

Ratios and Benchmarks for Measuring the Financial Well-Being of Families and Individuals

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Financial planners and educators comprised a panel of 156 experts in this Delphi study designed to identify and refine ratios and benchmarks for measuring financial well-being. Consensus between the two groups existed for benchmarks on 20 of 22 ratios in the areas of liquidity, savings, asset allocation, inflation protection, tax burden, housing expenses, and insolvency/credit. Consensus regarding the usefulness of specific ratios was observed for liquidity and tax burden but not for inflation protection and insolvency/credit. The preferred ratios were generally less complex and more easily measured than many of the ratios used in previous work. From the findings, a profile of financial well-being for the typical family/individual was proposed.

I. INTRODUCTION

Financial planning, as a profession, has evolved and matured over the past two decades. While many of the original Certified Financial Planner (CFP) practitioners migrated from related disciplines such as accounting, insurance, and finance, a growing proportion of young people are seeking to pursue financial planning as their initial career choice (Wechsler & Longstaff, 1996). Colleges and universities have responded by developing programs to meet the growing demand for planners in this emerging field. There are now more than 70 colleges and universities in the United States offering programs in financial planning (Wechsler & Longstaff, 1996). Due to this rapid growth, standardization of financial measures and terminology in the field has been limited. In a recent discussion of the need for practice standards in financial planning, Kochis (1996) contrasted the extensive development of such standards in medicine to their dearth in financial planning. He concluded by saying, "In direct contrast, there are no defined standards of practice that are generally accepted by today's financial planning profession" (p. 20).

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The fundamental goal of this project was to identify and refine important, useful ratios and benchmarks for assessing the financial well-being of families and individuals. Input via a Delphi format was sought from both financial planning practitioners and academicians to determine if a consensus regarding a comprehensive set of ratios and benchmarks has developed. These measures were viewed as potential diagnostic tools which could be used in monitoring financial progress and identifying problem areas.

II. REVIEW OF THE LITERATURE

Financial ratios have a long history in business as instruments for assessing the financial health of firms (Horrigan, 1978). An early application of ratios centered on analyzing business insolvency and bankruptcy (Altman, 1968) while later work focused on the development and refinement of a more comprehensive set of financial ratios and on evaluation of their effectiveness (Chen & Shimerada, 1981; Brandt, Danos, & Brasseaux, 1989; Lawder, 1989; Kimmell, 1994; Poston, Harmon, & Gramlich, 1994; Gardiner, 1995; Kane, 1995). One of the business applications of financial ratios that first interfaced with consumers involved credit approval standards including mortgage loans. In addition, debt and expenditure ratios have been included in credit scoring models employed by lenders to manage risk exposure and to optimize profitability (DeVaney & Lytton, 1995).

The use of ratios as tools to assess the financial well-being of families and individuals has developed only over the past decade, evolving from early descriptive efforts to empirical studies involving a variety of data sources. This analysis has its roots in Griffith's (1985) descriptive work where he reviewed personal finance books and found little specificity regarding ratios, norms, or other recommended measures for performing financial analysis. Mason and Griffith (1988) presented 20 ratios and then applied them to a hypothetical case study. They noted that problems occur when trying to analyze personal financial statements because of lack of standardization in compiling such statements. Lytton et al. (1991) also used a hypothetical case study to illustrate the use of nine financial ratios. They concluded that financial ratios were broadly applicable and interpretable by financial professionals as well as by individuals and families. Langrehr and Langrehr (1989) studied 14 consumer debt ratios in search of a preferred measure for assessing ability to repay debt. They concluded that debt service to income was the best measure of ability to handle debt; however, these researchers called for continued development of reliable numeric guidelines. Through empirical studies, researchers have attempted to address the usefulness of these and other financial ratios. Prather (1990) attempted to establish norms for Griffith's 16 ratios using data from the 1983 *Survey of Consumer Finances*. She noted problems in structuring and interpreting several ratios and called for more work directed toward developing recommendations and standardization of ratios.

