $P_{ins,t}$ are the average proportion of securities and insurance business in a universal bank at the end of the month (based on total assets).

$$\alpha_{Mt} = b_0 + b_{sec}P_{sec,t} + b_{ins}P_{ins,t} + e_t \quad (5)$$

$$\alpha_{It} = b_0 + b_{sec}P_{sec,t} + b_{ins}P_{ins,t} + e_t \quad (6)$$

[Insert Table 3 around here]

The results presented in Table 3 suggest that increasing the securities underwriting component of the synthetic universal bank would lower the unit price of interest rate risk (a coefficient of -3.4343 , which is significant at the 5% level), although the insurance component does not significantly affect the interest rate risk premium. Both securities and insurance components have no significant effect on the

market risk premium.

Policy Implications: Combining Table 2 and Table 3 results, a less sanguine picture of universal banking emerges. From Table 2, it appears that adding securities activities enhances systematic risk-taking. That is, in a universal banking world, we could expect greater convergence in financial returns across financial intermediaries, thereby exacerbating systemic risk exposure. Thus, any given unit of systematic risk is potentially more toxic because of the enhanced likelihood and breadth of a system-wide breakdown. The question is whether the market assesses this greater systemic risk exposure by imposing a penalty via a higher unit price of risk. Table 3 results suggest that the market does not seem to penalize synthetic universal banks that take on more systematic risk arising from securities or insurance underwriting. Thus, the market provides no control for the banks' risk-taking behavior.

VI. Summary and Conclusions

This study examines potential diversification benefits of non-bank activities. We attempt to answer the question of whether banks should be allowed to engage in securities and insurance underwriting activities, based on the risk diversification benefit argument. Our contribution is to focus on both total risk and systematic risk, and to isolate the potential for risk diversification from other considerations such as synergistic gains. We create synthetic universal banks, each comprised of a bank holding company, a securities firm, and an insurance company. The analysis utilizes the two-factor model with time-varying betas and risk-premiums based on monthly data from January 1986 to December 1994.

The results suggest that bank holding companies' overall risk declines with the new bank powers (securities and insurance activities). However, securities underwriting, if allowed, will expose the banking firms to greater market risk (systematic risk which cannot be diversified away) as well as

interest rate risk. Unlike securities underwriting, insurance activities have no significant effect on the firm's exposure to market risk. In addition, expansion into insurance also helps to reduce the firm's exposure to interest rate risk. While interest rate risk may be diversified away using derivatives at relatively low cost, systematic market risk is not diversifiable. Therefore, we conclude that diversification gain is not a valid argument for allowing banks to expand into the securities underwriting businesses.

In addition, in a world with greater systematic risk exposure, the degree of convergence across financial firms increases, thereby exacerbating the risk of a system-wide breakdown – systemic risk exposure. Thus, each unit of systematic risk is potentially more costly as the financial system becomes more intertwined. Our results suggest that the market does not assess a systemic risk premium in the unit price of risk. Thus, there appears to be no market discipline for systematic risk taking.

It is important to point out, however, that risk diversification is only one of the reasons generally offered to justify integrating non-bank financial activities with banking. Our results suggest that this reason alone is insufficient to justify the creation of universal banks. Indeed, if there are net gains to universal banking, gains from synergies and demand effects must be powerful enough to overcome the disadvantages of increased systematic risk exposure documented in this paper.

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Table 1

**Risks and Returns Comparison (Universal Bank and Its Segments)
Monthly Stock Market Returns -- Mean and Volatility of Average Monthly Returns
Period: 1986-1994**

Panel A: Mean and Standard Deviation of Monthly Returns

	Overall Period 1986-1994		Pre-FDICIA Period 1/1986-11/1991		Post-FDICIA Period 12/1991-12/1994	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
BHC	0.0136	0.0938	0.0111	0.1024	0.0184	0.0721
Securities	0.0109	0.1088	0.0088	0.1151	0.0148	0.0961
Insurance	0.0092	0.0774	0.0077	0.0826	0.0120	0.0654
Universal Bank	0.0121	0.0811	0.0099	0.0893	0.0163	0.0610

Panel B: Correlation Coefficients of Monthly Returns

	BHC	Securities	Insurance
BHC	1.0000	0.4329***	0.3754***
Securities		1.0000	0.3372***
Insurance			1.0000

Note: *** denotes significance at the 1 percent level.

Table 2

**Impact of Non-Bank Activities on Systematic Risks
Using Two-Factor Market Model With 36-Month Rolling Betas for Each Firm
Period: January 1986 - December 1994**

Results from stage-one regressions are not reported here. R_{it} are monthly returns of synthetic universal banks. RM_t are value weighted CRSP index of monthly returns. R_{It} are monthly returns on 3-month U.S. Treasury bills. b_{Mi} and b_{Ii} are, respectively, average value of the calculated time-varying market and interest rate betas for a synthetic universal bank i . Variables $P_{sec,i}$ and $P_{ins,i}$ are, respectively, the average proportion of securities firms and insurance companies in the synthetic universal bank portfolio (based on total assets as of the end of the month). Results from stage-two regressions are reported with P-values in parentheses. *** and ** denote significance at the 1 percent and the 5 percent level, respectively.