A number of research studies have employed ratios to assess financial status or well-being in one or more specific areas. These areas include the adequacy of emergency funds (Iwuagwu, 1989; Chang & Huston, 1995; DeVaney, 1995; Hanna & Wang, 1995; Hong & Swanson, 1995), overall savings or overspending rates (Burns & Widdows, 1990; Bosworth, Burtless, & Sabelhaus, 1991; Bae, Hanna, & Lindamood, 1993), changes in net worth over time (Hefferan, 1982; Chang, 1994; Fitzsimmons & Leach, 1994), housing expense and affordability (Fronczek & Savage, 1991; Bogdon, Silver, & Turner, 1993; Oh,

1995; Paulin, 1995), household asset ownership and portfolio allocation (Weagley & Gannon, 1991; Kennickell & Shack-Marquez, 1992; Lee & Hanna, 1995; Xiao, 1995), and debt levels and insolvency risk (Luckett, 1988; Sullivan & Fisher, 1988; Sullivan, Warren, & Westbrook, 1989; Scannell, 1990; Livingstone & Lunt, 1992; DeVaney, 1993, 1994; DeVaney & Lytton, 1995; Godwin, 1995; Hong & Swanson, 1995; Yieh & Widdows, 1995).

The literature indicates that a comprehensive set of ratios and benchmarks could be beneficial to both families and professionals when making current financial decisions and planning for future needs. Such measures should be standardized, broadly accepted, and easily implemented. Mason and Griffith (1988) concluded that "input is needed from academicians and practitioners before competent ratio analysis can become standardized and widely used" (p. 83). Lytton et al. (1991) noted that "establishment of guidelines for all ratios would be dependent upon (a) a consensus among professionals as to the most useful ratios; (b) broad application of the ratios by professionals; and (c) empirical research to determine appropriate numerical ranges" (p. 21). The present Delphi study was initiated in an effort to address some of the concerns raised in the literature regarding standardization, consensus, simplicity, and broad-based application of financial ratios.

III. OBJECTIVES AND METHODOLOGY

The three primary objectives of this research were to:

- Provide a forum for financial planners and educators to identify and refine useful ratios and benchmarks for measuring financial well-being;
- Determine the extent to which a consensus existed regarding these measures among the two professional groups; and
- Develop general guidelines for a financially "healthy" family/individual.

While it is imperative to note that benchmarks must always be considered in a broad context including factors such as life cycle, family type, financial status, economic environment, and personal objectives and goals, this research is a necessary first step toward the development of norms that allow for diversity among family types and economic conditions.

This study employed the Delphi research method which was developed by the Rand Corporation in the 1950s as a spinoff of defense research. Linstone and Turoff (1975) described the Delphi technique as "a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem" (p. 3). These authors described a conventional Delphi method as follows:

A small monitor team designs a questionnaire which is sent to a larger respondent group. After the questionnaire is returned, the monitor team summarizes the results and, based upon the results, develops a new questionnaire for the responding group. The respondent group is usually given at least one opportunity to reevaluate its original answers based upon examination of the group response (p. 5).

The participants in this research project included the research team, an advisory committee, and a panel of experts. Initially the three-person research team compiled a list of existing financial ratios and benchmarks based on previous research findings and current personal finance textbooks. The advisory committee, composed of five financial planners and one additional educator, reviewed the list and suggested research design and sample selection methods. In Spring 1994, 400 financial planners, randomly selected from CFP licensees, and 340 financial educators, selected from membership in The Association for Financial Counseling and Planning Education, were invited to participate in this project. Professionals agreeing to participate in the study included 122 financial planners and 159 educators—a combined acceptance rate of 38%.

In Round 1 of the study, respondents received an open-ended questionnaire that addressed various ideas identified in the literature as important aspects of financial well-being. For each of these concepts, respondents were asked to list specific factors that should be considered when assessing the financial well-being of families and individuals. From Round 1 responses, the research team designed two different Round 2 questionnaires in an effort to keep questionnaires a reasonable length. The first Round 2 questionnaire included (a) goal establishment, (b) financial reviews, (c) savings programs, (d) emergency funds, (e) liquidity ratios, (f) investment and diversification, (g) inflation protection, and (h) retirement. The response rate for this questionnaire was 63% of the original 281 experts. The second questionnaire in Round 2 which yielded a slightly lower response rate (56% of the 281 experts) covered (a) housing, (b) credit, (c) insurance, (d) taxes, and (e) estate planning. Results from both Round 2 questionnaires were reported in the Round 3 questionnaire, and the experts were asked to supply benchmark values for the most useful ratios that had emerged. This provided respondents an opportunity to reevaluate their original answers based upon examination of the group response as is recommended for a Delphi project. The completion rate for this final round was 60% of the original 281 experts.

IV. RESEARCH RESULTS

Round 3 respondents were asked to identify their primary type of work as practitioner, educator, or counselor. For the purposes of this paper, 85 practitioners and 71 educators were included for a total sample size of 156 financial planning experts. Fourteen counselors were excluded from this analysis because the size of the group was too small for statistical testing. Of the 156 who participated in Round 3, the majority (60%) were male. There was a significant difference ($p \leq .001$) in the gender of the planner and educator subsamples with the planners being primarily male (77%) and the educators being primarily female (60%). The average ages for the planner and educator subsamples were 47 and 49 years, respectively. As might be expected, there was a statistically significant ($p \leq .001$) difference between planners and educators in level of education. The majority of planners (55%) had a bachelor's degree or less while the majority of educators (58%) had a doctorate or Juris doctorate degree. Of the 85 planners, 80 (94%) were CFP licensees whereas only 31 of the 71 educators (44%) were. Most planners (67%) received at least part of their income from commissions while very few educators (3%) received commissions.

Using the Delphi approach, ratios and benchmarks resulted for seven general areas of financial planning including liquidity, savings, asset allocation, inflation protection, tax burden, housing expenses, and insolvency/credit. The following definitions also emerged:

- Liquid assets = cash and cash equivalents, checking accounts, savings accounts, money market accounts, money market mutual funds, and CDs with maturities of ≤ 6 months.
- Investment assets = all other assets held for investment purposes, not including use assets or equity in a home.
- Monthly expenses = average fixed and variable living expenses including debt/credit repayment, taxes, and monthly allocations being set aside for irregular expenses such as auto insurance, vacations, gifts, etc.
- Current debt = all debt/credit obligations, charges, bills and payments due within 1 year.
- Payroll taxes = federal, state, and local income taxes and social security taxes.
- Property taxes = real estate and personal property taxes.
- Renter's expenses = rent, renter's insurance, and utilities.
- Homeowner's expenses = principal, interest, taxes, insurance, homeowner's association fees, utilities, maintenance, and repairs.

The numerical ratios and values recommended by the panel of financial planners and educators for a typical family/individual are presented in Table 1. In addition to means for the total sample, a comparison of means between the planners and educators is included. Medians are also included since they are less influenced than means by outlying values. In general, results from the *t*-tests comparing the responses of planners and educators indicated the existence of a strong consensus between the two professional groups. Significant differences existed between planners and educators on only 2 of the 22 ratios, *foreign investments* \div *total investments* and *renter's expenses* \div *before-tax income*.