Stage One Estimation:

$$R_{it} = a_{it} + \beta_{Mi}RM_t + \beta_{Ii}R_{It} + e_{it} \quad (1)$$

Stage Two Estimation:

$$b_{Mi} = b_0 + b_{sec}P_{sec,i} + b_{ins}P_{ins,i} + e_{it} \quad (2)$$

$$b_{Ii} = b_0 + b_{sec}P_{sec,i} + b_{ins}P_{ins,i} + e_{it} \quad (3)$$

	b_0	b_{sec}	b_{ins}	Adj R^2
Market Index: β_M	1.3297*** (.0001)	0.3289*** (.0001)	0.0532 (.1410)	.111
3 mo T-Bill Rate: β_I	-0.0334*** (.0001)	-0.0359*** (.0018)	0.0262** (.0294)	.023

Table 3

**The Impact of Non-Bank Activities on Risk Premiums Demanded by the Market
Using Two-Factor Market Model With 36-Month Rolling Betas for Each Firm
Period: January 1986-December 1994**

Results from Stage-One and Stage-Two regressions are not reported here. R_{it} are monthly returns of synthetic universal banks. R_{Mt} are value weighted CRSP index of monthly returns. R_{It} are monthly returns on 3-month U.S. Treasury bills. Variables $P_{sec,t}$ and $P_{ins,t}$ are, respectively, the average proportion (based on total assets) of securities firms and insurance companies in the synthetic universal bank portfolio at the end of month t . Results from Stage-Three regressions are reported with P-values in parentheses. ** denotes significance at the 5 percent level.

Stage One Estimation:

$$R_{it} = a_{it} + \beta_{Mit}R_{Mt} + \beta_{Iit}R_{It} + e_{it} \quad (1)$$

Stage Two Estimation:

$$R_{it} = \alpha_{0i} + \alpha_{Mi}(\beta_{Mit} \frac{1}{2} O_{t-1}) + \alpha_{Ii}(\beta_{Iit} \frac{1}{2} O_{t-1}) + e_{it} \quad (4)$$

Stage Three Estimation:

$$\alpha_{Mi} = b_0 + b_{sec}P_{sec,t} + b_{ins}P_{ins,t} + e_t \quad (5)$$

$$\alpha_{Ii} = b_0 + b_{sec}P_{sec,t} + b_{ins}P_{ins,t} + e_t \quad (6)$$

	B_0	b_{sec}	b_{ins}	R^2
Market Risk Premium: α_{Mi}	0.3196 (.3646)	-0.7722 (.2139)	-1.0452 (.4765)	.027
Interest Rate Risk premium: α_{Ii}	0.1256 (.1724)	-3.4343** (.0384)	-4.1889 (.2813)	.070

Appendix

List of Financial Firms Used in Forming Synthetic Universal Banks Total Assets (in \$ Million) as of December 31, 1994 Monthly Returns (in %) are Average for 1986-1994

Depository Institutions:

Company Name	Total Assets	Monthly Return	SIC Code	Symbol
1. Citicorp	250,489	1.016	6711	CCI
2. Bank America Corp.	215,475	0.960	6711	BAC
3. Morgan JP & Co. Inc.	154,917	1.110	6711	JPM
4. Bank New York Inc.	48,879	1.556	6022	BK
5. Chase Manhattan Corp.	114,038	1.048	6025	CMB
6. Bankers Trust NY Corp.	97,016	1.460	6025	BT
7. Bank One Corp.	88,738	1.343	6711	ONE
8. Fleet Financial Group Inc.	48,727	1.560	6712	FLT
9. Wells Fargo & Co.	53,374	1.833	6025	WFC

Securities Firms :

Company Name	Total Assets	Monthly Returns	SIC Code	Symbol
1. Advest Group Inc.	900	0.493	6211	ADV
2. Inter Regional Financial Group	1,953	1.114	6211	IFG
3. Morgan Keegan Inc.	571	1.852	6211	MOR
4. Edwards AG Inc.	2,237	2.500	6211	AGE
5. Bear Sterns Co. Inc.	67,392	1.463	6211	BSC
6. Interstate Johnson Lane Inc.	768	0.322	6211	IS
7. McDonald & Co Investment Inc.	591	0.559	6211	MDD
8. Merrill Lynch	163,749	1.929	6211	MER
9. Quick & Reilly Group	2,477	1.514	6211	BQR

Insurance Companies:

Company Name	Total Assets	Monthly Return	SIC Code	Symbol
1. Aetna Life & Casualty Co.	75,487	1.019	6311	AET
2. Lincoln National Corp. Inc.	48,865	1.232	6311	LNC
3. American General Corp.	46,295	1.682	6311	AGC
4. CAN Financial Corp.	44,320	1.474	6331	CNA
5. General Re Corp.	29,597	1.748	6331	GRN
6. Providian Corp.	23,613	1.160	6311	PVN
7. AFLAC Inc.	20,287	2.459	6321	AFL
8. AON Corp.	17,922	1.567	6311	AOC
9. USF & G Corp.	13,980	0.972	6331	FG

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