A. Liquidity

The two liquidity ratios which emerged as useful from this Delphi study were *liquid assets* \div *monthly expenses* and *liquid assets* \div *current debt*. The median value for the ratio involving expenses was 300%, suggesting a 3:1 ratio of liquid assets to monthly expenses. The mean values, which ranged from 246% for the educators to 270% for the planners, were somewhat lower than the overall median. However, these findings support a general view that liquid assets should provide a minimum of 2½ to 3 months of living expenses. On the second liquidity measure, a median value of 50% was recommended, with the mean being 88%. Although the planners specified a higher mean than the educators, 94% vs. 79%, respectively, the difference was not significant indicating a consensus between the two groups. It is interesting to note that the panel of experts overwhelmingly preferred the liquidity ratio using monthly expenditures to the one using current debt. Although respondents were not asked to give reasons for their choices, at least two ideas come to mind. First, individuals tend to think of debt repayment as a part of monthly expenses and realize

TABLE 1
Recommended Ratios for a Typical Family/Individual

Ratio	Total Sample (N = 156)		Planners (n = 85)	Educators (n = 71)
	Median	Mean ± SD	Mean	Mean
Liquidity				
$\frac{\text{liquid assets}}{\text{monthly expenses}}$	300%	261 ± 202%	270%	246%
$\frac{\text{liquid assets}}{\text{current debt}}$	50%	88 ± 124%	94%	79%
Savings				
$\frac{\text{savings}}{\text{gross income}}$	10%	12 ± 4%	13%	12%
$\frac{\text{savings}}{\text{net income}}$	10%	12 ± 5%	13%	12%
Asset Allocation				
$\frac{\text{liquid assets}}{\text{net worth}}$	14%	17 ± 11%	15%	20%
$\frac{\text{net investment assets}}{\text{net worth}}$	50%	56 ± 22%	57%	53%
$\frac{\text{foreign investments}}{\text{total investments}}$	10%	13 ± 7%	15%	10%**
Inflation Protection				
$\frac{\% \Delta \text{ in net worth}}{\text{rate of inflation}}$	2	4 ± 11	5	3
$\frac{\% \Delta \text{ in investment assets}}{\text{rate of inflation}}$	2	4 ± 10	4	4
$\frac{\text{equity investments}}{\text{total investments}}$	60%	59 ± 18%	62%	54%
Tax Burden				
<i>\$31,000 Gross Income</i>				
$\frac{\text{payroll taxes}}{\text{gross income}}$	20%	19 ± 7%	20%	18%
$\frac{\text{payroll} + \text{property taxes}}{\text{gross income}}$	25%	24 ± 9%	24%	23%
<i>\$100,000 Gross Income</i>				
$\frac{\text{payroll taxes}}{\text{gross income}}$	30%	29 ± 9%	29%	29%
$\frac{\text{payroll} + \text{property taxes}}{\text{gross income}}$	35%	34 ± 10%	33%	34%

(continued)

TABLE 1 (Continued)

Ratio	Total Sample (N = 156)		Planners (n = 85)	Educators (n = 71)
	Median	Mean ± SD	Mean	Mean
Housing Expenses				
<u>renter's expenses</u> gross income	30%	29 ± 8%	31%	28%*
<u>homeowner's expenses</u> gross income	35%	34 ± 8%	35%	33%
Insolvency/Credit				
<i>Reasonable</i>				
<u>nonmortgage debt payments</u> after-tax income	10%	14 ± 9%	14%	15%
<u>total debt payments</u> after-tax income	35%	33 ± 12%	34%	32%
<u>total expenses</u> after-tax income	80%	71 ± 21%	72%	69%
<i>Danger-Point</i>				
<u>nonmortgage debt payments</u> after-tax income	20%	26 ± 13%	27%	24%
<u>total debt payments</u> after-tax income	45%	46 ± 14%	49%	43%
<u>total expenses</u> after-tax income	90%	85 ± 20%	88%	82%

Notes: *p ≤ .05.
**p ≤ .001.

it is necessary to pay more than just debt payments in the case of a financial setback. Second, monthly expenses is a simpler concept to conceptualize than current debt.

B. Savings

When respondents were asked to specify the percentages of income that should be saved, identical values were recommended for both gross and net income by planners and educators alike. These results are problematic since it would be impossible for the same level of savings to comprise similar percentages of both before- and after-tax income levels. Since the median recommended savings ratio for both incomes was 10%, the research team felt that these responses might have been influenced by widely-held savings norms. Consensus was again noted between the two subgroups with the planners averaging only one percentage point higher than the educators for both savings ratios, 13% and 12%, respectively. This similarity was somewhat surprising since significantly more planners than educators (63% vs. 47%, p ≤ .05) said that nonvoluntary or forced contributions should be included in the definition of savings. Regarding the definition of income, gross income was preferred by a majority (58%) over net income, which was the choice of

approximately one-third of the respondents. Thus, although there was a general consensus regarding recommended savings benchmarks, the planners appeared to embrace a broader definition of savings than the educators. A weakness of this study was that a definition of savings was not carefully specified in the final Round 3 questionnaire due to a lack of consensus in the earlier round.

C. Asset Allocation

In this study, the two ratios deemed most useful in analyzing assets were *liquid assets ÷ net worth* and *investment assets ÷ net worth*. A difference between planners and educators that approached the .05 significance level was found regarding the recommended level of liquid assets, with educators' mean value being 20% of net worth compared to the planners' value of 15%. The median response for the total sample was 14% of net worth. Financial experts agreed that net investment assets, not including equity in a home, should comprise slightly over one-half of net worth. Recommended means of the planners and educators were quite similar on this ratio, being 57% and 53%, respectively. A third asset allocation ratio included in this study produced one of the few significant differences between planners and educators, with planners recommending a significantly higher percentage of net worth in foreign investments than was true of the educators. This finding may be reflective of differences in orientation and experience between the two groups.

D. Inflation Protection

Two of the inflation protection ratios compared the annual rate of inflation to the annual percentage change in financial well-being as measured by (a) net worth and (b) investment assets. Since these ratios compare annual percentage changes in both the numerator and the denominator, they are expressed in numbers rather than in percentages. For both ratios, the median responses were 2, indicating that net worth and investment assets should each increase twice as fast as the rate of inflation. For example, if annual inflation increased 3%, then net worth as well as investment assets would need to grow at 6% for that year. Mean responses for these ratios were generally higher than the medians, ranging from 3% to 5%.

A third ratio commonly utilized to gauge inflation protection, *equity investments ÷ total investments*, could have been included among the asset allocation measures; however, it was incorporated here because investors often view equity investments as inflationary hedges. For the total sample, the median and mean were quite similar, 60% and 59%, respectively. As with the other inflation protection measures, planners and educators did not differ significantly, although planners recommended higher levels than educators, 62% and 54%, respectively. When respondents were asked which of the inflation protection measures they considered most useful, there was a significant difference ($p \leq .001$) in the responses of the two subgroups. Most of the educators (69%) preferred the measure involving net worth, whereas only 31% of the planners preferred this ratio. Planners' responses were split, with 43% preferring the investment assets measure and 26% preferring the equity investments measure. Only 21% of the educators preferred the investment assets ratio, while 10% preferred the equity investment ratio.

E. Tax Burden

Respondents were asked to specify reasonable tax burden values relative to gross income for (a) payroll taxes and (b) payroll plus property taxes. Because of the progressive nature of the income tax structure in the United States, values were requested for two different gross income levels, \$31,000 and \$100,000. For the \$31,000 income level, the median and mean for the total sample on the payroll tax measure were 20% and 19%, respectively. Little difference existed in the responses of the planners and educators. Concerning the more complex tax measure that included real estate and personal property taxes, median and mean responses were again quite similar for the total sample, 25% and 24%, respectively, as well as for planners and educators who averaged within one percentage point of one another.

At the higher gross income level of \$100,000, the median and means were quite similar for both tax measures. Means for the total sample and two subgroups were all 29% on the payroll tax ratio. When property taxes were included with payroll taxes at the higher income level, the median was 35%. The planners' mean was 33%, and the educators' mean was 34%. Regarding the relative usefulness of the two tax burden ratios, the majority (54%) of planners chose the simpler payroll tax measure while the majority (57%) of educators preferred the payroll plus property tax measure. This difference, however, was not statistically significant.

F. Housing Expenses

The panel of experts were asked to specify percentages of gross monthly income that were reasonable for housing costs for both renters and homeowners. In the case of rental costs, the median response for the total sample was 30%, and the mean was 29%. As previously discussed, planners averaged significantly ($p \leq .05$) higher than educators on this measure, 31% vs. 28%, respectively. For homeowners, the median and mean for the total panel were similar, 35% and 34%, respectively. There was no significant difference between planners and educators with regard to reasonable home ownership expenses.

G. Insolvency and Credit

Respondents were asked to specify both reasonable and danger-point values relative to after-tax income for the following three measures: (a) nonmortgage debt payments, (b) total debt payments, and (c) total expenses. For the first ratio, involving only nonmortgage debt, the median value regarded as reasonable by the total sample was 10%. The means ranged from 14% to 15%, a little higher than the median. Concerning the danger-point for this ratio, the experts' median value was 20% while the averages recommended for this credit benchmark was 24% for educators and 27% for planners.

Reasonable values for the second ratio were higher than those for the first due to the inclusion of mortgage debt. The median and mean for this ratio were similar, 35% and 33%, respectively, as was true for the means of the planner and educator subgroups, 34% and 32%, respectively. Danger-point values were also similar with the median and mean for the total sample being 45% and 46%, respectively. Planners' responses regarding the danger level, however, averaged six percentage points higher than the educators, 49% vs. 43%, respectively. This difference just missed the .05 significance level.

On the third ratio where total expenses relative to after-tax income were considered, the median response for a reasonable level was 80%. Means for the total sample and two subgroups were all quite similar, ranging from 69% to 72%. The median response for the danger-point on this measure was 90%, with the mean being somewhat lower at 85%. Planners again had a higher mean (88%) than educators (82%), but this was not statistically significant. A significant difference ($p \leq .05$) did result when the respondents were asked which of the three ratios they felt were more useful in assessing exposure to insolvency and credit problems. One-half of the planners chose *total expenses ÷ after tax income* as the most useful, whereas only 28% of the educators chose this ratio. The second ratio involving total debt payments relative to after-tax income was preferred by a slightly larger percentage of educators (43%) than planners (37%). Twice as many educators as planners, 28% vs. 13%, respectively, preferred the ratio involving nonmortgage debt payments, or what is typically called the debt safety ratio. Overall, 40% of the total sample preferred the more general ratio of expenditures to income, 40% preferred the broader debt to income ratio, and only 20% preferred the narrower debt safety ratio that is so widely used by lenders.

V. SUMMARY AND CONCLUSIONS

There was considerable agreement among experts about the specific ratios and benchmarks derived in this study. When the responses of planners and educators were compared on the major benchmarks presented in this study, the only statistically significant differences were for a relatively specific asset allocation ratio, *foreign investments ÷ total investments*, and for *renter's expenses ÷ before-tax income*. However, in all other areas, liquidity, savings, inflation protection, tax burden, homeowner's expenses, and insolvency and credit, the results of this study demonstrated that there was a consensus regarding the benchmark values.

Concerning the usefulness of specific ratios, there was general agreement between planners and educators on two of the four types of ratios where this information was requested. In the area of liquidity, experts agreed that *liquid assets ÷ monthly expenses* was a more useful measure than *liquid assets ÷ current debt*. In addition, the two tax burden ratios were judged similarly with regard to usefulness by both planners and educators. However, there were significant differences between planners and educators in the perceived usefulness of the different ratios for inflation protection and insolvency and credit. In both, the planners preferred ratios that were conceptually simpler and operationally easier to discern. Overall, the ratios chosen by the total panel of experts in this study were less complex and more easily measured than many of the ratios discussed in the previous literature. One exception was in the insolvency/credit ratios where after-tax income was utilized. Since gross income is more easily ascertained for planning purposes, the research team recommends the use of gross income for all ratios where income is a component.

Based on the results of this Delphi study, a profile of financial well-being or "health" for the typical family or individual is proposed in Table 2. There will no doubt be controversy over whether this presentation oversimplifies the findings of this research or simply summarizes the findings more clearly, which is the intent of the investigators. As noted by DeVaney and Lytton (1995) in their recent review of literature regarding insolvency, "the primary function of ratios should be to act as indicators or *red flags* ..." (p. 148). The sug-

gested benchmarks may be viewed as “red flags” or indicators by which professionals, as well as families, might monitor financial health and well-being. Finding values that lie outside the recommended parameters does not necessarily indicate a lack of financial health but instead points to an area worthy of further introspective thought and analysis. Some of the benchmarks suggest minimum or maximum thresholds which may signal a greater likelihood for potential financial difficulties, such as the ratios for liquidity, savings, and insolvency and credit. Others provide general reasonability guidelines in the areas of asset allocation, inflation protection, and major expenses for housing and taxes.

Comparisons with earlier work are difficult because of inconsistencies in the ratios’ components and definitions. However, similarities with previously-recommended benchmarks were found in this study for *liquid assets + monthly expenses* and *nonmortgage debt payments + after-tax income*. Conversely, in the case of the broader debt ratio, *total debt*

TABLE 2
Financial Well-Being Profile

<i>Area</i>	<i>Ratio</i>	<i>Recommendation</i>
Liquidity	$\frac{\text{liquid assets}}{\text{monthly expenses}}$	≥ 250% (≥ 2½ times monthly expenses)
Savings	$\frac{\text{savings}}{\text{gross income}}$	≥ 10%
Asset Allocation	$\frac{\text{liquid assets}}{\text{net worth}}$	≥ 15%
	$\frac{\text{net investment assets}}{\text{net worth}}$	≥ 50%
	$\frac{\text{foreign investments}}{\text{total investments}}$	≥ 10%
Inflation Protection	$\frac{\% \Delta \text{ in net worth}}{\text{rate of inflation}}$	≥ 2
	$\frac{\% \Delta \text{ in investment assets}}{\text{rate of inflation}}$	≥ 2
Tax Burden	$\frac{\text{payroll taxes}}{\text{gross income}}$	≤ 20% (\$31,000 income) ≤ 30% (\$100,000 income)
	$\frac{\text{payroll} + \text{property taxes}}{\text{gross income}}$	≤ 25% (\$31,000 income) ≤ 35% (\$100,000 income)
Housing Expenses	$\frac{\text{renter's expenses}}{\text{gross income}}$	≤ 30%
	$\frac{\text{homeowner's expenses}}{\text{gross income}}$	≤ 35%
Insolvency/Credit	$\frac{\text{nonmortgage debt payments}}{\text{after-tax income}}$	≤ 15% reasonable ≥ 20% danger-point
	$\frac{\text{total debt payments}}{\text{after-tax income}}$	≤ 35% reasonable ≥ 45% danger-point

payments ÷ after-tax income, the benchmark reported in this study was higher than the thresholds formerly recommended and utilized. Looking at the two general asset allocation ratios, the experts in this study prescribed a lower level of liquid assets and a higher level of investment assets relative to net worth than previously-published guidelines. In addition, the recommendations for inflation protection and reasonable housing expenses were also higher than those suggested in prior work.

It is important to note that this research dealt with benchmarks that are generally appropriate for families and individuals, not considering differences in life-cycle stages, income levels (except the tax burden measure), risk tolerances, and economic conditions. However, financial experts are all too aware that a "typical" family/individual does not really exist. Future research needs to move toward the development of norms that allow for diversity in family types, age or life-cycle stages, value orientations, and economic conditions. The framework of ratios and benchmarks provided by this study can be used as a foundation for developing tolerances or ranges appropriate for more specific situations.

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